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# RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT ADDENDUM SOLID WASTE MANAGEMENT UNIT 162 (SWMU 162) ZONE K CNC CHARLESTON SC

9/26/2001

CH2M HILL

# RFI REPORT ADDENDUM

# SWMU 162, Zone K

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

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

CH2M-Jones

*June 2001*

*Revision 0*
*Contract N62467-99-C-0960*

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September 26, 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 1) – SWMU 162, Zone K

Dear Mr. Scaturo:

The RFI Report Addendum (Revision 0) – SWMU 162, Zone K of the Charleston Naval Complex (CNC) was submitted to you in June of this year. Enclosed we are submitting four copies of the set of pages which will serve as the Revision 1 for this RFI Report Addendum. Below you will find a list of the items which have been revised, as well as a brief summary characterizing the nature of this revision. This report has been prepared pursuant to agreements by the CNC BRAC Cleanup Team for completing the RCRA Corrective Action process.

- Revision of page 2-2
- Revision of page 5-4

The revisions on these two pages of text reflect responses to comments made by SCDHEC in reference to the RFI Report Addendum (Revision 0) for SWMU 162, Zone K. These pages have been 3-hole drilled for your convenience.

The principal author of this document is Jim Edens. Please contact him at 352/335-5877, extension 2491, 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

# SWMU 162, Zone K

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

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

PREPARED BY
***CH2M-Jones***

*June 2001*

*Revision 0*
*Contract N62467-99-C-0960*
*158814.ZK.PR.04*

# Certification Page for RFI Report Addendum (Revision 0), SWMU 162, Zone K

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

South Carolina

Temporary Permit No. T2000342

Dean Williamson, P.E.

6/19/2001

Date

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

# Contents

**Section** **Page**

**Acronyms and Abbreviations** ..... **vii**
**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 Zone K within the CNC ..... 1-4
Figure 1-2 Aerial Photograph of SWMU 162 ..... 1-5

**2.0 Summary of RFI Conclusions for SWMU 162** ..... **2-1**
2.1 Soil ..... 2-1
2.1.1 Surface Soil ..... 2-1
2.1.2 Subsurface Soil ..... 2-2
2.2 Groundwater ..... 2-2
2.3 COPC/COC Summary ..... 2-4
Table 2-1 Surface Soil Analytical Results for COCs Identified in the Revision 0 Zone K RFI Report ..... 2-5
Figure 2-1 SWMU 162 Site and Soil Sample Locations ..... 2-7
Figure 2-2 SWMU 162 Site and Monitor Well Locations ..... 2-8

**3.0 Interim Measures** ..... **3-1**
**4.0 Summary of Additional Investigations** ..... **4-1**
4.1 Soil Sampling Results —EnSafe RFI Work Plan Addendum ..... 4-1
4.1.1 Surface Soil ..... 4-2
4.1.2 Subsurface Soil ..... 4-2
4.2 Groundwater ..... 4-2
4.3 COPC Evaluation ..... 4-2
4.3.1 Surface Soil ..... 4-2
4.3.2 Subsurface Soil ..... 4-3
4.3.3 Groundwater ..... 4-4

Table 4-1 Surface Soil Analytical Results (Post-RFI) for Detected Compounds ..... 4-5
Table 4-2 Subsurface Soil Analytical Results (Post-RFI) for Detected Compounds ..... 4-11
Table 4-3 Groundwater Analytical Results (Post-RFI) for Detected Compounds ..... 4-17

**5.0 COPC/COC Refinement ..... 5-1**
5.1 Surface Soil ..... 5-1
5.1.1 Aluminum ..... 5-1
5.1.2 Arsenic ..... 5-1
5.1.3 Mercury ..... 5-2
5.1.4 BEQs ..... 5-2
5.2 Subsurface Soil ..... 5-3
5.3 Groundwater ..... 5-3
5.4 Risk Assessment for SWMU 162 ..... 5-3
5.4.1 Introduction ..... 5-3
5.4.2 Constituents of Potential Concern ..... 5-4
5.4.3 Exposure Assessment ..... 5-4
5.4.4 Toxicity Assessment ..... 5-5
5.4.5 Risk Characterization ..... 5-5
5.5 Summary ..... 5-6
Table 5-1 Surface Soil Analytical Results for COPCs ..... 5-7
Table 5-2 COPCs for SWMU 162 ..... 5-11
Table 5-3 Exposure Factors for SWMU 162 ..... 5-12
Table 5-4 Toxicity Factors for SWMU 162 COPCs ..... 5-13
Table 5-5 Summary of Risks for Receptors at SWMU 162 ..... 5-14
**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 at the CNC .. 6-2
6.4 Potential Linkage to AOC 699, Investigated Storm Sewers at the CNC ..... 6-2
6.5 Potential Linkage to AOC 504, Investigated Railroad Lines at the CNC ..... 6-3
6.6 Potential Migration Pathways to Surface Water Bodies at the CNC ..... 6-3
6.7 Potential Contamination in Oil/Water Separators (OWSs) ..... 6-3
6.8 Land Use Control Management Plan ..... 6-3

Table 6-1 Groundwater Analytical Results for Antimony, Arsenic, and Thallium ..... 6-4
**7.0 Recommendations ..... 7-1**
**8.0 References ..... 8-1**

## Appendices

**A** Figure 2.7, *Shallow Groundwater Potentiometric Contours* (EnSafe, 1999)

**B** Analytical Data from Additional Sampling

**C** Validation Reports from Additional Sampling Data

**D** Complete screening tables for all detected chemicals in soils and risk summary tables

**E** Response to SCDHEC Comments on the Draft Zone K RFI Report

# Acronyms and Abbreviations

| | |
|---|---|
| AOC | area of concern |
| BCT | BRAC Cleanup Team |
| BEQ | benzo(a)pyrene equivalent |
| BRAC | Base Realignment and Closure Act |
| BRC | background reference concentration |
| CA | corrective action |
| CMS | corrective measures study |
| CNC | Charleston Naval Complex |
| COC | chemical of concern |
| COPC | chemical of potential concern |
| DAF | dilution attenuation factor |
| DRO | diesel range organic |
| ELCR | excess lifetime cancer risk |
| EnSafe | Ensafe Inc. |
| EPA | U.S. Environmental Protection Agency |
| ft bls | feet below surface |
| HHRA | human health risk assessment |
| HI | hazard index |
| µg/kg | micrograms per kilogram |
| MCL | maximum contaminant level |
| mg/kg | milligrams per kilogram |
| NAVBASE | Naval Base |
| NFA | no further action |
| NFI | no further investigation |
| 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 | semi-volatile organic compound |
| SWMU | solid waste management unit |
| TPH | total petroleum hydrocarbon |
| VOC | volatile organic compound |
| $UCL_{95}$ | 95 percent Upper Confidence Limit |
| UST | underground storage tank |

SECTION 1.0

# Introduction

# 1.0 Introduction

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

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

In April 2000, CH2M-Jones was awarded a contract to provide environmental investigation and remediation services at the CNC. This submittal has been prepared by CH2M-Jones to complete the RCRA Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 162 in Zone K of the Naval Complex. The site is recommended for No Further Action (NFA). Figure 1-1 illustrates the location of SWMU 162 within Zone K. The insert on Figure 1-1 shows the location of Zone K within the CNC.

## 1.1 Background

SWMU 162, a former sludge drying field at the CNC Annex, was used for de-watering wastewater treatment sludge from an Air Force-operated sewage treatment plant. A soccer field has been constructed on the former sludge drying field, which is located between Fifth and Sixth Streets, and between Air Street and Avenue D.

No information is available to characterize the waste stream. Interviews, conducted by EnSafe Inc. (EnSafe), with Navy and Air Force personnel indicate that a liner may have been installed in the unit prior to use. No records or other evidence were found that support the presence of a liner. The sewage treatment plant that generated the sludge was located adjacent to the sludge drying field at the intersection of Fifth Street and Avenue D.

Materials of concern identified in the *Final Zone K RFI Work Plan Addendum* were paint residue, metals, and decomposition gases (EnSafe, 1999).

## 1.2 Purpose of the RFI Report Addendum

This report provides information about SWMU 162 that documents the conclusions from the Revision 0 RFI Report, provides the results of some limited additional sampling performed after the RFI, and supports a recommendation of NFA for SWMU 162.

Prior to changing the status of any site to NFA in 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 at the site

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

Provided that the information presented in this work plan 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 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 eight sections, including this introductory section:

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

**2.0 Summary of RFI Conclusions for SWMU 162** — Summarizes the conclusions from the RFI investigations and risk evaluations for SWMU 162.

**3.0 Interim Measures** —Summarizes any IMs conducted at the site and/or USTs removed from the site.

**4.0 Summary of Additional Information** — Summarizes information collected after completion of the RFI Report.

**5.0 COPC/COC Refinement**—Summarizes data collected during and after the completion of the RFI and refines COPC/COC list.

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

**7.0 Recommendations**—Provides recommendations for proceeding with site closure.

**8.0 References** — Lists the references used in this document.

**Appendix A** contains Figure 2.7 (shallow groundwater potentiometric contours) of the Revision 0 Zone K RFI Report.

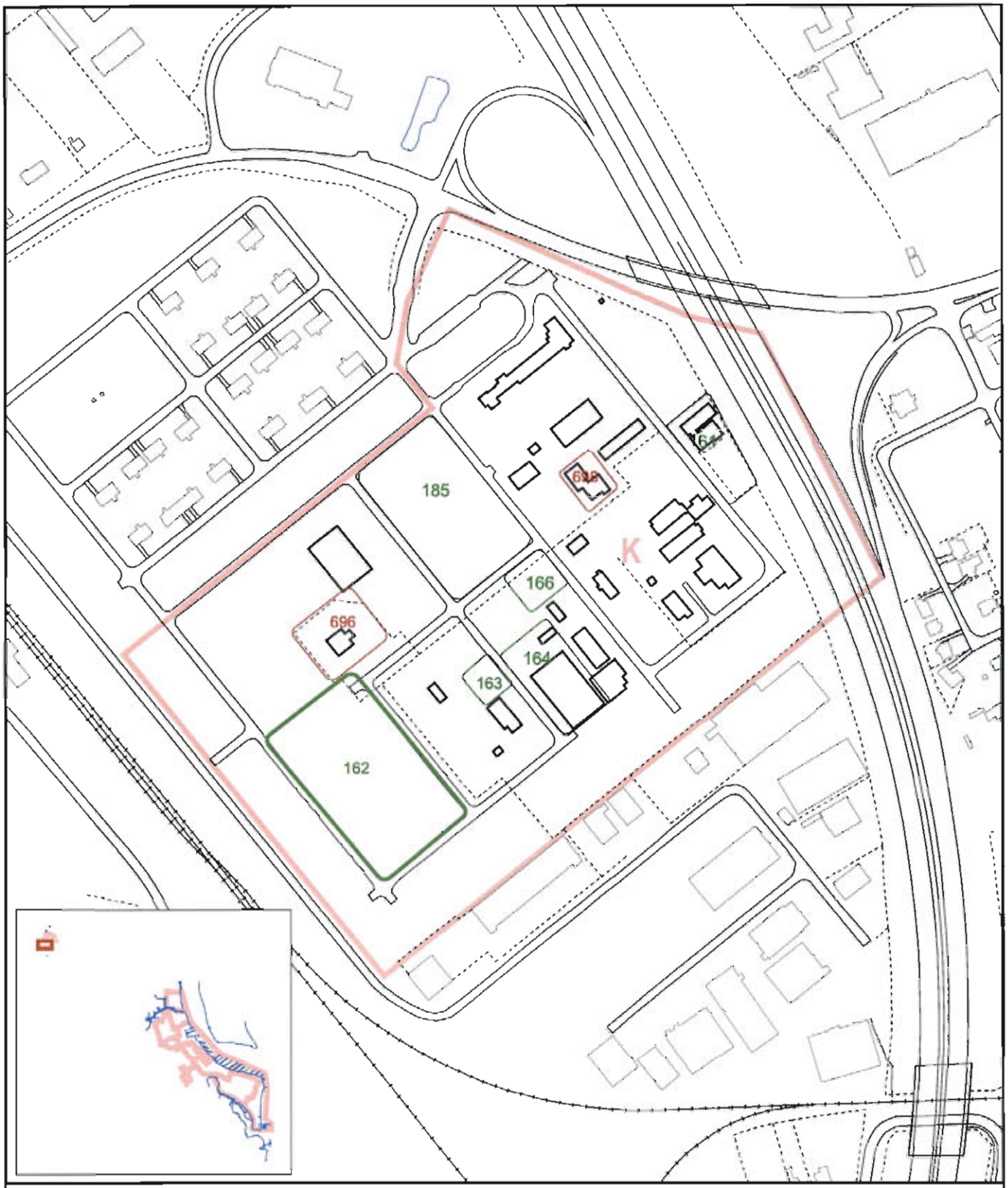
**Appendix B** contains analytical data from sampling subsequent to the Revision 0 Zone K RFI Report.

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

**Appendix D** provides complete screening tables for all detected chemicals in soils and risk summary tables.

**Appendix E** provides responses to SCDHEC Comments on the Draft Zone K RFI Report, December 10, 1997.

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




Roads
AOC Boundary
SWMU Boundary
Buildings
Zone Boundary

N

0 300 600 Feet

**Figure 1-1**
SWMU 162, Zone K
North Charleston, South Carolina
Charleston Naval Complex

CH2MHILL

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AOC Boundary
SWMU Boundary
Buildings
Zone Boundary

N

0 50 100 Feet

Ariel Photo Date 1997

Note: original figure produced in color

**Figure 1-2**
Infrared of SWMU 162
Zone K
Charleston Naval Complex

CH2MHILL

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SECTION 2.0

# Summary of RFI Conclusions for SWMU 162

# 2.0 Summary of RFI Conclusions for SWMU 162

As part of the Zone K RFI, soil investigations were conducted in the former sludge drying field area. Figure 2-1 illustrates the site and RFI sample locations within this area. Figure 2-1 also indicates the locations of samples collected subsequent to the RFI. Two soil sampling events were conducted at SWMU 162, as part of the RFI. Initially, soil borings were made for collection and analysis of five surface and five subsurface soil samples (K162SB001, K162SB002, K162SB003, K162SB004, and K162SB005) to determine if site activities impacted the surrounding soil. The second sampling event included four additional surface soil samples (K162SB006, K162SB007, K162SB008, and K162SB009).

The Revision 0 Zone K RFI Report presented the analytical results of these soil samples and conclusions concerning contamination and risk. Soil borings K162SB02S/T, K162SB09S/T, and K162SB010 through K162SB021 were installed subsequent to the RFI Report and are discussed in Section 4.0 of this addendum. Conclusions from the RFI regarding site soil are summarized below.

## 2.1 Soil

Results of soil analyses were compared in the Revision 0 Zone K RFI Report to applicable screening criteria (U.S. Environmental Protection Agency [EPA] Region III residential risk-based concentrations [RBCs], EPA soil screening levels [SSLs], DAF=10) and the Zone K background reference concentrations (BRCs).

Analytes that exceeded the screening criteria were considered chemicals of potential concern (COPCs) and were further evaluated in the risk assessment to determine which of these parameters were considered chemicals of concern (COCs).

### 2.1.1 Surface Soil

The nature and extent of contamination section, Section 10.2.2 of the RFI, concluded that although total petroleum hydrocarbons (TPH), diesel range organics (DRO), and dioxins were detected, they were present at concentrations below CNC screening values (EnSafe, 1999). Polynuclear aromatic hydrocarbons (PAHs), expressed as benzo(a)pyrene equivalents (BEQs), were detected above the residential RBC for BEQs in three surface soil samples (K162SB00101, K162SB00201, and K162SB00301). Mercury and arsenic were detected above

their respective screening concentrations. Arsenic exceeded both its RBC (0.43 milligrams per kilogram [mg/kg]) and its BRC (3.0 mg/kg) at K162SB00901 (3.4 mg/kg). Mercury exceeded its RBC of 2.3 mg/kg at K162SB00101 (10.3 mg/kg) and at K162SB00201 (58.2 mg/kg).

The fate and transport section, Section 10.2.5, concluded that, although dieldrin and mercury were detected in site surface soil above applicable SSLs, they were not detected in subsurface soil nor in site groundwater, indicating that existing soil concentrations of these constituents are protective of surficial groundwater.

The human health risk assessment (HHRA) section, Section 10.2.6, identified BEQs, arsenic, mercury, and aluminum as COPCs in surface soil at SWMU 162 due to exceedance of $10^{-6}$ risk level to the future residential receptors for unrestricted land use. Only BEQs were identified as a COPC for industrial land use. Analytical results for COPCs are presented in Table 2-1.

### 2.1.2 Subsurface Soil

The nature and extent of contamination section, Section 10.2.2, concluded that, although dioxins were detected in subsurface soil samples, they were present at concentrations below CNC screening values (EnSafe, 1999). No volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) were detected in subsurface soil. TPH was also not detected in subsurface soil. Pesticides were detected in subsurface soil samples, but at concentrations below their SSLs. Several inorganic compounds were detected in subsurface soil above their respective BRCs; however, no subsurface detection exceeded its SSL, except iron, which has no reported SSL.

The fate and transport section, Section 10.2.5, concluded that no subsurface soil sample reported concentrations of any constituent above its SSLs.

The HHRA section, Section 10.2.6, did not identify any COPCs in subsurface soil at SWMU 162.

## 2.2 Groundwater

Groundwater was also investigated at this site. Figure 2-2 illustrates the locations of monitor wells that were used in the investigation of SWMU 162. The shallow groundwater flow direction is generally to the south at SWMU 162, based on water level measurements obtained during the RFI. Figure 2.7 of the Revision 0 Zone K RFI Report illustrates the

shallow groundwater potentiometric contours based on the water level measurements and is provided in Appendix A.

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

Analytes that exceeded the screening criteria were considered COPCs and were further evaluated in the risk assessment to determine which of these parameters were considered COCs.

The Revision 0 Zone K RFI Report presented the analytical results of four groundwater samples collected from two monitor wells (K162GW001 and K162GW002). Additional groundwater samples were collected from these wells after completion of the RFI in December 1999. The analytical results of these samples are discussed in Section 4.0 of this RFI Report Addendum. Conclusions from the RFI regarding site groundwater are summarized below.

- The nature and extent of contamination section, Section 10.2.4, reported that no organic compounds were detected in SWMU 162 groundwater samples. Aluminum exceeded its secondary maximum contaminant level (MCL) and background concentration in two of four samples collected from monitor well K162GW001. Iron exceeded its secondary MCL and background concentration in all eight samples collected from monitor wells K162GW001 and K162GW002. No other parameters were detected in groundwater at concentrations exceeding screening criteria.

- The fate and transport section, Section 10.2.5, concluded that, although aluminum and iron were detected above their screening levels in site groundwater, they did not pose a groundwater-to-surface water cross-media transport issue, as they were both detected below their respective tap water RBCs. Section 10.2.5.2 states that "no organics or inorganics were detected in SWMU 162 groundwater at concentrations exceeding risk-based drinking water concentration. As a result, the groundwater-to-surface water migration pathway is not expected to be significant at SWMU 162."

- The HHRA section, Section 10.2.6, concluded that no COPCs, or COCs were present in SWMU 162 groundwater.

## 2.3 COPC/COC Summary

The Revision 0 Zone K RFI Report concluded that, based on the analytical results and the HHRA, COCs requiring further investigation through the CMS process were identified only for the surface soil; no COCs were identified in subsurface soil or groundwater. The Revision 0 Zone K RFI Report identified the following surface soil COCs:

- Aluminum
- Arsenic
- Mercury
- BEQs

Table 2-1 presents a summary of the surface soil COC data identified in the Revision 0 Zone K RFI Report for surface soil samples collected at SWMU 162; Figure 2-1 illustrates the sample locations. Each of the analytes identified as COCs are discussed in Section 5.0 of this RFI Report Addendum.

**TABLE 2-1**
Surface Soil Analytical Results for COCs Identified in the Revision 0 Zone K RFI Report
*RFI Report Addendum, SWMU 162, Zone K, CNC*

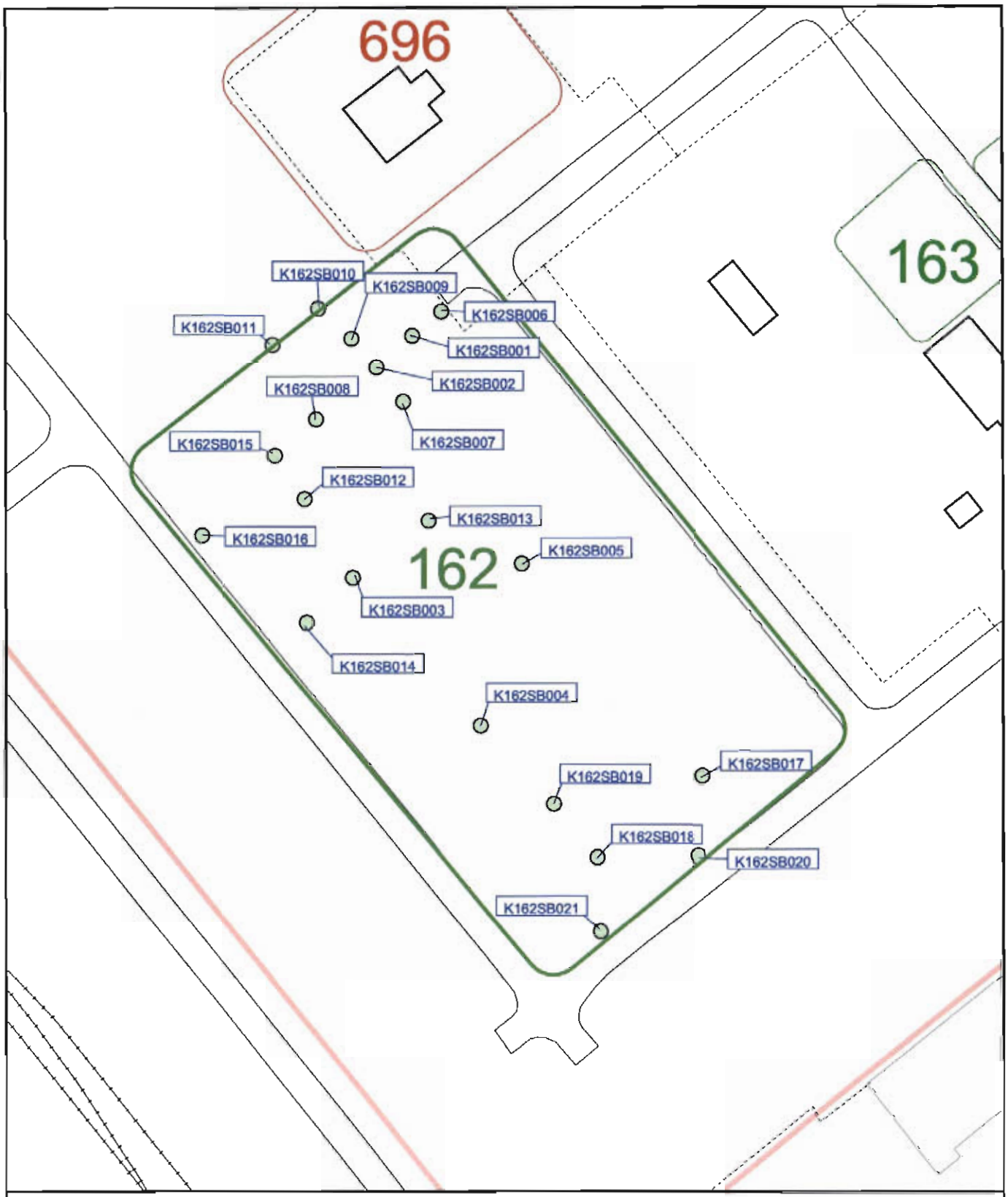
| Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|
| Aluminum | K162SB001 | 8,590 | mg/kg | = | 7,800 | 11,200 |
| | K162SB002 | 5,190 | | = | | |
| | K162SB002 | 7,720 | | = | | |
| | K162SB003 | 8,330 | | = | | |
| | K162SB004 | 6,930 | | = | | |
| | K162SB005 | 7,940 | | = | | |
| | K162SB006 | 8,160 | | = | | |
| | K162SB007 | 9,450 | | = | | |
| | K162SB008 | 7,350 | | = | | |
| | K162SB009 | 6,910 | | = | | |
| Arsenic* | K162SB001 | 1.8 | mg/kg | J | 0.43 | 3 |
| | K162SB002 | 1.4 | | J | | |
| | K162SB002 | 1.5 | | = | | |
| | K162SB003 | 1.4 | | J | | |
| | K162SB004 | 1.5 | | J | | |
| | K162SB005 | 1.4 | | J | | |
| | K162SB006 | 1.2 | | J | | |
| | K162SB007 | 1.4 | | J | | |
| | K162SB008 | 0.61 | | J | | |
| | K162SB009 | **3.4** | | = | | |
| Mercury | K162SB001 | 10.3 | mg/kg | = | 2.3 | NA |
| | K162SB002 | **58.2** | | = | | |
| | K162SB002 | **6** | | = | | |
| | K162SB003 | 0.12 | | = | | |
| | K162SB004 | 0.09 | | J | | |
| | K162SB005 | 0.08 | | J | | |
| | K162SB006 | 0.4 | | J | | |
| | K162SB007 | 0.05 | | UJ | | |
| | K162SB008 | 0.06 | | J | | |
| | K162SB009 | 0.05 | | UJ | | |
| BEQs | K162SB001 | **371.6** | mg/kg | = | 87 | 88 |
| | K162SB002 | **760.9** | | = | | |
| | K162SB002 | **402.5** | | = | | |
| | K162SB003 | **383.0** | | = | | |
| | K162SB004 | 416.0 | | U | | |
| | K162SB005 | 439.1 | | U | | |
| | K162SB006 | 404.4 | | U | | |
| | K162SB007 | 427.5 | | U | | |

**TABLE 2-1**
Surface Soil Analytical Results for COCs Identified in the Revision 0 Zone K RFI Report
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|
| | K162SB008 | 416.0 | mg/kg | U | | |
| | K162SB009 | 427.5 | | U | | |

Bolded and outlined values indicate exceedances of RBC and BRC.

| | |
|---|---|
| * | Constituent is considered carcinogenic. |
| = | Compound was detected and the reported value is equal to the concentration. |
| BRC | background reference concentration |
| HI | hazard index |
| J | Compound was detected and the concentration is an estimated value. |
| mg/kg | milligrams per kilogram |
| NA | Information is not available. |
| ND | Not detected. |
| NS | Sample was not collected and/or not analyzed for that constituent. |
| U | Compound was not detected. |
| UJ | Compound was not detected and the value provided is estimated. |




Soil Sample Locations
AOC Boundary
SWMU Boundary
Buildings
Zone Boundary

N

0 90 180 Feet

**Figure 2-1**
Soil Sample Locations
SWMU 162, Zone K
Charleston Naval Complex

CH2MHILL

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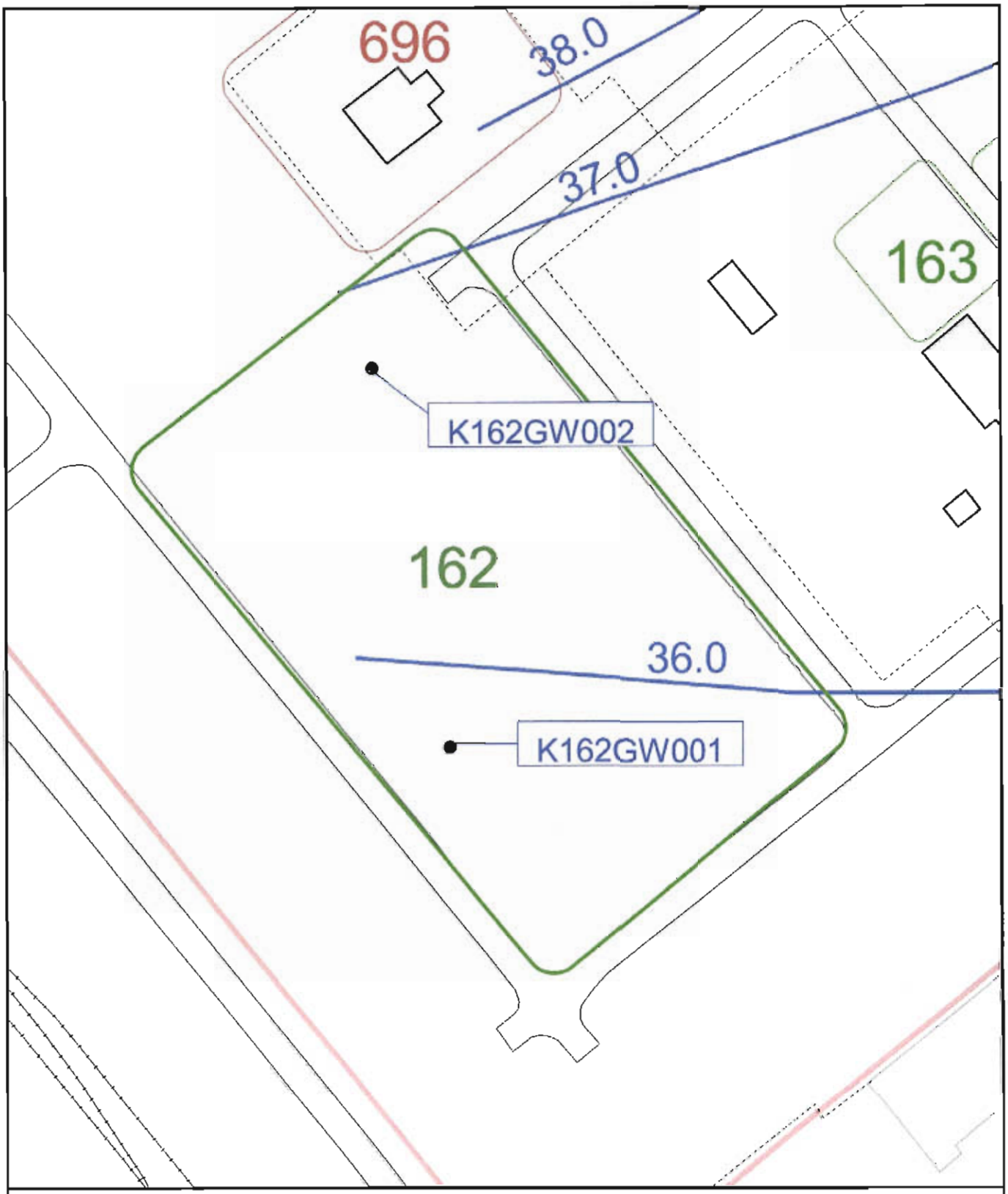


Shallow GW Potentiometric Contours
Monitor Wells Locations
AOC Boundary
SWMU Boundary
Buildings
Zone Boundary

N

0 200 400 Feet

**Figure 2-2**
Monitor Well Locations
SWMU 162, Zone K
Charleston Naval Complex

CH2MHILL

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SECTION 3.0

# Interim Measures

# 3.0 Interim Measures

No interim measures have been performed at SWMU 162. Also, no underground storage tanks (USTs) are known to have been located at SWMU 162.

SECTION 4.0

# Summary of Additional Information

# 4.0 Summary of Additional Investigations

During the latter part of 1999, additional field activities were conducted subsequent to the Revision 0 Zone K RFI Report, in general accordance with the *Zone K RFI Work Plan Addendum* (EnSafe, 1999). Additional soil samples (K162SB002S and K162SB009S) were collected to determine synthetic precipitation leaching procedure (SPLP) ratios for metals. From these results, site- specific SSL values could be calculated. These samples (K162SB002T and K162SB009T) were also analyzed for totals metals, PCBs, pesticides, and SVOCs. These new sample locations were co-located with previously collected RFI samples (K162SW002 and K162SB009).

Additional field activities were conducted for contamination delineation purposes. Twelve soil borings (K162SB010 through K162SB021) were installed. A surface (0-1 ft below land surface [bls]) and subsurface (3-5 ft bls) sample was collected from each boring. Locations of these borings are shown on Figure 2-1. The data from the additional investigations are summarized in this section; analytical data results and validation reports are provided in Appendices B and C, respectively.

An additional groundwater sampling event was conducted from the existing monitor wells at SWMU 162 after the completion of the RFI. The samples were collected and analyzed for metals, PCBs, and SVOCs in December of 1999.

Additionally, in May 2001, CH2M-Jones collected six surface and three subsurface background soil samples from Zone K for PAHs, arsenic, and copper analysis (CH2M-Jones, 2001). Results of this analysis are included in the screening evaluation of the more recent soil sampling data.

## 4.1 Soil Sampling Results – EnSafe RFI Work Plan Addendum

Analytical results from the additional soil samples were compared to appropriate screening criteria. Surface soil results were compared to Zone K BRCs, SSLs, and EPA Region III residential RBCs. When both the BRC and either the RBC or SSL are exceeded, the chemical was selected as a COPC. Subsurface soil results were compared to Zone K BRCs and SSLs (DAF = 10). When both were exceeded, the chemical was selected as a COPC for the soil to groundwater leachability pathway. Tables 4-1 and 4-2 present the analytical result summaries of the additional samples for surface and subsurface soils, respectively.

Analytical results that exceed the appropriate screening criteria appear in bolded text within the tables.

### 4.1.1 Surface Soil

Comparison of the additional surface soil data to the screening criteria indicated identification of arsenic as exceeding its screening criteria. A summary of surface soil data collected during EnSafe's additional fieldwork is presented in Table 4-1.

### 4.1.2 Subsurface Soil

Comparison of the additional subsurface soil data to the screening criteria revealed identification of iron and thallium as exceeding their respective screening criteria. A summary of surface soil data collected during EnSafe's additional fieldwork is presented in Table 4-2.

## 4.2 Groundwater

An additional groundwater sampling event was performed at two monitor wells (K162GW001 and K162GW002) at SWMU 162. Groundwater analytical results were compared to BRCs and MCLs. In the absence of MCLs, the RBC was used. Table 4-3 presents a summary of the analytical results of the additional groundwater samples. Results that exceed the appropriate screening criteria appear in bolded text within the tables.

A comparison of the additional groundwater data to the screening criteria indicated that no compounds exceed their respective screening criteria. The groundwater data from the samples collected after completion of the RFI concur with the RFI conclusion that no COCs are present in SWMU 162 groundwater.

## 4.3 COPC Evaluation

This section discusses samples that were collected after completion of the RFI. The samples showed concentrations of individual constituents that exceeded their appropriate screening criteria.

### 4.3.1 Surface Soil

#### Arsenic

Arsenic was detected in one sample (K162SB009T1) collected after completion of the RFI. It was detected at a concentration of 74.7 mg/kg, which is well above other samples collected

at SWMU 162. However, an RFI sample previously collected from the same location (K162SB009) reported a much lower level of arsenic concentration of 3.4 mg/kg. No SMWU operations have occurred in this area since completion of the RFI sampling effort. As such, the observed arsenic concentration is considered anomalous and likely the results of either general facility maintenance activities or sporadically occurring natural minerals in soil. Recent background sampling results indicate that the presence of arsenic throughout Zone K in unimpacted (background) areas is between 0.6 and 92.3 mg/kg. These data were presented in the technical memorandum *Preliminary Results for Additional Background PAH Sampling from CNC Main Base Railroad Lines and Annex (Zone K)* (CH2M-Jones, 2001). All samples collected at SWMU 162 had reported concentrations of arsenic within this range of background concentrations. Arsenic in surface soil is further evaluated in Section 5.0 of this RFI Report Addendum.

### 4.3.2 Subsurface Soil

#### Iron

Iron was detected above its background reference concentration of 5,130 mg/kg in one of six subsurface soil samples collected after completion of the RFI. The highest iron concentration in the grid-based samples collected in Zone K was 10,900 mg/kg. The detected iron concentrations at the site were all within the range of background values. Therefore, iron in subsurface soil does not pose a leachability concern above background levels and therefore does not warrant further investigation.

#### Thallium

Thallium was detected above both its SSL of 0.356 mg/kg and its background reference concentration (ND) in two (K162SB010, 0.47 J mg/kg and K162SB011, 0.42 J mg/kg) of six subsurface soil samples collected after the completion of the RFI. Thallium was not detected in the grid samples collected within Zone K. Detected thallium concentrations in site samples are estimated and near the detection limit, as indicated by the "J" qualifier. Thallium was not detected in site groundwater during any sampling event.

Point exceedances of individual compounds do not necessarily represent a risk to groundwater. Average site concentrations provide a better measure of a constituent's potential to migrate to groundwater. The mean thallium concentration at SWMU 162 is calculated to be 0.27 mg/kg, which is below the SSL. The mean thallium concentration is based on the six samples collected after the RFI, using half of the detection limit for "U" flagged data.

Based on these considerations, existing thallium concentrations are considered protective of surficial groundwater and further investigation of thallium in SWMU 162 subsurface soil is not warranted.

These data agree with the conclusion of the RFI that no COCs are present in SWMU 162 subsurface soil.

### 4.3.3 Groundwater

No compounds were identified in samples collected after completion of the RFI that exceeded their respective screening criteria.

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | |
| | Benzo(a)anthracene[c] | K162SB002 | 0.046 | mg/kg | J | 0.87 | NA |
| | | K162SB013 | 0.024 | | J | | |
| | | K162SB021 | 0.025 | | J | | |
| | Benzo(a)pyrene[c] | K162SB020 | 0.025 | mg/kg | J | 0.087 | NA |
| | | K162SB021 | 0.021 | | J | | |
| | Benzo(b)fluoranthene[c] | K162SB020 | 0.027 | mg/kg | J | 0.87 | NA |
| | | K162SB021 | 0.025 | | J | | |
| | Benzo(g,h,i)perylene | K162SB020 | 0.029 | mg/kg | J | 160 | NA |
| | | K162SB021 | 0.021 | | J | | |
| | Benzo(k)fluoranthene[c] | K162SB020 | 0.023 | mg/kg | J | 8.7 | NA |
| | | K162SB021 | 0.021 | | J | | |
| | Benzoic acid | K162SB019 | 0.041 | mg/kg | J | 31,000 | NA |
| | | K162SB020 | 0.078 | | J | | |
| | | K162SB021 | 0.077 | | J | | |
| | Bis(2-ethylhexyl) phthalate | K162SB019 | 0.035 | mg/kg | J | 46 | NA |
| | | K162SB020 | 0.052 | | J | | |
| | | K162SB021 | 0.056 | | J | | |
| | Chrysene[c] | K162SB002 | 0.052 | mg/kg | J | 87 | NA |
| | | K162SB020 | 0.027 | | J | | |
| | | K162SB021 | 0.033 | | J | | |
| | Fluoranthene | K162SB019 | 0.019 | mg/kg | J | 310 | NA |
| | | K162SB020 | 0.029 | | J | | |
| | | K162SB021 | 0.040 | | J | | |
| | Indeno(1,2,3-c.d)pyrene[c] | K162SB020 | 0.024 | mg/kg | J | 0.87 | NA |
| | Naphthalene | K162SB021 | 0.021 | mg/kg | J | 1,600 | NA |
| | Phenanthrene | K162SB021 | 0.023 | mg/kg | J | 160 | NA |
| | Pyrene | K162SB002 | 0.068 | mg/kg | J | 230 | NA |
| | | K162SB019 | 0.019 | | J | | |
| | | K162SB020 | 0.039 | | J | | |
| | | K162SB021 | 0.043 | | J | | |
| **Dioxins** | | | | | | | |

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | 1,2,3,4,6,7,8-Heptachlorodibenzo-furan[c] | K162SB017 | 3.922 | ng/kg | = | 430 | NA |
| | | K162SB018 | 23.429 | | = | | |
| | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin[c] | K162SB017 | 23.025 | ng/kg | = | 430 | NA |
| | | K162SB018 | 100.756 | | = | | |
| | 1,2,3,4,7,8-Hexachlorodibenzo-furan[c] | K162SB017 | 1.135 | ng/kg | J | 43 | NA |
| | | K162SB018 | 6.085 | | J | | |
| | 1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin[c] | K162SB018 | 2.969 | ng/kg | J | 43 | NA |
| | Octachlorodibenzo-furan[c] | K162SB017 | 18.888 | ng/kg | = | 4,300 | NA |
| | | K162SB018 | 77.154 | | = | | |
| | Octachlorodibenzo-p-Dioxin[c] | K162SB017 | 356.618 | ng/kg | = | 4,300 | NA |
| | | K162SB018 | 1,243.480 | | = | | |
| | Total Hepta-Dioxins | K162SB017 | 44.847 | ng/kg | = | | NA |
| | | K162SB018 | 196.594 | | = | | |
| | Total Hepta-Furans | K162SB017 | 3.922 | ng/kg | = | | NA |
| | | K162SB018 | 23.429 | | = | | |
| | Total Hexa-Dioxins | K162SB018 | 18.355 | ng/kg | = | | NA |
| | Total Hexa-Furans | K162SB017 | 1.165 | ng/kg | = | | NA |
| | Total Penta-Furans | K162SB018 | 3.150 | ng/kg | = | | NA |
| **Pesticides** | | | | | | | |
| | ALPHA-Chlordane[c] | K162SB017 | 0.028 | mg/kg | = | 1.8[a] | NA |
| | | K162SB018 | 0.041 | | = | | |
| | Endrin Aldehyde | K162SB002 | 0.00049 | mg/kg | J | 2.3[b] | NA |
| | Endrin Ketone | K162SB002 | 0.00021 | mg/kg | J | 2.3[b] | NA |
| | GAMMA-Chlordane[c] | K162SB002 | 0.00033 | mg/kg | J | 1.8[a] | NA |

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | | K162SB017 | 0.020 | | = | | |
| **Pesticides** | | | | | | | |
| | GAMMA-Chlordane[c] | K162SB018 | 0.024 | | = | | |
| | Methoxychlor | K162SB002 | 0.00027 | mg/kg | J | 39 | NA |
| | p,p'-DDD[c] | K162SB002 | 0.0035 | mg/kg | J | 2.7 | NA |
| | | K162SB017 | 0.019 | | J | | |
| | | K162SB018 | 0.022 | | J | | |
| | p,p'-DDE[c] | K162SB002 | 0.022 | mg/kg | = | 1.9 | NA |
| | | K162SB017 | 0.024 | | J | | |
| | | K162SB018 | 0.073 | | = | | |
| | p,p'-DDT[c] | K162SB017 | 0.082 | mg/kg | J | 1.9 | NA |
| | | K162SB018 | 0.100 | | = | | |
| **PCBs** | | ND | ND | ND | ND | ND | ND |
| **Metals** | | | | | | | |
| | Aluminum | K162SB002 | 7,720 | mg/kg | = | 7,800 | 11,200 |
| | | K162SB009 | 8,150 | | = | | |
| | | K162SB010 | 7,330 | | = | | |
| | | K162SB011 | 7,030 | | = | | |
| | | K162SB017 | 9,120 | | = | | |
| | | K162SB018 | 8,380 | | = | | |
| | Antimony | K162SB017 | 0.31 | mg/kg | J | 3.1 | 0.45 |
| | Arsenic[c] | K162SB002 | 1.50 | mg/kg | = | 0.43 | 3.0 |
| | | K162SB009 | **74.7** | | = | | |
| | | K162SB010 | 0.95 | | J | | |
| | | K162SB011 | 0.89 | | J | | |
| | | K162SB017 | 1.40 | | = | | |
| | | K162SB018 | 1.80 | | = | | |
| | Barium | K162SB002 | 12.6 | mg/kg | = | 550 | 25.6 |
| | | K162SB009 | 13.1 | | = | | |
| | | K162SB010 | 14.5 | | = | | |
| | | K162SB011 | 19.3 | | = | | |
| | | K162SB017 | 10.0 | | = | | |
| | | K162SB018 | 16.8 | | = | | |
| | Beryllium | K162SB002 | 0.040 | mg/kg | J | 16 | 0.17 |

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | | K162SB009 | 0.060 | | J | | |
| | | K162SB010 | 0.100 | | J | | |
| | | K162SB011 | 0.190 | | J | | |
| **Metals** | | | | | | | |
| | Beryllium | K162SB017 | 0.070 | | J | | |
| | | K162SB018 | 0.100 | | J | | |
| | Cadmium | K162SB002 | 0.170 | mg/kg | J | 7.8 | 0.13 |
| | | K162SB009 | 0.080 | | J | | |
| | | K162SB011 | 0.060 | | J | | |
| | Calcium | K162SB002 | 353 | mg/kg | J | NA | NA |
| | | K162SB009 | 1,770 | | J | | |
| | | K162SB010 | 440 | | = | | |
| | | K162SB011 | 924 | | = | | |
| | | K162SB017 | 597 | | = | | |
| | | K162SB018 | 1,790 | | = | | |
| | Chromium, Total | K162SB002 | 8.5 | mg/kg | = | 23[d] | 8.4 |
| | | K162SB009 | 7.3 | | = | | |
| | | K162SB010 | 5.2 | | = | | |
| | | K162SB011 | 6.0 | | = | | |
| | | K162SB017 | 9.4 | | = | | |
| | | K162SB018 | 9.1 | | = | | |
| | Cobalt | K162SB002 | 0.61 | mg/kg | J | 470 | 0.34 |
| | | K162SB009 | 0.60 | | J | | |
| | | K162SB010 | 0.40 | | J | | |
| | | K162SB011 | 0.82 | | J | | |
| | | K162SB017 | 0.55 | | J | | |
| | | K162SB018 | 0.62 | | J | | |
| | Copper | K162SB002 | 6.60 | mg/kg | = | 310 | 3.86 |
| | | K162SB009 | 1.90 | | J | | |
| | | K162SB010 | 1.50 | | J | | |
| | | K162SB011 | 3.40 | | = | | |
| | | K162SB017 | 1.60 | | J | | |
| | | K162SB018 | 6.50 | | = | | |
| | Iron | K162SB002 | 2,880 | mg/kg | = | 2,300 | 7,060 |
| | | K162SB009 | 3,240 | | = | | |
| | | K162SB010 | 3,020 | | = | | |

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | | K162SB011 | 2,420 | | = | | |
| | | K162SB017 | 4,770 | | = | | |
| | | K162SB018 | 4,760 | | = | | |
| **Metals** | | | | | | | |
| | Lead | K162SB002 | 11.5 | mg/kg | = | 400 | 39.6 |
| | | K162SB009 | 9.8 | | = | | |
| | | K162SB010 | 17.4 | | = | | |
| | | K162SB011 | 19.1 | | = | | |
| | | K162SB017 | 6.6 | | = | | |
| | | K162SB018 | 18.7 | | = | | |
| | Magnesium | K162SB002 | 240 | mg/kg | = | NA | NA |
| | | K162SB009 | 262 | | = | | |
| | | K162SB010 | 173 | | = | | |
| | | K162SB011 | 269 | | = | | |
| | | K162SB017 | 211 | | = | | |
| | | K162SB018 | 227 | | = | | |
| | Manganese | K162SB002 | 12.0 | mg/kg | = | 160 | 26.4 |
| | | K162SB009 | 10.7 | | = | | |
| | | K162SB010 | 7.2 | | = | | |
| | | K162SB011 | 14.1 | | = | | |
| | | K162SB017 | 12.9 | | = | | |
| | | K162SB018 | 11.0 | | = | | |
| | Mercury | K162SB002 | **6.0** | mg/kg | = | 2.3 | NA |
| | | K162SB009 | 0.070 | | = | | |
| | | K162SB010 | 0.030 | | = | | |
| | | K162SB011 | 0.030 | | = | | |
| | | K162SB017 | 0.040 | | = | | |
| | | K162SB018 | 0.060 | | = | | |
| | Nickel | K162SB002 | 2.40 | mg/kg | J | 160 | 1.7 |
| | | K162SB009 | 2.40 | | J | | |
| | | K162SB010 | 1.50 | | J | | |
| | | K162SB011 | 2.30 | | J | | |
| | | K162SB017 | 2.90 | | J | | |
| | | K162SB018 | 3.20 | | J | | |
| | Potassium | K162SB002 | 243.0 | mg/kg | = | NA | NA |
| | | K162SB009 | 165.0 | | = | | |

**TABLE 4-1**
Surface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=0.1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | | K162SB010 | 89.5 | | = | | |
| | | K162SB011 | 136.0 | | = | | |
| | | K162SB017 | 127.0 | | = | | |
| | | K162SB018 | 131.0 | | = | | |
| | Sodium | K162SB009 | 60.1 | mg/kg | = | NA | NA |
| | Thallium | K162SB017 | 0.40 | mg/kg | J | 0.55 | NA |
| | | K162SB018 | 0.55 | | J | | |
| | Vanadium | K162SB002 | 8.6 | mg/kg | = | 55 | 15.8 |
| | | K162SB009 | 10.3 | | = | | |
| | | K162SB010 | 7.5 | | = | | |
| | | K162SB011 | 7.9 | | = | | |
| | | K162SB017 | 13.2 | | = | | |
| | | K162SB018 | 12.8 | | = | | |
| | Zinc | K162SB002 | 24.3 | mg/kg | J | 2,300 | 14.8 |
| | | K162SB009 | 463.0 | | J | | |
| | | K162SB010 | 12.6 | | J | | |
| | | K162SB011 | 18.7 | | J | | |
| | | K162SB017 | 8.1 | | J | | |
| | | K162SB018 | 19.0 | | J | | |
| **General Chemistry** | | | | | | | |
| | Total Organic Carbon | K162SB002 | 11,000 | mg/kg | = | NA | NA |
| | | K162SB009 | 13,000 | | = | | |
| | | K162SB019 | 12,100 | | = | | |

Bolded and outlined values indicate exceedances of RBC and BRC.

| | |
|---|---|
| = | Compound was detected and the reported value is equal to the concentration. |
| [a] | Chlordane used as a surrogate. |
| [b] | Endrin used as a surrogate. |
| [c] | Constituent is considered carcinogenic. |
| [d] | RBC is based on Cr+6. |
| J | Compound was detected and the concentration is an estimated value. |
| mg/kg | milligrams per kilogram |
| NA | Information is not available or not applicable. |
| ND | Not detected. |
| ng/kg | nanograms/kilogram |
| NS | Sample was not collected and/or not analyzed for that constituent. |
| U | Compound was not detected. |
| UJ | Compound was not detected and the value provided is estimated. |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) (DAF = 10) | Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | |
| | Bis(2-ethylhexyl) Phthalate | K162SB019 | 0.045 | mg/kg | J | 1,812 | NA |
| | | K162SB020 | 0.027 | | J | | |
| | | K162SB021 | 0.028 | | J | | |
| **TPH** | | | | | | | |
| **Dioxins** | | | | | | | |
| | 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin | K162SB017 | 3.404 | ng/kg | = | 108,000 | NA |
| | 2,3,7,8-tetrachlorodibenzo-p-dioxin | K162SB018 | 0.506 | ng/kg | J | 16,200 | NA |
| | Octachlorodibenzo-P-Dioxin | K162SB017 | 49.474 | ng/kg | = | 1,080,000 | NA |
| | | K162SB018 | 15.918 | | = | | |
| | Total Hepta-Dioxins | K162SB017 | 7.109 | ng/kg | = | | NA |
| **Pesticides** | | | | | | | |
| | Alpha-Chlordane | K162SB017 | 0.00023 | mg/kg | J | 4.8 | NA |
| | | K162SB018 | 0.00024 | | J | | |
| | Gamma-Chlordane | K162SB018 | 0.00015 | mg/kg | J | 4.8 | NA |
| | p,p'-DDE | K162SB002 | 0.00027 | mg/kg | J | 17.9 | NA |
| | | K162SB018 | 0.00057 | | J | | |
| | p,p'-DDT | K162SB002 | 0.00025 | mg/kg | J | 10.5 | NA |
| | | K162SB017 | 0.00180 | | J | | |
| | | K162SB018 | 0.00071 | | J | | |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) (DAF = 10) | Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| | Aluminum | K162SB002 | 6,260 | mg/kg | = | 555,000 | 10,500 |
| | | K162SB009 | 8,510 | | = | | |
| | | K162SB010 | 20,900 | | = | | |
| | | K162SB011 | 8,010 | | = | | |
| | | K162SB017 | 10,500 | | = | | |
| | | K162SB018 | 9,870 | | = | | |
| | Antimony | K162SB017 | 0.23 | mg/kg | J | 2.71 | NA |
| | Arsenic | K162SB002 | 0.88 | mg/kg | J | 14.6 | 1.98 |
| | | K162SB009 | 3.50 | | = | | |
| | | K162SB010 | 3.00 | | = | | |
| | | K162SB011 | 0.74 | | J | | |
| | | K162SB017 | 0.60 | | J | | |
| | | K162SB018 | 0.96 | | J | | |
| | Barium | K162SB002 | 5.7 | mg/kg | = | 824 | 6.83 |
| | | K162SB009 | 9.6 | | = | | |
| | | K162SB010 | 14.8 | | = | | |
| | | K162SB011 | 10.1 | | = | | |
| | | K162SB017 | 9.4 | | = | | |
| | | K162SB018 | 8.6 | | = | | |
| | Beryllium | K162SB002 | 0.03 | mg/kg | J | 31.6 | 0.12 |
| | | K162SB009 | 0.06 | | J | | |
| | | K162SB010 | 0.13 | | J | | |
| | | K162SB011 | 0.09 | | J | | |
| | | K162SB017 | 0.07 | | J | | |
| | | K162SB018 | 0.08 | | J | | |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) | Subsurface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| | Calcium | K162SB002 | 40 | mg/kg | J | NA | NA |
| | | K162SB009 | 3,350 | | J | | |
| | | K162SB010 | 106 | | = | | |
| | | K162SB011 | 269 | | = | | |
| | | K162SB017 | 122 | | = | | |
| | | K162SB018 | 181 | | = | | |
| | Chromium, Total | K162SB002 | 6.5 | mg/kg | = | 19.2[a] | 8.76 |
| | | K162SB009 | 8.4 | | = | | |
| | | K162SB010 | 16.8 | | = | | |
| | | K162SB011 | 6.3 | | = | | |
| | | K162SB017 | 10.1 | | = | | |
| | | K162SB018 | 7.5 | | = | | |
| | Cobalt | K162SB002 | 0.37 | mg/kg | J | 994 | 0.62 |
| | | K162SB009 | 0.81 | | J | | |
| | | K162SB010 | 1.60 | | = | | |
| | | K162SB011 | 0.93 | | J | | |
| | | K162SB017 | 1.30 | | = | | |
| | | K162SB018 | 1.80 | | = | | |
| | Copper | K162SB002 | 0.42 | mg/kg | J | 5,593 | 0.34 |
| | | K162SB009 | 0.80 | | J | | |
| | | K162SB010 | 1.20 | | J | | |
| | | K162SB011 | 0.87 | | J | | |
| | | K162SB017 | 0.74 | | J | | |
| | | K162SB018 | 0.90 | | J | | |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) | Subsurface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| | Iron | K162SB002 | 1,630 | mg/kg | = | NA | 5130 |
| | | K162SB009 | 2,830 | | = | | |
| | | K162SB010 | **7,070** | | = | | |
| | | K162SB011 | 1,770 | | = | | |
| | | K162SB017 | 3,180 | | = | | |
| | | K162SB018 | 3,530 | | = | | |
| | Lead | K162SB002 | 3.9 | mg/kg | = | 400[b] | 6.43 |
| | | K162SB009 | 4.1 | | = | | |
| | | K162SB010 | 6.8 | | = | | |
| | | K162SB011 | 4.1 | | = | | |
| | | K162SB017 | 4.7 | | = | | |
| | | K162SB018 | 4.8 | | = | | |
| | Magnesium | K162SB002 | 191 | mg/kg | = | NA | NA |
| | | K162SB009 | 245 | | = | | |
| | | K162SB010 | 437 | | = | | |
| | | K162SB011 | 306 | | = | | |
| | | K162SB017 | 258 | | = | | |
| | | K162SB018 | 201 | | = | | |
| | Manganese | K162SB002 | 7.0 | mg/kg | = | 476 | 5.93 |
| | | K162SB009 | 10.2 | | = | | |
| | | K162SB010 | 11.5 | | = | | |
| | | K162SB011 | 9.8 | | = | | |
| | | K162SB017 | 7.7 | | = | | |
| | | K162SB018 | 5.9 | | = | | |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) | Subsurface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| | Mercury | K162SB002 | 0.060 | mg/kg | = | 1.04 | NA |
| | | K162SB009 | 0.020 | | = | | |
| | | K162SB010 | 0.030 | | = | | |
| | | K162SB011 | 0.010 | | J | | |
| | | K162SB017 | 0.010 | | J | | |
| | | K162SB018 | 0.020 | | J | | |
| | Nickel | K162SB002 | 1.5 | mg/kg | J | 65.2 | 2.64 |
| | | K162SB009 | 2.4 | | J | | |
| | | K162SB010 | 5.5 | | = | | |
| | | K162SB011 | 1.7 | | J | | |
| | | K162SB017 | 3.2 | | J | | |
| | | K162SB018 | 5.1 | | = | | |
| | Potassium | K162SB002 | 135 | mg/kg | = | NA | NA |
| | | K162SB009 | 169 | | = | | |
| | | K162SB010 | 219 | | = | | |
| | | K162SB011 | 197 | | = | | |
| | | K162SB017 | 157 | | = | | |
| | | K162SB018 | 112 | | = | | |
| | Sodium | K162SB002 | 19.5 | mg/kg | J | NA | NA |
| | | K162SB009 | 74.1 | | = | | |
| | Thallium | K162SB010 | **0.47** | mg/kg | J | 0.356 | NA |
| | | K162SB011 | **0.42** | | J | | |

**TABLE 4-2**
Subsurface Soil Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Soil Screening Level (SSL) | Subsurface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|
| | Vanadium | K162SB002 | 8.0 | mg/kg | = | 2,601 | 12.2 |
| | | K162SB009 | 9.8 | | = | | |
| | | K162SB010 | 20.4 | | = | | |
| | | K162SB011 | 7.5 | | = | | |
| | | K162SB017 | 11.9 | | = | | |
| | | K162SB018 | 10.6 | | = | | |
| | Zinc | K162SB002 | 6.9 | mg/kg | J | 6,842 | NA |
| | | K162SB009 | 40.5 | | J | | |
| | | K162SB010 | 9.1 | | J | | |
| | | K162SB011 | 7.9 | | J | | |
| | | K162SB017 | 5.2 | | J | | |
| | | K162SB018 | 5.3 | | J | | |
| **General Chemistry** | | | | | | | |
| | Total Organic Carbon | K162SB002 | 3,000 | mg/kg | = | NA | NA |
| | | K162SB009 | 2,200 | | = | | |
| | | K162SB019 | 1,950 | | = | | |

Bolded and outlined values indicate exceedances of SSL and BRC.
[a] SSL for chromium is based on Cr+6
[b] SSL for lead is from *Soil Screening Guidance: Technical Background Document* (EPA, 1996).
= Compound was detected and the reported value is equal to the concentration.
HI hazard index
J Compound was detected and the concentration is an estimated value.
mg/kg milligrams per kilogram
NA Information is not available.
ng/kg nanograms/kilogram
NS Sample was not collected and/or not analyzed for that constituent.
U Compound was not detected.
UJ Compound was not detected and the value provided is estimated.

**TABLE 4-3**
Groundwater Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Maximum Contaminant Level (MCL) | Region III Residential Tap Water RBC (HI=0.1) | Groundwater Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| | Aluminum | K162GW001 | 162.0 | mg/L | J | 200* | 3,700 | 471 |
| | Barium | K162GW001 | 13.20 | mg/L | = | 2,000 | 260.0 | 31.2 |
| | | K162GW002 | 4.90 | | J | | | |
| | Calcium | K162GW001 | 6,070 | mg/L | = | NA | NA | NA |
| | | K162GW002 | 9,250 | | = | | | |
| | Copper | K162GW001 | 1.20 | mg/L | J | 1,300 | 150 | 2.8 |
| | | K162GW002 | 1.30 | | J | | | |
| | Iron | K162GW001 | 340.0 | mg/L | = | NA | 1,100 | 235 |
| | | K162GW002 | 452.0 | | = | | | |
| | Magnesium | K162GW001 | 309.0 | mg/L | J | NA | NA | NA |
| | | K162GW002 | 1060 | | = | | | |
| | Manganese | K162GW001 | 6.10 | mg/L | J | NA | 73 | 9.3 |
| | | K162GW002 | 7.20 | | J | | | |
| | Potassium | K162GW001 | 1640 | mg/L | = | NA | NA | NA |
| | | K162GW002 | 981.0 | | J | | | |
| | Sodium | K162GW001 | 2,490 | mg/L | = | NA | NA | NA |
| | | K162GW002 | 2,490 | | = | | | |
| | Vanadium | K162GW001 | 0.80 | mg/L | J | NA | 25.55 | 0.80 |

This table presents only detected compounds; no SVOCs or dioxins were detected.
* Secondary MCL.

**TABLE 4-3**
Groundwater Analytical Results (post-RFI) for Detected Compounds
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Class | Parameter | Location | Concentration | Units | Qualifier | Maximum Contaminant Level (MCL) | Region III Residential Tap Water RBC (HI=0.1) | Groundwater Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| = | Compound was detected and the reported value is equal to the concentration. |
| HI | hazard index |
| J | Compound was detected and the concentration is an estimated value. |
| mg/L | milligrams per liter |
| NA | Information is not available. |
| ND | Not detected. |
| NS | Sample was not collected and/or not analyzed for that constituent. |
| U | Compound was not detected. |
| UJ | Compound was not detected and the value provided is estimated. |

SECTION 5.0

# COPC/COC Refinement

# 5.0 COPC/COC Refinement

This section discusses compounds requiring further evaluation that were identified in previous sections. The discussion includes data that was collected during and after completion of the RFI.

## 5.1 Surface Soil

Based on the data collected during and after completion of the RFI, site surface soil concentrations of several metals and BEQs require further evaluation. Constituents requiring additional evaluation are:

- Aluminum
- Arsenic
- Mercury
- BEQs

Results of surface soil samples for these analytes are provided in Table 5-1.

### 5.1.1 Aluminum

A conservative screening process was used to identify COPCs in the Zone K RFI. Non-carcinogenic compounds were compared to RBCs that were reduced one order of magnitude (hazard index [HI]=0.1). Aluminum was identified as a COC, based on a hazard index of 0.12. No samples collected during the RFI or from subsequent sampling events reported aluminum concentrations above the residential RBC of 78,000 mg/kg (HI of 1) or the BRC of 11,200 mg/kg. On this basis, aluminum is not considered a COC and does not warrant further evaluation.

### 5.1.2 Arsenic

Arsenic was detected above the BRC value developed for the Zone K RFI (3.0 mg/kg) in one surface soil sample (K162SB009, 3.4 mg/kg). It was also detected above its BRC in sample K162SB009T at 74.7 mg/kg, which was collected after the RFI. These two sample locations were co-located. Seven sample locations (K162SB001; K162SB002; K162SB006; K162SB007; K162SB008; K162SB010; and K162SB011) within a radius of approximately 65 feet of

K162SB009 reported arsenic concentrations of less than 2 mg/kg, including two locations (K162SB002 and K162SB010) within approximately 30 feet of soil boring K162SB009. The recent arsenic background samples collected within Zone K showed background arsenic concentrations ranging between 0.6 and 92.3 mg/kg (CH2M-Jones, 2001). Since the arsenic concentrations in co-located samples differed significantly, and the extent is limited, the presence of arsenic is not considered to represent a source area, as background samples have shown similar or higher concentrations of arsenic. Groundwater has not been impacted by arsenic, which further confirms that a significant source area of arsenic in soil is not present at this site. Based on these data, arsenic is not considered a COC and further evaluation is not warranted.

### 5.1.3 Mercury

Mercury was detected above the residential RBC (23 mg/kg) in one surface soil sample (K162SB002, 58.2 mg/kg) collected at SWMU 162. A co-located sample (K162SB002T) collected later reported a mercury concentration of 6 mg/kg, which is significantly less than the earlier sample result. Seven sample locations (K162SB001; K162SB006; K162SB007; K162SB008; K162SB009; K162SB010; and K162SB011) within a radius of approximately 80 feet of K162SB002 showed mercury concentrations of 10.3 mg/kg or less, including three locations (K162SB001, K162SB007, and K162SB009) within approximately 30 feet. Twelve of 15 SWMU 162 samples reported mercury concentrations below 0.5 mg/kg.

The presence of mercury is not considered to represent a source area for the following reasons: 1) The mercury concentrations in co-located samples differed significantly; 2) The most recent sample results for mercury are well below the RBC at the location of the exceedance; and 3) The extent is limited. Based on these considerations, mercury is not considered a COC and further evaluation is not warranted.

### 5.1.4 BEQs

Polynuclear aromatic hydrocarbons (PAHs), expressed as BEQs, were identified in the Revision 0 Zone K RFI Report as a COC at SWMU 162, based on exceedances of the RBC of 88 micrograms per kilogram (µg/kg).

The recent sampling for PAHs conducted across Zone K (CH2M-Jones, May 2001) in the non-impacted areas (background) indicated BEQ levels in the background were near or below detection limits with estimated BEQ ranges between 0.041 mg/kg to 0.049 mg/kg in the six samples. Between 1996 and 1999, SWMU 162 was sampled at 19 locations for PAHs; some locations were sampled multiple times. Six (K162SB00101, 371.6 µg/kg; K162SB00201,

760.8 µg/kg; K162SB002T1, 402.5 µg/kg; K162SB00301, 383.0 µg/kg; K162SB02001, 266.9 µg/kg; and K162SB02101, 235.2 µg/kg) of 19 samples had detected PAHs with calculated BEQ concentrations that exceeded the RBC and BRC. Of the 10 samples analyzed for PAHs between November and December of 1999, PAHs were detected in three samples with calculated BEQ concentrations of 0.267 mg/kg and 0.403 mg/kg. PAHs were not detected in any other sample collected during this time.

## 5.2 Subsurface Soil

No constituents were identified in subsurface soil at SWMU 162 that require further investigation.

## 5.3 Groundwater

No constituents were identified in groundwater at SWMU 162 that require further investigation.

## 5.4 Risk Assessment for SWMU 162

### 5.4.1 Introduction

A risk assessment was previously conducted for this site as part of the RFI. Aluminum, arsenic, mercury, and BEQs were identified as COCs upon completion of the risk assessment. After completion of the original RFI field investigation, the high arsenic and mercury locations were re-sampled, and additional samples were collected to define extent of BEQs (RFI Addendum). The location of the highest arsenic concentration (K162SB009, 3.4 mg/kg) when resampled showed an even higher concentration (74.7 mg/kg). Conversely, the location of the highest mercury concentration (K162SB002, 58.2 mg/kg) reported a much lower concentration (6 mg/kg) at the same location (162SB002T1) during the latter sampling event. A recent background sampling effort conducted by CH2M-Jones to determine BEQs, arsenic, and copper in the background at Zone K showed low levels of BEQs in the background, whereas arsenic was detected at higher levels that what was reported in the previous background surface soil samples. All available data are combined to assess potential risks from the site under current contamination conditions. The risk assessment followed the general EPA Region IV guidance, as described below.

### 5.4.2 Constituents of Potential Concern

A total of 47 soil samples (25 surface and 22 subsurface) from SWMU 162 were collected and submitted for analysis. Maximum detected concentrations of chemicals in surface and subsurface soils at SWMU 162 were screened against BRCs and EPA Region III residential risk-based criteria (RBCs, 4/13/2001) for soil. Carcinogenic compounds were screened at an excess lifetime cancer risk (ELCR) of $1 \times 10^{-6}$ while non-carcinogenic compounds were screened at a HQ=0.1 (RBC/10). Background values for all compounds except arsenic, copper, and cPAHs are those calculated for the original RFI. For arsenic, copper, and cPAHs, additional background samples were collected from Zone K to establish revised BRCs for these compounds.

Aluminum, arsenic, benzo(a)pyrene, benzo(b)fluoranthene, mercury, and iron exceeded their respective RBCs. Benzo(a)pyrene, benzo(b)fluoranthene and mercury exceeded the Zone K BRC and maximum detected background values. Maximum detected concentrations of arsenic, iron, and aluminum, however, fell within the ranges of detected background concentrations and were not considered to be COPCs. Thus, for surface soils, benzo(a)pyrene, benzo(b)fluoranthene, and mercury were considered to be COPCs at SWMU 162, based on the comparison to applicable screening criteria, as summarized in Table 5-2. The historical maximum mercury concentration of 58.2 mg/kg was not included for the risk estimation as the more recent sample from the same location indicated a concentration of 6 mg/kg, thus this later concentration was included in the risk assessment.

There are no subsurface soil COPCs. Table 5-2 lists all the surface soil COPCs included in this risk assessment. Appendix D provides complete screening tables for all detected chemicals in soils. Arsenic did not exceed the background reference concentration for subsurface soils and aluminum, iron, and mercury were within the range of detected background concentrations for Zone K. No PAHs were detected in subsurface soil.

### 5.4.3 Exposure Assessment

The CNC Annex Reuse Plan identifies the future land use of this site as commercial or industrial. Under this land use scenario, onsite workers may be exposed to soils during occupational activities. Appropriate exposure assumptions are the default values representing the Reasonable Maximum Exposure (RME) scenario provided in the *Exposure Factors Handbook* (EPA, 1996) and incorporating Region IV common practices. They are presented in Table 5-3.

For conservative risk assessment purposes, a future hypothetical residential scenario for this site is assumed and represents a "worst-case" scenario for risk estimation. Both adult and child receptors are evaluated. Exposure assumptions for carcinogenic chemicals are age-adjusted to reflect total exposure duration of 30 years, exposure for 6 years as a child and 24 years as an adult.

Exposure to soils is assumed to occur via incidental ingestion, dermal contact, and inhalation of soil particulates. Exposure Point Concentrations (EPCs) for each COPC were estimated as the normal or lognormal 95% Upper Confidence Limit (UCL 95) of the mean, depending on the distribution of the sample population. If the appropriate UCL 95 exceeded the maximum detected concentration, then the maximum detected value was considered the EPC. Exposure assumptions and EPCs were used to estimate chronic daily intakes for each pathway and receptor evaluated. EPC calculations for mercury were performed without sample 162SB00201 (58.2 mg/kg) collected from station K162SB002. This sample was collected in 1996. In 1999, this station was re-sampled (162SB002T1), and the mercury concentration was reported to be 6 mg/kg. For this reason, the previous mercury concentration from this station was removed from risk calculation. Also, it was removed because all EPCs defaulted to the maximum detected concentrations. The next highest mercury concentration detected at SWMU 162 was 10.3 mg/kg (162SB00101).

### 5.4.4 Toxicity Assessment

Toxicity values used in this risk assessment were obtained from the Integrated Risk Information System (IRIS) or, if unavailable from IRIS, the Health Affects Assessment Summary Tables (HEAST). Oral slope factors and reference doses were modified by oral-to-dermal adjustment factors to obtain dermal toxicity factors. Toxicity factors for COPCs are listed in Table 5-4.

### 5.4.5 Risk Characterization

The risk characterization process combines the results of the exposure and toxicity assessments to yield ELCRs for carcinogenic COPCs and a cumulative hazard index (HI) for noncarcinogenic COPCs. Table 5-5 presents the risks and HIs for receptors evaluated in this risk assessment. Complete risk summary tables can be found in Appendix D.

For a **hypothetical future industrial worker**, the ELCR for surface soils is $5 \times 10^{-7}$ and the HI=0.02. These risks and the HI are well below the acceptable risk range of 1 to 100 in a million and HI of 1.0.

For a **hypothetical future residential adult**, the ELCR for surface soils is $4 \times 10^{-6}$ and the HI is 0.05. The calculated risks are within acceptable risk limits of 1 to 100 in a million, and the HI is well below the acceptable value of 1.0.

For a **hypothetical future residential child**, the HI for exposure to surface soils 0.5. Ingestion and dermal exposure to arsenic is the primary source of non-carcinogenic risk to this receptor.

Risks for a future industrial worker and residential adult exposed to surface soil fall within the acceptable risk range of 1 to 100 in a million and HIs are well below the target level of 1.0. Non-carcinogenic health risk for a residential child is below the target level of 1.0. Therefore, this site does not present any unacceptable risk or health hazard to future hypothetical workers or residents.

## 5.5 Summary

Based on the evaluation of data collected as part of and following the RFI, no COCs are present in environmental media (soil [surface and subsurface] and groundwater) at SWMU 162. This site is recommended for NFA.

**TABLE 5-1**
Surface Soil Analytical Results for COPCs
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Location | Sample ID | Date Collected | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|
| Aluminum | K162SB001 | 162SB00101 | 11/21/96 | 8,590 | mg/kg | = | 78,000 | 11,200 |
| | K162SB002 | 162SB00201 | 11/21/96 | 5,190 | | = | | |
| | K162SB003 | 162SB00301 | 11/21/96 | 8,330 | | = | | |
| | K162SB004 | 162SB00401 | 11/21/96 | 6,930 | | = | | |
| | K162SB005 | 162SB00501 | 11/21/96 | 7,940 | | = | | |
| | K162SB006 | 162SB00601 | 2/13/97 | 8,160 | | = | | |
| | K162SB007 | 162SB00701 | 2/13/97 | 9,450 | | = | | |
| | K162SB008 | 162SB00801 | 2/13/97 | 7,350 | | = | | |
| | K162SB009 | 162SB00901 | 2/13/97 | 6,910 | | = | | |
| | K162SB002 | 162SB002T1 | 10/12/99 | 7,720 | | = | | |
| | K162SB009 | 162SB009T1 | 10/12/99 | 8,150 | | = | | |
| | K162SB010 | 162SB01001 | 11/17/99 | 7,330 | | = | | |
| | K162SB011 | 162SB01101 | 11/17/99 | 7,030 | | = | | |
| | K162SB017 | 162SB01701b | 11/17/99 | 9,120 | | = | | |
| | K162SB018 | 162SB0180a | 11/17/99 | 8,380 | | = | | |
| Arsenic | K162SB001 | 162SB00101 | 11/21/96 | 1.80 | mg/kg | J | 0.43 | 3 |
| | K162SB002 | 162SB00201 | 11/21/96 | 1.40 | | J | | |
| | K162SB003 | 162SB00301 | 11/21/96 | 1.40 | | J | | |
| | K162SB004 | 162SB00401 | 11/21/96 | 1.50 | | J | | |
| | K162SB005 | 162SB00501 | 11/21/96 | 1.40 | | J | | |
| | K162SB006 | 162SB00601 | 2/13/97 | 1.20 | | J | | |
| | K162SB007 | 162SB00701 | 2/13/97 | 1.40 | | J | | |
| | K162SB008 | 162SB00801 | 2/13/97 | 0.61 | | J | | |

**TABLE 5-1**
Surface Soil Analytical Results for COPCs
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Location | Sample ID | Date Collected | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | K162SB009 | 162SB00901 | 2/13/97 | **3.40** | | = | | |
| | K162SB002 | 162SB002T1 | 10/12/99 | 1.50 | | = | | |
| | K162SB009 | 162SB009T1 | 10/12/99 | **74.7** | | = | | |
| | K162SB010 | 162SB01001 | 11/17/99 | 0.95 | | J | | |
| | K162SB011 | 162SB01101 | 11/17/99 | 0.89 | | J | | |
| | K162SB017 | 162SB0170b | 11/17/99 | 1.40 | | = | | |
| | K162SB018 | 162SB0180a | 11/17/99 | 1.80 | | = | | |
| Mercury | K162SB001 | 162SB00101 | 11/21/96 | 10.3 | mg/kg | = | 23 | NA |
| | K162SB002 | 162SB00201 | 11/21/96 | **58.2** | | = | | |
| | K162SB003 | 162SB00301 | 11/21/96 | 0.12 | | = | | |
| | K162SB004 | 162SB00401 | 11/21/96 | 0.090 | | J | | |
| | K162SB005 | 162SB00501 | 11/21/96 | 0.080 | | J | | |
| | K162SB006 | 162SB00601 | 2/13/97 | 0.40 | | J | | |
| | K162SB007 | 162SB00701 | 2/13/97 | 0.050 | | UJ | | |
| | K162SB008 | 162SB00801 | 2/13/97 | 0.060 | | J | | |
| | K162SB009 | 162SB00901 | 2/13/97 | 0.050 | | UJ | | |
| | K162SB002 | 162SB002T1 | 10/12/99 | 6.0 | | = | | |
| | K162SB009 | 162SB009T1 | 10/12/99 | 0.070 | | = | | |
| | K162SB010 | 162SB01001 | 11/17/99 | 0.030 | | = | | |
| | K162SB011 | 162SB01101 | 11/17/99 | 0.030 | | = | | |
| | K162SB017 | 162SB0170b | 11/17/99 | 0.040 | | = | | |
| | K162SB018 | 162SB0180a | 11/17/99 | 0.060 | | = | | |

**TABLE 5-1**
Surface Soil Analytical Results for COPCs
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Location | Sample ID | Date Collected | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|
| BEQs | K162SB001 | 162SB00101 | 11/21/96 | **371.6** | mg/kg | = | 87 | 88 |
| | K162SB002 | 162SB00201 | 11/21/96 | **760.9** | | = | | |
| | K162SB002 | 162SB002T1 | 10/12/99 | **402.5** | | = | | |
| | K162SB003 | 162SB00301 | 11/21/96 | **383.0** | | = | | |
| | K162SB004 | 162SB00401 | 11/21/96 | 416.0 | | U | | |
| | K162SB005 | 162SB00501 | 11/21/96 | 439.1 | | U | | |
| | K162SB006 | 162SB00601 | 2/13/97 | 404.4 | | U | | |
| | K162SB007 | 162SB00701 | 2/13/97 | 427.5 | | U | | |
| | K162SB008 | 162SB00801 | 2/13/97 | 416.0 | | U | | |
| | K162SB009 | 162SB00901 | 2/13/97 | 427.5 | | U | | |
| | K162SB012 | 162SB01201 | 11/17/99 | 439.1 | | U | | |
| | K162SB013 | 162SB01301 | 11/17/99 | 422.5 | | U | | |
| | K162SB014 | 162SB01401 | 11/17/99 | 439.1 | | U | | |
| | K162SB015 | 162SB01501 | 11/17/99 | 450.6 | | U | | |
| | K162SB016 | 162SB01601 | 11/17/99 | 450.6 | | U | | |
| | K162SB017 | 162SB0170b | 11/17/99 | 416.0 | | U | | |
| | K162SB018 | 162SB0180a | 11/17/99 | 416.0 | | U | | |
| | K162SB019 | 162SB01901 | 12/22/99 | 427.5 | | U | | |
| | K162SB020 | 162SB02001 | 12/22/99 | **266.9** | | = | | |
| | K162SB021 | 162SB02101 | 12/22/99 | **235.2** | | = | | |

Bolded and outlined values indicate exceedances of RBC and BRC.

= Compound was detected and the reported value is equal to the concentration.

J Compound was detected and the concentration is an estimated value.

**TABLE 5-1**
Surface Soil Analytical Results for COPCs
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Location | Sample ID | Date Collected | Concentration | Units | Qualifier | Region III Residential Soil RBC (HI=1) | Surface Background Reference Concentration (BRC) |
|---|---|---|---|---|---|---|---|---|

NA Information is not available.
NS Sample was not collected and/or not analyzed for that constituent.
U Compound was not detected.
UJ Compound was not detected and the value provided is estimated.

**TABLE 5-2**
COPCs for SWMU 162
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Chemical | Frequency of Detection | Maximum Detected Concentration | Risk-Based Concentration | Background Reference Concentration | Maximum Detected Background Concentration | COPC |
|---|---|---|---|---|---|---|
| **Surface Soils** | | | | | | |
| Arsenic | 15 / 15 | 74.7 | 0.39 | 35.9 | 92.3 | No |
| Benzo(a) yrene | 5 / 20 | 0.44 | 0.062 | 0.038 | 0.022 | **Yes** |
| Benzo(b) fluoranthene | 5 / 20 | 0.71 | 0.62 | 0.0037 | 0.0025 | **Yes** |
| Mercury | 13 / 15 | 10.3 | 2.3 | NA | ND | **Yes** |
| **Subsurface Soils** | | | | | | |
| None | | | | | | |

All units in mg/kg.
NA not available

**TABLE 5-3**
Exposure Factors for SWMU 162
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Industrial Worker | Residential Adult | Residential Child |
|---|---|---|---|
| Exposure Frequency (day/year) | 250 | 350 | 350 |
| Exposure Duration (years) | 25 | 30 | 6 |
| Averaging Time –Carcinogenic (days) | 25,550 | 25,550 | -- |
| Averaging Time – Noncarcinogenic (days) | 9,125 | 10,950 | 2,190 |
| Body Weight (kg) | 70 | 70 | 15 |
| **Ingestion** | | | |
| Ingestion Rate (mg/day) | 50 | 100 | 200 |
| Age-adjusted Ingestion Rate [(mg-day)/(kg-year)]* | NA | 114 | NA |
| Fraction Ingested | 1 | 1 | 1 |
| **Dermal** | | | |
| Surface Area ($cm^2$) | 2,679 | 7,612 | 3,690 |
| Age-adjusted Skin Surface Area [($cm^2$-yr)/kg]* | NA | 4,086 | NA |
| Soil-to-Skin Adherence Factor ($mg/cm^2$) | 0.03 | 0.03 | 0.15 |
| **Inhalation** | | | |
| Particulate Emission Factor ($m^3$/kg) | 1.32E+9 | 1.32E+9 | 1.32E+9 |
| Inhalation Rate ($m^3$/day) | 20 | 20 | 15 |
| Age-adjusted Inhalation Rate [($m^3$-yr)/(kg-day)]* | NA | 13 | NA |

* For carcinogenic scenarios only.

**TABLE 5-4**
Toxicity Factors for SWMU 162 COPCs
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Chemical | Weight of Evidence | Oral Reference Dose | Dermal Reference Dose | Inhalation Reference Dose | Oral Slope Factor | Dermal Slope Factor | Inhalation Slope Factor |
|---|---|---|---|---|---|---|---|
| | | | mg/kg/day | | | 1/(mg/kg/day) | |
| Benzo(a)pyrene | B2 | -- | -- | -- | 7.3E+00 | 1.46E+01 | 3.1E+00 |
| Benzo(b) luoranthene | B2 | -- | -- | -- | 7.3E-01 | 1.46E+00 | 3.1E-01 |
| Mercury | D | 3.0E-04 | -- | -- | -- | -- | -- |

**TABLE 5-5**
Summary of Risks for Receptors at SWMU 162
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Receptor | ELCR | HI |
|---|---|---|
| Future Industrial Worker | $5 \times 10^{-7}$ | 0.02 |
| Future Residential Adult | $4 \times 10^{-6}$ | 0.05 |
| Future Residential Child | -- | 0.5 |

SECTION 6.0

# Summary of Site Closeout Issues

# 6.0 Summary of Information Related to Site Closeout Issues

## 6.1 RFI Status

The Revision 0 Zone K RFI Report addressed SWMUs/AOCs within the Naval Complex, including AOC 162 (EnSafe, 1999). The subsequent *Zone K RFI Report Work Plan Addendum* recommended collecting additional samples to delineate BEQs detected at 162SB003 and arsenic at 162SB009 (EnSafe, 1999). This additional sampling has been completed. The Work Plan Addendum also recommended installing an additional downgradient monitor well. This monitor well has not been installed. However, CH2M-Jones considers the data from the existing monitor wells adequate to determine the nature and extent of groundwater contamination at SWMU 162. Therefore, additional soil or groundwater samples are not required and further investigation is not recommended for SWMU 162.

In accordance with the RFI completion process, if a determination of no further investigation (NFI) is made, then a site may proceed to either NFA status or to a corrective measures study (CMS). Because no COCs were identified at this site, CH2M-Jones recommends NFA for this site.

## 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 maximum contaminant level (MCL), preceded or followed by detections of these same metals below the MCL or below the practical quantitation limit.

Two groundwater wells (K162GW001 and K162GW002) are present at SWMU 162. Each of these wells were sampled five times between January 1997 and December 1999 and the samples analyzed for metals. The analytical results for monitor wells K162GW001 and K162GW002 are presented in Table 6-1. Antimony, arsenic, and thallium were not detected in any samples collected from these two wells. Therefore, the presence of inorganics in groundwater does not warrant further investigation.

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

Within Zone K, the investigation of the sanitary sewer system was conducted as SWMU 185. The SWMU 185 investigation did not identify any COPCs.

Additionally, SWMU 162 was used to dry wastewater treatment sludge from the wastewater treatment plant located adjacent to the sludge drying field. As such, SWMU 162 was the collection point for all wastewater generated within the Naval Station Annex during the operational period of SWMU 162. Therefore, evaluation of SWMU 162 is an extension of the SWMU 185 investigation and significant contamination was not identified at the site.

Significant contamination has not been identified at SWMU 162 or SWMU 185. As such, no information or data exist to suggest that further investigation of this issue is warranted.

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

Investigated segments of the storm sewer, AOC 699, were identified in the Zone L RFI (EnSafe, 1998). No investigated segments of the storm sewer were identified in Zone K.

Stormwater at SWMU 162 follows a ditch around the perimeter of the site. Near the southern corner of the site is a drainage culvert where storm water flows out of SWMU 162. A sediment sample (ANXM0001) was collected near the culvert. Arsenic was the only constituent detected above surface soil screening criteria in this sample. The reported arsenic concentration was 6.9 mg/kg, which is within the range of background concentrations (0.6 - 92.3 mg/kg) in Zone K surface soil. Comparison of sediment results to surface soil screening criteria is appropriate for this sample, because the sample was collected from the bottom of a drainage ditch that does not appear capable of supporting aquatic species due to the fact that drainage ditches are only intermittently wet.

There is no data or information to suggest that SWMU 162 has impacted stormwater. Therefore, further investigation of a linkage between the storm sewer system and SWMU 162 is not warranted.

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

Investigated railroad lines were identified in the Zone L RFI Report (EnSafe, 1998). No investigated railroad lines were identified in Zone K. The nearest investigated railroad line to SWMU 162 is on the main CNC campus nearly 3 miles to the east-southeast. There is no known linkage between SWMU 162 and the investigated railroad lines of AOC 504. Therefore, further evaluation of this issue is not warranted.

## 6.6 Potential Migration Pathways to Surface Water Bodies at the CNC

Two potential migration pathways from the site to surface water are overland flow via storm water runoff, and subsurface flow via groundwater. No COCs were identified in surface soil at SWMU 162; therefore, further evaluation of a potential pathway for contaminant migration via stormwater runoff is not warranted.

No COCs were identified in groundwater at SWMU 162, which eliminates the possibility of contaminated groundwater plume migration to a surface water body. Therefore, further evaluation of potential migration of contaminated groundwater to a surface water body is also not warranted.

## 6.7 Potential Contamination in OWSs

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

Neither the RFA nor the RFI refer to the presence or possible presence of an OWS at SWMU 162. Therefore, further evaluation of this issue at SWMU 162 is not warranted.

Also, there is no reference to an OWS at this facility in the basewide OWS report prepared by the Navy in 2000 (SOUTHDIV, 2000). Based on this information, further investigation is not warranted for the presence of OWSs at SWMU 162.

## 6.8 Land Use Control Management Plan

Evaluation of data collected during and after the RFI did not identify any COCs in site soil at SWMU 162. Therefore, land use restrictions are not warranted.

**TABLE 6-1**
Groundwater Analytical Results for Antimony, Arsenic, and Thallium
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Station | Sample ID | Date Collected | Concentration | Units | Qualifier | Maximum Contaminant Level (MCL) | Region III Residential Tap Water RBC (HI=0.1) |
|---|---|---|---|---|---|---|---|---|
| Antimony | K162GW001 | 162GW00101 | 1/6/97 | 1.6 | mg/L | U | 6.0 | 1.46 |
| | | 162GW00102 | 4/17/97 | 2.2 | | U | | |
| | | 162GW00103 | 7/24/97 | 2.0 | | U | | |
| | | 162GW00104 | 10/20/97 | 2.8 | | U | | |
| | | 162GW00105 | 12/7/99 | 2.4 | | U | | |
| Arsenic | | 162GW00101 | 1/6/97 | 1.7 | mg/L | U | 50 | 0.045 |
| | | 162GW00102 | 4/17/97 | 3.0 | | U | | |
| | | 162GW00103 | 7/24/97 | 2.8 | | U | | |
| | | 162GW00104 | 10/20/97 | 1.8 | | UJ | | |
| | | 162GW00105 | 12/7/99 | 3.3 | | U | | |
| Thallium | | 162GW00101 | 1/6/97 | 6.0 | mg/L | U | 2.0 | 0.26 |
| | | 162GW00102 | 4/17/97 | 5.2 | | U | | |
| | | 162GW00103 | 7/24/97 | 3.9 | | U | | |
| | | 162GW00104 | 10/20/97 | 6.7 | | U | | |
| | | 162GW00105 | 12/7/99 | 3.2 | | U | | |
| Antimony | K162GW002 | 162GW00201 | 1/2/97 | 2.7 | mg/L | U | 6.0 | 1.46 |
| | | 162GW00202 | 4/17/97 | 2.2 | | U | | |
| | | 162GW00203 | 7/24/97 | 2.0 | | U | | |
| | | 162GW00204 | 10/20/97 | 2.8 | | U | | |
| | | 162GW00205 | 12/7/99 | 2.4 | | U | | |
| Arsenic | | 162GW00201 | 1/2/97 | 1.7 | mg/L | U | 50 | 0.045 |
| | | 162GW00202 | 4/17/97 | 3.0 | | U | | |
| | | 162GW00203 | 7/24/97 | 2.8 | | U | | |

**TABLE 6-1**
Groundwater Analytical Results for Antimony, Arsenic, and Thallium
*RFI Report Addendum, SWMU 162, Zone K, CNC*

| Parameter | Station | Sample ID | Date Collected | Concentration | Units | Qualifier | Maximum Contaminant Level (MCL) | Region III Residential Tap Water RBC (HI=0.1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 162GW00204 | 10/20/97 | 1.8 | | UJ | | 0.045 |
| | | 162GW00205 | 12/7/99 | 3.3 | | U | | |
| Thallium | | 162GW00201 | 1/2/97 | 6.0 | mg/L | U | 2.0 | 0.26 |
| | | 162GW00202 | 4/17/97 | 5.2 | | U | | |
| | | 162GW00203 | 7/24/97 | 3.9 | | U | | |
| | | 162GW00204 | 10/20/97 | 6.7 | | U | | |
| | | 162GW00205 | 12/7/99 | 3.2 | | U | | |

Bolded and outlined values Indicate exceedances Of RBC And BRC.

= Compound was detected and the reported value is equal to the concentration.

J Compound was detected and the concentration is an estimated value.

mg/L milligrams per liter

NA Information is not available.

NS Sample was not collected and/or not analyzed for that constituent.

U Compound was not detected.

UJ Compound was not detected and the value provided is estimated.

SECTION 7.0

# Recommendations

# 7.0 Recommendations

Based on evaluation of data collected during and after completion of the RFI, COCs were not identified in environmental media at SWMU 162. Based on this information, further investigation or corrective action is not considered necessary at SWMU 162. Therefore, CH2M-Jones recommends that the status of SWMU 162 be changed to NFA.

Once the BCT concurs that NFA is appropriate for the site, 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.

SECTION 8.0

# References

# 8.0 References

CH2M-Jones Inc. Technical Memorandum - *Preliminary Results for Additional Background PAH Sampling from CNC Main Base Railroad Lines and Annex (Zone K)*. May 3, 2001.

EnSafe Inc. *Zone K RFI Report, NAVBASE Charleston*. Revision 0. June 11, 1999.

EnSafe Inc. *Final Zone K RFI Work Plan Addendum, NAVBASE Charleston*. November 16, 1999.

EnSafe Inc. *Zone L RCRA Facility Investigation Report, NAVBASE Charleston*. December 18, 1998.

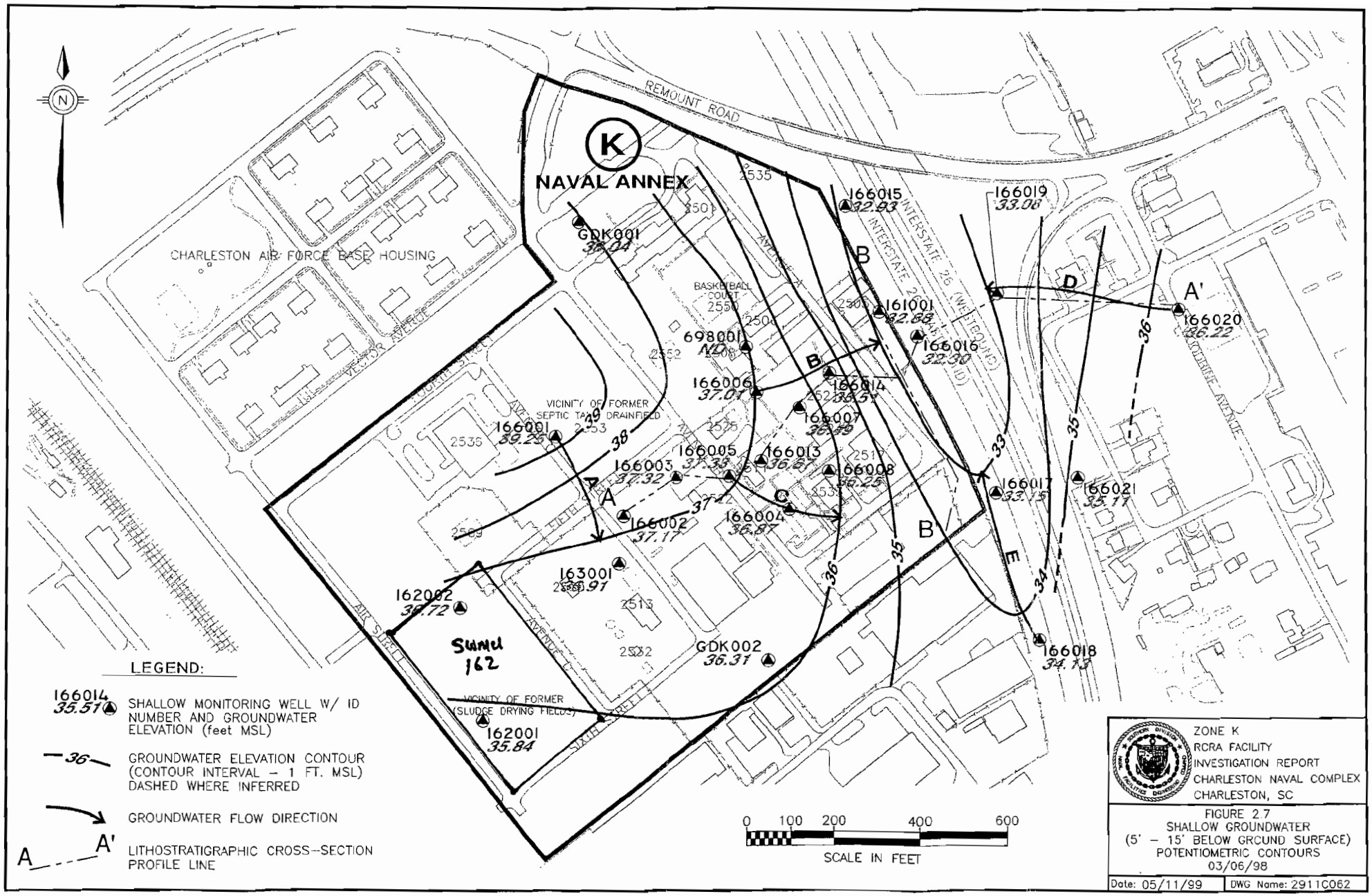
Environmental Protection Agency (EPA). *Soil Screening Guidance: Technical Background Document*. 1996.

Southern Division, Naval Facilities Engineering Command (SOUTHDIV). *Oil Water Separator Data, Charleston Naval Complex Charleston South Carolina*. September 2000.

Wilbur Smith Associates. *Charleston Naval Annex Reuse Plan*. Charleston, SC. February 1997.

APPENDIX A

# Figure 2.7 from the Zone K RFI Report




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

FIGURE 2.7
SHALLOW GROUNDWATER
(5' – 15' BELOW GROUND SURFACE)
POTENTIOMETRIC CONTOURS
03/06/98

Date: 05/11/99 | DWG Name: 2911C062

APPENDIX B

# Analytical Data from Samples Collected after RFI Completion

Analyt ata Summary



| | StationID | K162GW001 | | K162GW002 | |
|---|---|---|---|---|---|
| | SampleID | 162GW00105 (-ft) | | 162GW00205 (-ft) | |
| | DateCollected | 12/07/1999 | | 12/07/1999 | |
| | DateAnalyzed | 12/15/1999 | | 12/15/1999 | |
| | SDGNumber | 41368 | | 41368 | |
| Parameter | Units | | | | |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN | PG/L | 9 772 | U | 9 991 | U |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | PG/L | 6 088 | U | 11 147 | U |
| 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | PG/L | 8 573 | U | 15 699 | U |
| 1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN | PG/L | 23 081 | U | 20 404 | U |
| 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | PG/L | 12 648 | U | 10 501 | U |
| 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | PG/L | 15 54 | U | 13 737 | U |
| 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | PG/L | 9 486 | U | 7 875 | U |
| 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | PG/L | 17 813 | U | 15 747 | U |
| 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | PG/L | 15 017 | U | 12 467 | U |
| 1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN | PG/L | 25 48 | U | 21 073 | U |
| 1,2,3,7,8-PENTACHLORODIBENZOFURAN | PG/L | 11 878 | U | 11 495 | U |
| 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | PG/L | 11 091 | U | 9 208 | U |
| 2,3,4,7,8-PENTACHLORODIBENZOFURAN | PG/L | 12 009 | U | 11 622 | U |
| 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN | PG/L | 19 933 | U | 19 877 | U |
| 2,3,7,8-TETRACHLORODIBENZOFURAN | PG/L | 17 946 | U | 13 205 | U |
| OCTACHLORODIBENZO-p-DIOXIN | PG/L | 12 198 | U | 17 019 | U |
| OCTACHLORODIBENZOFURAN | PG/L | 9 78 | U | 13 68 | U |
| Total Hepta-Dioxins | PG/L | 9 772 | U | 9 991 | U |
| Total Hepta-Furans | PG/L | 6 088 | U | 11 147 | U |
| Total Hexa-Dioxins | PG/L | 15 54 | U | 13 737 | U |
| Total Hexa-Furans | PG/L | 9 486 | U | 7 875 | U |
| Total Penta-Dioxins | PG/L | 25 48 | U | 21 073 | U |
| Total Penta-Furans | PG/L | 12 009 | U | 11 622 | U |
| Total Tetra-Dioxins | PG/L | 19 933 | U | 19 877 | U |
| Total Tetra-Furans | PG/L | 17 946 | U | 13 205 | U |

| | StationID | K162GW001 | | K162GW002 | |
|---|---|---|---|---|---|
| | SampleID | 162GW00105 (-ft) | | 162GW00205 (-ft) | |
| | DateCollected | 12/07/1999 | | 12/07/1999 | |
| | DateAnalyzed | 12/15/1999 | | 12/15/1999 | |
| | SDGNumber | NBCK12 | | NBCK12 | |
| Parameter | Units | | | | |
| ALUMINUM | UG/L | 162 | J | 7 7 | U |
| ANTIMONY | UG/L | 2 4 | U | 2 4 | U |
| ARSENIC | UG/L | 3 3 | U | 3 3 | U |
| BARIUM | UG/L | 13 2 | = | 4 9 | J |
| BERYLLIUM | UG/L | 0 1 | U | 0 1 | U |
| CADMIUM | UG/L | 0 4 | U | 0 4 | U |
| CALCIUM | UG/L | 6070 | = | 9250 | = |
| CHROMIUM, TOTAL | UG/L | 0 5 | U | 0 5 | U |
| COBALT | UG/L | 0 5 | U | 0 5 | U |
| COPPER | UG/L | 1 2 | J | 1 3 | J |
| IRON | UG/L | 340 | = | 452 | = |
| LEAD | UG/L | 1 5 | U | 1 3 | U |
| MAGNESIUM | UG/L | 309 | J | 1060 | = |
| MANGANESE | UG/L | 6 1 | J | 7 2 | J |
| MERCURY | UG/L | 0 1 | U | 0 1 | U |
| NICKEL | UG/L | 1 2 | U | 1 2 | U |
| POTASSIUM | UG/L | 1640 | = | 981 | J |
| SELENIUM | UG/L | 3 6 | U | 3.6 | U |
| SILVER | UG/L | 0 7 | U | 0 7 | U |
| SODIUM | UG/L | 2490 | = | 2490 | = |
| THALLIUM | UG/L | 3 2 | U | 3 2 | U |
| Tin (Sn) | UG/L | 2 9 | U | 2 9 | U |
| VANADIUM | UG/L | 0 8 | J | 0 7 | U |
| ZINC | UG/L | 0 96 | U | 0 7 | U |

| | StationID | K162GW001 | | K162GW002 | |
|---|---|---|---|---|---|
| | SampleID | 162GW00105 (-ft) | | 162GW00205 (-ft) | |
| | DateCollected | 12/07/1999 | | 12/07/1999 | |
| | DateAnalyzed | 12/18/1999 | | 12/18/1999 | |
| | SDGNumber | NBCK12 | | NBCK12 | |
| Parameter | Units | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE | UG/L | 10 | U | 10 | U |
| 2-METHYLNAPHTHALENE | UG/L | 10 | U | 10 | U |
| 2-METHYLPHENOL (o-CRESOL) | UG/L | 10 | U | 10 | U |
| 3-Methylphenol (m-Creso') | UG/L | 10 | U | 10 | U |
| Diphenylamine | UG/L | 10 | U | 10 | U |
| N-Nitrosodimethylamine | UG/L | 10 | U | 10 | U |
| PHENOL | UG/L | 10 | U | 10 | U |
| ACENAPHTHYLENE | UG/L | 10 | U | 10 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/L | 10 | U | 10 | U |
| 2-CHLOROPHENOL | UG/L | 10 | U | 10 | U |
| ACENAPHTHENE | UG/L | 10 | U | 10 | U |
| 1,3-DICHLOROBENZENE | UG/L | 10 | U | 10 | U |
| FLUORENE | UG/L | 10 | U | 10 | U |
| 1,4-DICHLOROBENZENE | UG/L | 10 | U | 10 | U |
| PHENANTHRENE | UG/L | 10 | U | 10 | U |
| ANTHRACENE | UG/L | 10 | U | 10 | U |
| Benzyl alcohol | UG/L | 10 | U | 10 | U |
| FLUORANTHENE | UG/L | 10 | U | 10 | U |
| 1,2-DICHLOROBENZENE | UG/L | 10 | U | 10 | U |
| PYRENE | UG/L | 10 | U | 10 | U |
| BENZO(a)ANTHRACENE | UG/L | 10 | U | 10 | U |
| CHRYSENE | UG/L | 10 | U | 10 | U |
| BENZO(b)FLUORANTHENE | UG/L | 10 | U | 10 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/L | 10 | U | 10 | U |
| BENZO(k)FLUORANTHENE | UG/L | 10 | U | 10 | U |
| BENZO(a)PYRENE | UG/L | 10 | U | 10 | U |
| HEXACHLOROETHANE | UG/L | 10 | U | 10 | U |
| INDENO(1,2,3-c,d)PYRENE | UG/L | 10 | U | 10 | U |
| NITROBENZENE | UG/L | 10 | U | 10 | U |
| DIBENZ(a,h)ANTHRACENE | UG/L | 10 | U | 10 | U |
| ISOPHORONE | UG/L | 10 | U | 10 | U |
| 2-NITROPHENOL | UG/L | 10 | U | 10 | U |
| BENZO(g,h,i)PERYLENE | UG/L | 10 | U | 10 | U |
| 2,4-DIMETHYLPHENOL | UG/L | 10 | U | 10 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/L | 10 | U | 10 | U |
| Benzoic acid | UG/L | 50 | U | 50 | U |
| 2,4-DICHLOROPHENOL | UG/L | 10 | U | 10 | U |
| 1,2,4-TRICHLOROBENZENE | UG/L | 10 | U | 10 | U |
| 4-CHLOROANILINE | UG/L | 20 | U | 20 | U |
| HEXACHLOROBUTADIENE | UG/L | 10 | U | 10 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/L | 10 | U | 10 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/L | 10 | U | 10 | U |
| 2,4,6-TRICHLOROPHENOL | UG/L | 10 | U | 10 | U |
| 2,4,5-TRICHLOROPHENOL | UG/L | 10 | U | 10 | U |
| 2-CHLORONAPHTHALENE | UG/L | 10 | U | 10 | U |
| 2-NITROANILINE | UG/L | 50 | U | 50 | U |
| 2,6-DINITROTOLUENE | UG/L | 10 | U | 10 | U |

| | StationID | K162GW001 | | K162GW002 | |
|---|---|---|---|---|---|
| | SampleID | 162GW00105 (-ft) | | 162GW00205 (-ft) | |
| | DateCollected | 12/07/1999 | | 12/07/1999 | |
| | DateAnalyzed | 12/18/1999 | | 12/18/1999 | |
| | SDGNumber | NBCK12 | | NBCK12 | |
| Parameter | Units | | | | |
| 3-NITROANILINE | UG/L | 50 | U | 50 | U |
| 2,4-DINITROPHENOL | UG/L | 50 | U | 50 | U |
| DIBENZOFURAN | UG/L | 10 | U | 10 | U |
| 4-NITROPHENOL | UG/L | 50 | U | 50 | U |
| 2,4-DINITROTOLUENE | UG/L | 10 | U | 10 | U |
| DIMETHYL PHTHALATE | UG/L | 10 | U | 10 | U |
| DIETHYL PHTHALATE | UG/L | 10 | U | 10 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/L | 10 | U | 10 | U |
| 4-NITROANILINE | UG/L | 50 | U | 50 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/L | 50 | U | 50 | U |
| 4-BROMOPHENYL PHENYL ETHER | UG/L | 10 | U | 10 | U |
| HEXACHLOROBENZENE | UG/L | 10 | U | 10 | U |
| PENTACHLOROPHENOL | UG/L | 50 | U | 50 | U |
| DI-n-BUTYL PHTHALATE | UG/L | 10 | U | 10 | U |
| BENZYL BUTYL PHTHALATE | UG/L | 10 | U | 10 | U |
| 3,3'-DICHLOROBENZIDINE | UG/L | 20 | U | 20 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/L | 10 | U | 10 | U |
| DI-n-OCTYLPHTHALATE | UG/L | 10 | U | 10 | U |

Analytic ata Summary



| | StationID | K162GW001 | | K162GW002 | |
|---|---|---|---|---|---|
| | SampleID | 162GW00105 (-ft) | | 162GW00205 (-ft) | |
| | DateCollected | 12/07/1999 | | 12/07/1999 | |
| | DateAnalyzed | 12/18/1999 | | 12/18/1999 | |
| | SDGNumber | NBCK12 | | NBCK12 | |
| Parameter | Units | | | | |
| NAPHTHALENE | UG/L | 10 | U | 10 | U |

Analytica.. Data Summary



| | StationID | K162SB017 | | K162SB017 | | K162SB018 | | K162SB018 | |
|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01701a (0-1ft) | | 162SB01702b (3-5ft) | | 162SB01801b (0-1ft) | | 162SB01802b (3-5ft) | |
| | DateCollected | 11/18/1999 | | 11/18/1999 | | 11/18/1999 | | 11/18/1999 | |
| | DateAnalyzed | 12/02/1999 | | 12/02/1999 | | 12/02/1999 | | 12/02/1999 | |
| | SDGNumber | 41189 | | 41189 | | 41189 | | 41189 | |
| Parameter | Units | | | | | | | | |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN | NG/KG | 23 025 | = | 3 404 | = | 100 756 | = | 0 528 | U |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | NG/KG | 3 922 | = | 0 33 | U | 23 429 | = | 0 133 | U |
| 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | NG/KG | 0 531 | U | 0 465 | U | 4 16 | U | 0 187 | U |
| 1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN | NG/KG | 2 116 | U | 1 878 | U | 1 855 | U | 1 543 | U |
| 1,2,3,4,7 8-HEXACHLORODIBENZOFURAN | NG/KG | 1 135 | J | 0 395 | U | 6 085 | J | 0 182 | U |
| 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | NG/KG | 1 425 | U | 1 265 | U | 2 969 | J | 1 039 | U |
| 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | NG/KG | 0 576 | U | 0 296 | U | 1 453 | U | 0 137 | U |
| 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | NG/KG | 1 633 | U | 1 45 | U | 1 431 | U | 1 191 | U |
| 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | NG/KG | 0 911 | U | 0 469 | U | 2 3 | U | 0 216 | U |
| 1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN | NG/KG | 3 286 | U | 3 596 | U | 2 81 | U | 1 939 | U |
| 1,2,3 7,8-PENTACHLORODIBENZOFURAN | NG/KG | 0 41 | U | 0 511 | U | 0 298 | U | 0 34 | U |
| 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | NG/KG | 0 673 | U | 0 346 | U | 1 699 | U | 0 16 | U |
| 2,3,4,7 8-PENTACHLORODIBENZOFURAN | NG/KG | 0 415 | U | 0 517 | U | 0 301 | U | 0 344 | U |
| 2 3,7,8-TETRACHLORODIBENZO-p-DIOXIN | NG/KG | 0 72 | U | 0 418 | U | 0 727 | U | 0 506 | J |
| 2,3 7,8-TETRACHLORODIBENZOFURAN | NG/KG | 1 073 | U | 0 417 | U | 1 198 | U | 0 328 | U |
| OCTACHLORODIBENZO-p-DIOXIN | NG/KG | 356 618 | = | 49 474 | = | 1243 48 | = | 15 918 | = |
| OCTACHLORODIBENZOFURAN | NG/KG | 18 888 | = | 0 758 | U | 77 154 | = | 0 403 | U |
| Total Hepta-Dioxins | NG/KG | 44 847 | = | 7 109 | = | 196 594 | = | 0 528 | U |
| Total Hepta-Furans | NG/KG | 3 922 | = | 0 33 | U | 23 429 | = | 0 133 | U |
| Total Hexa-Dioxins | NG/KG | 1 425 | U | 1 265 | U | 18 355 | = | 1 039 | U |
| Total Hexa-Furans | NG/KG | 1 165 | = | 0 296 | U | 1 453 | U | 0 137 | U |
| Total Penta-Dioxins | NG/KG | 3 286 | U | 3 596 | U | 2 81 | U | 1 939 | U |
| Total Penta-Furans | NG/KG | 0 415 | U | 0 517 | U | 3 15 | = | 0 344 | U |
| Total Tetra-Dioxins | NG/KG | 0 72 | U | 0 418 | U | 0 727 | U | 0 351 | U |
| Total Tetra-Furans | NG/KG | 1 073 | U | 0 417 | U | 1 198 | U | 0 328 | U |

Analytical Data Summary



| | StationID | K162SB002 | K162SB002 | K162SB009 | K162SB009 | K162SB019 |
|---|---|---|---|---|---|---|
| | SampleID | 162SB002T1 (0-1ft) | 162SB002T2 (3-5ft) | 162SB009T1 (0-1ft) | 162SB009T2 (3-5ft) | 162SB01901 (0-1ft) |
| | DateCollected | 10/12/1999 | 10/12/1999 | 10/12/1999 | 10/12/1999 | 12/22/1999 |
| | DateAnalyzed | 10/19/1999 | 10/19/1999 | 10/18/1999 | 10/18/1999 | 01/04/2000 |
| | SDGNumber | NBCK01 | NBCK01 | NBCK01 | NBCK01 | 41577 |
| Parameter | Units | | | | | |
| TOTAL ORGANIC CARBON | MG/KG | 11000 = | 3000 = | 13000 = | 2200 = | 12100 = |

| | StationID | K162SB019 | |
|---|---|---|---|
| | SampleID | 162SB01902 (3-5ft) | |
| | DateCollected | 12/22/1999 | |
| | DateAnalyzed | 01/04/2000 | |
| | SDGNumber | 41577 | |
| Parameter | Units | | |
| TOTAL ORGANIC CARBON | MG/KG | 1950 | = |

| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | | 162SB009S1 (0-1ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/20/1999 | | 10/21/1999 | | 10/20/1999 | | 10/20/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| Parameter | Units | | | | | | | | | | |
| ALUMINUM, SPLP | UG/L | 19300 | J | 72 8 | U | | | | | 9950 | J |
| ANTIMONY, SPLP | UG/L | 1 8 | UJ | 1 8 | UJ | | | | | 1 8 | UJ |
| ARSENIC,SPLP | UG/L | 3 6 | U | 3 6 | U | | | | | 166 | = |
| BARIUM, SPLP | UG/L | 23 7 | = | 0 4 | U | | | | | 9 6 | J |
| BERYLLIUM, SPLP | UG/L | 0 1 | UJ | 0 1 | UJ | | | | | 0 1 | UJ |
| CADMIUM, SPLP | UG/L | 0 4 | UJ | 0 4 | UJ | | | | | 0 4 | UJ |
| CALCIUM, SPLP | UG/L | 1030 | U | 571 | U | | | | | 1480 | = |
| COBALT, SPLP | UG/L | 0 83 | J | 0 7 | U | | | | | 0 7 | U |
| COPPER, SPLP | UG/L | 4 | J | 0 6 | UJ | | | | | 4 2 | J |
| IRON, SPLP | UG/L | 5080 | J | 27 5 | U | | | | | 3200 | J |
| LEAD, SPLP | UG/L | 6 9 | = | 2 | U | | | | | 4 1 | J |
| MAGNESIUM, SPLP | UG/L | 767 | J | 155 | U | | | | | 549 | U |
| MANGANESE, SPLP | UG/L | 16 1 | = | 0 4 | U | | | | | 4 4 | J |
| MERCURY, SPLP | UG/L | 3 1 | = | 0 1 | U | | | | | 0 1 | U |
| NICKEL, SPLP | UG/L | 6 | J | 1 2 | UJ | | | | | 3 2 | J |
| POTASSIUM, SPLP | UG/L | 715 | J | 78 3 | U | | | | | 272 | U |
| SELENIUM, SPLP | UG/L | 2 6 | UJ | 2 6 | UJ | | | | | 2 6 | UJ |
| SILVER, SPLP | UG/L | 0 5 | UJ | 0 5 | UJ | | | | | 0 5 | UJ |
| SODIUM, SPLP | UG/L | 4290 | = | 1210 | = | | | | | 3210 | = |
| THALLIUM, SPLP | UG/L | 3 2 | UJ | 3 2 | UJ | | | | | 3.2 | UJ |
| Tin (Sn), SPLP | UG/L | 2 8 | U | 2 8 | U | | | | | 2 8 | U |
| VANADIUM, SPLP | UG/L | 30 5 | = | 1 | U | | | | | 13 9 | = |
| ALUMINUM | MG/KG | | | | | 7720 | = | 6260 | = | | |
| ANTIMONY | MG/KG | | | | | 0 2 | UJ | 0 21 | UJ | | |
| ARSENIC | MG/KG | | | | | 1 5 | = | 0 88 | J | | |
| BARIUM | MG/KG | | | | | 12 6 | = | 5.7 | = | | |
| BERYLLIUM | MG/KG | | | | | 0 04 | J | 0 03 | J | | |
| CADMIUM | MG/KG | | | | | 0 17 | J | 0 05 | UJ | | |
| CALCIUM | MG/KG | | | | | 353 | J | 39 8 | J | | |
| CHROMIUM TOTAL | MG/KG | | | | | 8 5 | = | 6 5 | = | | |
| CHROMIUM, TOTAL | UG/L | 16 2 | = | 0 8 | U | | | | | 6 8 | J |
| COBALT | MG/KG | | | | | 0 61 | J | 0 37 | J | | |
| COPPER | MG/KG | | | | | 6 6 | = | 0 42 | J | | |
| IRON | MG/KG | | | | | 2880 | = | 1630 | = | | |
| LEAD | MG/KG | | | | | 11 5 | = | 3 9 | = | | |
| MAGNESIUM | MG/KG | | | | | 240 | = | 191 | = | | |
| MANGANESE | MG/KG | | | | | 12 | = | 7 | = | | |
| MERCURY | MG/KG | | | | | 6 | = | 0 06 | = | | |
| NICKEL | MG/KG | | | | | 2 4 | J | 1 5 | J | | |
| POTASSIUM | MG/KG | | | | | 243 | = | 135 | = | | |
| SELENIUM | MG/KG | | | | | 0 28 | U | 0 31 | U | | |
| SILVER | MG/KG | | | | | 0 05 | UJ | 0 06 | UJ | | |
| SODIUM | MG/KG | | | | | 12 4 | U | 19 5 | J | | |
| THALLIUM | MG/KG | | | | | 0 35 | UJ | 0 38 | UJ | | |
| Tin (Sn) | MG/KG | | | | | 2 8 | U | 1 9 | U | | |
| VANADIUM | MG/KG | | | | | 8 6 | = | 8 | = | | |
| ZINC, SPLP | UG/L | 46 2 | = | 3 4 | U | | | | | 176 | = |

| | StationID | K162SB009 | | K162SB009 | | K162SB009 | | K162SB010 | | K162SB010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB009S2 (3-5ft) | | 162SB009T1 (0-1ft) | | 162SB009T2 (3-5ft) | | 162SB01001 (0-1ft) | | 162SB01002 (3-5ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/20/1999 | | 10/20/1999 | | 11/26/1999 | | 11/26/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| ALUMINUM, SPLP | UG/L | 747 | J | | | | | | | | |
| ANTIMONY, SPLP | UG/L | 1 8 | UJ | | | | | | | | |
| ARSENIC,SPLP | UG/L | 3 6 | U | | | | | | | | |
| BARIUM SPLP | UG/L | 0 89 | U | | | | | | | | |
| BERYLLIUM SPLP | UG/L | 0 1 | UJ | | | | | | | | |
| CADMIUM, SPLP | UG/L | 0 4 | UJ | | | | | | | | |
| CALCIUM, SPLP | UG/L | 426 | U | | | | | | | | |
| COBALT, SPLP | UG/L | 0 7 | U | | | | | | | | |
| COPPER, SPLP | UG/L | 0 6 | UJ | | | | | | | | |
| IRON, SPLP | UG/L | 254 | J | | | | | | | | |
| LEAD, SPLP | UG/L | 2 | U | | | | | | | | |
| MAGNESIUM, SPLP | UG/L | 143 | U | | | | | | | | |
| MANGANESE, SPLP | UG/L | 0 4 | U | | | | | | | | |
| MERCURY, SPLP | UG/L | 0 1 | U | | | | | | | | |
| NICKEL, SPLP | UG/L | 1 2 | UJ | | | | | | | | |
| POTASSIUM, SPLP | UG/L | 56 9 | U | | | | | | | | |
| SELENIUM SPLP | UG/L | 2 6 | UJ | | | | | | | | |
| SILVER, SPLP | UG/L | 0 5 | UJ | | | | | | | | |
| SODIUM, SPLP | UG/L | 1790 | = | | | | | | | | |
| THALLIUM, SPLP | UG/L | 3 2 | UJ | | | | | | | | |
| Tin (Sn), SPLP | UG/L | 2 8 | U | | | | | | | | |
| VANADIUM, SPLP | UG/L | 1 | U | | | | | | | | |
| ALUMINUM | MG/KG | | | 8150 | = | 8510 | = | 7330 | = | 20900 | = |
| ANTIMONY | MG/KG | | | 0 2 | UJ | 0 21 | UJ | 0 21 | U | 0.22 | U |
| ARSENIC | MG/KG | | | 74 7 | = | 3 5 | = | 0 95 | J | 3 | = |
| BARIUM | MG/KG | | | 13 1 | = | 9.6 | = | 14 5 | = | 14 8 | = |
| BERYLLIUM | MG/KG | | | 0 06 | J | 0 06 | J | 0 1 | J | 0 13 | J |
| CADMIUM | MG/KG | | | 0 08 | J | 0 05 | UJ | 0 04 | U | 0 05 | U |
| CALCIUM | MG/KG | | | 1770 | J | 3350 | J | 440 | = | 106 | = |
| CHROMIUM, TOTAL | MG/KG | | | 7 3 | = | 8 4 | = | 5 2 | = | 16 8 | = |
| CHROMIUM, TOTAL | UG/L | 0 8 | U | | | | | | | | |
| COBALT | MG/KG | | | 0 6 | J | 0 81 | J | 0 4 | J | 1 6 | = |
| COPPER | MG/KG | | | 1 9 | J | 0 8 | J | 1 5 | J | 1 2 | J |
| IRON | MG/KG | | | 3240 | = | 2830 | = | 3020 | = | 7070 | = |
| LEAD | MG/KG | | | 9 8 | = | 4 1 | = | 17 4 | = | 6 8 | = |
| MAGNESIUM | MG/KG | | | 262 | = | 245 | = | 173 | = | 437 | = |
| MANGANESE | MG/KG | | | 10 7 | = | 10 2 | = | 7 2 | = | 11 5 | = |
| MERCURY | MG/KG | | | 0 07 | = | 0 02 | = | 0 03 | = | 0 03 | = |
| NICKEL | MG/KG | | | 2 4 | J | 2 4 | J | 1.5 | J | 5 5 | = |
| POTASSIUM | MG/KG | | | 165 | = | 169 | = | 89 5 | = | 219 | = |
| SELENIUM | MG/KG | | | 0 29 | U | 0 3 | U | 0 28 | UJ | 0 32 | UJ |
| SILVER | MG/KG | | | 0 06 | UJ | 0 06 | UJ | 0.05 | U | 0 06 | U |
| SODIUM | MG/KG | | | 60 1 | = | 74 1 | = | 33.3 | U | 31 3 | U |
| THALLIUM | MG/KG | | | 0 36 | UJ | 0 37 | UJ | 0 35 | U | 0 47 | J |
| Tin (Sn) | MG/KG | | | 2 1 | U | 2 1 | U | 1 9 | U | 2 1 | U |
| VANADIUM | MG/KG | | | 10 3 | = | 9 8 | = | 7 5 | = | 20 4 | = |
| ZINC, SPLP | UG/L | 4 4 | U | | | | | | | | |

| | StationID | K162SB011 | | K162SB011 | | K162SB017 | | K162SB017 | | K162SB018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01101 (0-1ft) | | 162SB01102 (3-5ft) | | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| ALUMINUM, SPLP | UG/L | | | | | | | | | | |
| ANTIMONY, SPLP | UG/L | | | | | | | | | | |
| ARSENIC,SPLP | UG/L | | | | | | | | | | |
| BARIUM, SPLP | UG/L | | | | | | | | | | |
| BERYLLIUM, SPLP | UG/L | | | | | | | | | | |
| CADMIUM, SPLP | UG/L | | | | | | | | | | |
| CALCIUM, SPLP | UG/L | | | | | | | | | | |
| COBALT, SPLP | UG/L | | | | | | | | | | |
| COPPER, SPLP | UG/L | | | | | | | | | | |
| IRON, SPLP | UG/L | | | | | | | | | | |
| LEAD, SPLP | UG/L | | | | | | | | | | |
| MAGNESIUM, SPLP | UG/L | | | | | | | | | | |
| MANGANESE, SPLP | UG/L | | | | | | | | | | |
| MERCURY, SPLP | UG/L | | | | | | | | | | |
| NICKEL, SPLP | UG/L | | | | | | | | | | |
| POTASSIUM, SPLP | UG/L | | | | | | | | | | |
| SELENIUM, SPLP | UG/L | | | | | | | | | | |
| SILVER, SPLP | UG/L | | | | | | | | | | |
| SODIUM, SPLP | UG/L | | | | | | | | | | |
| THALLIUM, SPLP | UG/L | | | | | | | | | | |
| Tin (Sn), SPLP | UG/L | | | | | | | | | | |
| VANADIUM, SPLP | UG/L | | | | | | | | | | |
| ALUMINUM | MG/KG | 7030 | = | 8010 | = | 9120 | = | 10500 | = | 8380 | = |
| ANTIMONY | MG/KG | 0 19 | U | 0 22 | U | 0 31 | J | 0 23 | J | 0 2 | U |
| ARSENIC | MG/KG | 0 89 | J | 0 74 | J | 1 4 | = | 0 6 | J | 1 8 | = |
| BARIUM | MG/KG | 19 3 | = | 10 1 | = | 10 | = | 9 4 | = | 16 8 | = |
| BERYLLIUM | MG/KG | 0 19 | J | 0 09 | J | 0 07 | J | 0 07 | J | 0 1 | J |
| CADMIUM | MG/KG | 0 06 | J | 0 04 | U | 0 04 | U | 0 04 | U | 0 04 | U |
| CALCIUM | MG/KG | 924 | = | 269 | = | 597 | = | 122 | = | 1790 | = |
| CHROMIUM, TOTAL | MG/KG | 6 | = | 6 3 | = | 9 4 | = | 10.1 | = | 9 1 | = |
| CHROMIUM, TOTAL | UG/L | | | | | | | | | | |
| COBALT | MG/KG | 0 82 | J | 0 93 | J | 0.55 | J | 1 3 | = | 0 62 | J |
| COPPER | MG/KG | 3 4 | = | 0 87 | J | 1 6 | J | 0 74 | J | 6 5 | = |
| IRON | MG/KG | 2420 | = | 1770 | = | 4770 | = | 3180 | = | 4760 | = |
| LEAD | MG/KG | 19 1 | = | 4 1 | = | 6 6 | = | 4 7 | = | 18 7 | = |
| MAGNESIUM | MG/KG | 269 | = | 306 | = | 211 | = | 258 | = | 227 | = |
| MANGANESE | MG/KG | 14 1 | = | 9 8 | = | 12 9 | = | 7 7 | = | 11 | = |
| MERCURY | MG/KG | 0 03 | = | 0 01 | J | 0 04 | = | 0 01 | J | 0 06 | = |
| NICKEL | MG/KG | 2 3 | J | 1 7 | J | 2 9 | J | 3 2 | J | 3 2 | J |
| POTASSIUM | MG/KG | 136 | = | 197 | = | 127 | = | 157 | = | 131 | = |
| SELENIUM | MG/KG | 0 3 | UJ | 0 29 | UJ | 0 26 | UJ | 0 29 | UJ | 0 28 | UJ |
| SILVER | MG/KG | 0 06 | U | 0 06 | U | 0 05 | U | 0 06 | U | 0 05 | U |
| SODIUM | MG/KG | 45 9 | U | 22 4 | U | 24 1 | U | 33 6 | U | 50 8 | U |
| THALLIUM | MG/KG | 0 36 | U | 0 42 | J | 0 4 | J | 0 35 | U | 0 55 | J |
| Tin (Sn) | MG/KG | 1 7 | U | 1 8 | U | 1 6 | U | 1 7 | U | 2 9 | U |
| VANADIUM | MG/KG | 7 9 | = | 7 5 | = | 13 2 | = | 11 9 | = | 12 8 | = |
| ZINC, SPLP | UG/L | | | | | | | | | | |

| | | | |
|---|---|---|---|
| | StationID | K162SB018 | |
| | SampleID | 162SB01802a (3-5ft) | |
| | DateCollected | 11/17/1999 | |
| | DateAnalyzed | 11/26/1999 | |
| | SDGNumber | NBCK05 | |
| Parameter | Units | | |
| ALUMINUM, SPLP | UG/L | | |
| ANTIMONY, SPLP | UG/L | | |
| ARSENIC,SPLP | UG/L | | |
| BARIUM, SPLP | UG/L | | |
| BERYLLIUM, SPLP | UG/L | | |
| CADMIUM, SPLP | UG/L | | |
| CALCIUM, SPLP | UG/L | | |
| COBALT, SPLP | UG/L | | |
| COPPER, SPLP | UG/L | | |
| IRON, SPLP | UG/L | | |
| LEAD, SPLP | UG/L | | |
| MAGNESIUM, SPLP | UG/L | | |
| MANGANESE, SPLP | UG/L | | |
| MERCURY, SPLP | UG/L | | |
| NICKEL, SPLP | UG/L | | |
| POTASSIUM SPLP | UG/L | | |
| SELENIUM SPLP | UG/L | | |
| SILVER, SPLP | UG/L | | |
| SODIUM, SPLP | UG/L | | |
| THALLIUM, SPLP | UG/L | | |
| Tin (Sn), SPLP | UG/L | | |
| VANADIUM, SPLP | UG/L | | |
| ALUMINUM | MG/KG | 9870 | = |
| ANTIMONY | MG/KG | 0 19 | U |
| ARSENIC | MG/KG | 0 96 | J |
| BARIUM | MG/KG | 8 6 | = |
| BERYLLIUM | MG/KG | 0 08 | J |
| CADMIUM | MG/KG | 0 04 | U |
| CALCIUM | MG/KG | 181 | = |
| CHROMIUM, TOTAL | MG/KG | 7 5 | = |
| CHROMIUM, TOTAL | UG/L | | |
| COBALT | MG/KG | 1 8 | = |
| COPPER | MG/KG | 0 9 | J |
| IRON | MG/KG | 3530 | = |
| LEAD | MG/KG | 4 8 | = |
| MAGNESIUM | MG/KG | 201 | = |
| MANGANESE | MG/KG | 5 9 | = |
| MERCURY | MG/KG | 0 02 | J |
| NICKEL | MG/KG | 5 1 | = |
| POTASSIUM | MG/KG | 112 | = |
| SELENIUM | MG/KG | 0 27 | UJ |
| SILVER | MG/KG | 0 05 | U |
| SODIUM | MG/KG | 21 2 | U |
| THALLIUM | MG/KG | 0 34 | U |
| Tin (Sn) | MG/KG | 1 5 | U |
| VANADIUM | MG/KG | 10 6 | = |
| ZINC, SPLP | UG/L | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB009 |
| | SampleID | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | | 162SB009S1 (0-1ft) |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 |
| | DateAnalyzed | 10/20/1999 | | 10/20/1999 | | 10/21/1999 | | 10/20/1999 | | 10/20/1999 |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 |
| Parameter | Units | | | | | | | | | |
| ZINC | MG/KG | | | | 24 3 | J | 6 9 | J | | |

Analytic ata Summary



| | StationID | K162SB009 | K162SB009 | K162SB009 | K162SB010 | K162SB010 |
|---|---|---|---|---|---|---|
| | SampleID | 162SB009S2 (3-5ft) | 162SB009T1 (0-1ft) | 162SB009T2 (3-5ft) | 162SB01001 (0-1ft) | 162SB01002 (3-5ft) |
| | DateCollected | 10/12/1999 | 10/12/1999 | 10/12/1999 | 11/17/1999 | 11/17/1999 |
| | DateAnalyzed | 10/20/1999 | 10/20/1999 | 10/20/1999 | 11/26/1999 | 11/26/1999 |
| | SDGNumber | NBCK01 | NBCK01 | NBCK01 | NBCK05 | NBCK05 |
| Parameter | Units | | | | | |
| ZINC | MG/KG | | 463 J | 40 5 J | 12 6 J | 9 1 J |

| | StationID | K162SB011 | | K162SB011 | | K162SB017 | | K162SB017 | | K162SB018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01101 (0-1ft) | | 162SB01102 (3-5ft) | | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | | 11/26/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| ZINC | MG/KG | 18 7 | J | 7 9 | J | 8 1 | J | 5 2 | J | 19 | J |

| | | | |
|---|---|---|---|
| | StationID | K162SB018 | |
| | SampleID | 162SB01802a (3-5ft) | |
| | DateCollected | 11/17/1999 | |
| | DateAnalyzed | 11/26/1999 | |
| | SDGNumber | NBCK05 | |
| Parameter | Units | | |
| ZINC | MG/KG | 5 3 | J |

| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | |
|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/21/1999 | | 10/19/1999 | | 10/19/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| **Parameter** | **Units** | | | | | | | | |
| PCB-1016 (AROCHLOR 1016), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1221 (AROCHLOR 1221), SPLP | UG/L | 2 | UJ | 2 | U | | | | |
| PCB-1232 (AROCHLOR 1232), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1242 (AROCHLOR 1242), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1248 (AROCHLOR 1248), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1254 (AROCHLOR 1254), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1260 (AROCHLOR 1260), SPLP | UG/L | 1 | UJ | 1 | U | | | | |
| PCB-1016 (AROCHLOR 1016) | UG/KG | | | | | 36 | U | 39 | U |
| PCB-1221 (AROCHLOR 1221) | UG/KG | | | | | 72 | U | 80 | U |
| PCB-1232 (AROCHLOR 1232) | UG/KG | | | | | 36 | U | 39 | U |
| PCB-1242 (AROCHLOR 1242) | UG/KG | | | | | 36 | U | 39 | U |
| PCB-1248 (AROCHLOR 1248) | UG/KG | | | | | 36 | U | 39 | U |
| PCB-1254 (AROCHLOR 1254) | UG/KG | | | | | 36 | U | 39 | U |
| PCB-1260 (AROCHLOR 1260) | UG/KG | | | | | 36 | U | 39 | U |

| StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB017 | |
|---|---|---|---|---|---|---|---|---|---|---|
| SampleID | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | | 162SB01701b (0-1ft) | |
| DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 11/17/1999 | |
| DateAnalyzed | 10/20/1999 | | 10/21/1999 | | 10/19/1999 | | 10/19/1999 | | 12/03/1999 | |
| SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK05 | |
| Parameter / Units | | | | | | | | | | |
| ALDRIN, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| DIELDRIN, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| ENDOSULFAN I, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| ENDOSULFAN II, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| ENDOSULFAN SULFATE, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| ENDRIN ALDEHYDE, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| ENDRIN KETONE, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| ENDRIN, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| GAMMA BHC (LINDANE), SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| GAMMA-CHLORDANE, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| HEPTACHLOR EPOXIDE, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| HEPTACHLOR, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| METHOXYCHLOR, SPLP / UG/L | 0 5 | UJ | 0 5 | U | | | | | | |
| p,p -DDD, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| p,p'-DDE, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| p,p'-DDT, SPLP / UG/L | 0 1 | UJ | 0 1 | U | | | | | | |
| TOXAPHENE, SPLP / UG/L | 5 | UJ | 5 | U | | | | | | |
| ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE), SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE) / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| GAMMA BHC (LINDANE) / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| BETA BHC (BETA HEXACHLOROCYCLOHEXANE), SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| BETA BHC (BETA HEXACHLOROCYCLOHEXANE) / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| HEPTACHLOR / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE), SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE) / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| ALDRIN / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| HEPTACHLOR EPOXIDE / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| GAMMA-CHLORDANE / UG/KG | | | | | 0 33 | J | 2 | U | 20 | = |
| ALPHA-CHLORDANE, SPLP / UG/L | 0 05 | UJ | 0 05 | U | | | | | | |
| ALPHA-CHLORDANE / UG/KG | | | | | 1 8 | U | 2 | U | 28 | = |
| ENDOSULFAN I / UG/KG | | | | | 1 8 | U | 2 | U | 18 | U |
| p,p -DDE / UG/KG | | | | | 22 | = | 0 27 | J | 24 | J |
| DIELDRIN / UG/KG | | | | | 3 6 | U | 3.9 | U | 36 | U |
| ENDRIN / UG/KG | | | | | 0 063 | U | 3 9 | U | 36 | U |
| p,p'-DDD / UG/KG | | | | | 3 5 | J | 3 9 | U | 19 | J |
| ENDOSULFAN II / UG/KG | | | | | 0 21 | U | 3 9 | U | 36 | U |
| p,p'-DDT / UG/KG | | | | | 3 6 | UJ | 0 25 | J | 82 | J |
| ENDRIN ALDEHYDE / UG/KG | | | | | 0 49 | J | 3 9 | U | 36 | U |
| ENDOSULFAN SULFATE / UG/KG | | | | | 0 49 | U | 3 9 | U | 36 | U |
| METHOXYCHLOR / UG/KG | | | | | 0 27 | J | 20 | U | 180 | U |
| ENDRIN KETONE / UG/KG | | | | | 0 21 | J | 3.9 | U | 36 | U |
| TOXAPHENE / UG/KG | | | | | 180 | U | 200 | U | 1800 | U |

| | StationID | K162SB017 | | K162SB018 | | K162SB018 | |
|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | | 162SB01802a (3-5ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 12/03/1999 | | 12/03/1999 | | 12/03/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | |
| ALDRIN, SPLP | UG/L | | | | | | |
| DIELDRIN, SPLP | UG/L | | | | | | |
| ENDOSULFAN I, SPLP | UG/L | | | | | | |
| ENDOSULFAN II, SPLP | UG/L | | | | | | |
| ENDOSULFAN SULFATE, SPLP | UG/L | | | | | | |
| ENDRIN ALDEHYDE, SPLP | UG/L | | | | | | |
| ENDRIN KETONE, SPLP | UG/L | | | | | | |
| ENDRIN, SPLP | UG/L | | | | | | |
| GAMMA BHC (LINDANE), SPLP | UG/L | | | | | | |
| GAMMA-CHLORDANE, SPLP | UG/L | | | | | | |
| HEPTACHLOR EPOXIDE, SPLP | UG/L | | | | | | |
| HEPTACHLOR, SPLP | UG/L | | | | | | |
| METHOXYCHLOR, SPLP | UG/L | | | | | | |
| p,p'-DDD, SPLP | UG/L | | | | | | |
| p,p'-DDE, SPLP | UG/L | | | | | | |
| p,p'-DDT, SPLP | UG/L | | | | | | |
| TOXAPHENE, SPLP | UG/L | | | | | | |
| ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE), SPLP | UG/L | | | | | | |
| ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE) | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| GAMMA BHC (LINDANE) | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| BETA BHC (BETA HEXACHLOROCYCLOHEXANE), SPLP | UG/L | | | | | | |
| BETA BHC (BETA HEXACHLOROCYCLOHEXANE) | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| HEPTACHLOR | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE), SPLP | UG/L | | | | | | |
| DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE) | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| ALDRIN | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| HEPTACHLOR EPOXIDE | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| GAMMA-CHLORDANE | UG/KG | 0 52 | U | 24 | = | 0 15 | J |
| ALPHA-CHLORDANE, SPLP | UG/L | | | | | | |
| ALPHA-CHLORDANE | UG/KG | 0 23 | J | 41 | = | 0 24 | J |
| ENDOSULFAN I | UG/KG | 2 | U | 9 2 | U | 2 | UJ |
| p,p'-DDE | UG/KG | 4 | U | 73 | = | 0 57 | J |
| DIELDRIN | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| ENDRIN | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| p,p'-DDD | UG/KG | 4 | U | 22 | J | 3 8 | UJ |
| ENDOSULFAN II | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| p,p'-DDT | UG/KG | 1 8 | J | 100 | = | 0 71 | J |
| ENDRIN ALDEHYDE | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| ENDOSULFAN SULFATE | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| METHOXYCHLOR | UG/KG | 20 | U | 92 | U | 20 | UJ |
| ENDRIN KETONE | UG/KG | 4 | U | 18 | U | 3 8 | UJ |
| TOXAPHENE | UG/KG | 200 | U | 920 | U | 200 | UJ |

| StationID | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SampleID | | 162CB002S1RE (0-1ft) | | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | |
| DateCollected | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| DateAnalyzed | | 10/20/1999 | | 10/19/1999 | | 10/19/1999 | | 10/14/1999 | | 10/19/1999 | |
| SDGNumber | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| Parameter | Units | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 1,2-DICHLOROBENZENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 1,3-DICHLOROBENZENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 1,4-DICHLOROBENZENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2,4,5-TRICHLOROPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,4,6-TRICHLOROPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,4-DICHLOROPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,4-DIMETHYLPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,4-DINITROPHENOL, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| 2,4-DINITROTOLUENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2,6-DINITROTOLUENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2-CHLORONAPHTHALENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2-CHLOROPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2-METHYLNAPHTHALENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2-METHYLNAPHTHALENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-METHYLPHENOL (o-CRESOL), SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 2-METHYLPHENOL (o-CRESOL) | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-NITROANILINE, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| 2-NITROPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 3,3'-DICHLOROBENZIDINE, SPLP | UG/L | 20 | R | 20 | U | 20 | U | | | | |
| 3-Methylphenol (m-Cresol), SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 3-Methylphenol (m-Cresol) | UG/KG | | | | | | | 360 | U | 390 | U |
| 3-NITROANILINE, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| 4,6-DINITRO-2-METHYLPHENOL, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| 4-BROMOPHENYL PHENYL ETHER, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 4-CHLORO-3-METHYLPHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 4-CHLOROANILINE, SPLP | UG/L | 20 | R | 20 | U | 20 | U | | | | |
| 4-CHLOROPHENYL PHENYL ETHER, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| 4-NITROANILINE, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| 4-NITROPHENOL, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| Benzidine | UG/KG | | | | | | | 2900 | U | 3200 | U |
| Benzoic acid, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| Benzyl alcohol, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZYL BUTYL PHTHALATE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| bis(2-CHLOROETHOXY) METHANE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| bis(2-ETHYLHEXYL) PHTHALATE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DI-n-BUTYL PHTHALATE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DI-n-OCTYLPHTHALATE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DIBENZOFURAN, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DIETHYL PHTHALATE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DIMETHYL PHTHALATE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| Diphenylamine, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| Diphenylamine | UG/KG | | | | | | | 360 | U | 390 | U |
| HEXACHLOROBENZENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| HEXACHLOROBUTADIENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |

| | StationID | K162SB017 | | K162SB017 | | K162SB018 | | K162SB018 | | K162SB019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | | 162SB01802a (3-5ft) | | 162SB01901 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 12/22/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 01/07/2000 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,2-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,3-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,4-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE, SPLP | UG/L | | | | | | | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2,4,5-TRICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4,6-TRICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DIMETHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DINITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DINITROTOLUENE, SPLP | UG/L | | | | | | | | | | |
| 2,6-DINITROTOLUENE, SPLP | UG/L | | | | | | | | | | |
| 2-CHLORONAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| 2-CHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2-METHYLNAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2-METHYLPHENOL (o-CRESOL), SPLP | UG/L | | | | | | | | | | |
| 2-METHYLPHENOL (o-CRESOL) | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2-NITROANILINE SPLP | UG/L | | | | | | | | | | |
| 2-NITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 3 3'-DICHLOROBENZIDINE, SPLP | UG/L | | | | | | | | | | |
| 3-Methylphenol (m-Cresol), SPLP | UG/L | | | | | | | | | | |
| 3-Methylphenol (m-Cresol) | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | | |
| 3-NITROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4,6-DINITRO-2-METHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER, SPLP | UG/L | | | | | | | | | | |
| 4-CHLORO-3-METHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 4-CHLOROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4-CHLOROPHENYL PHENYL ETHER, SPLP | UG/L | | | | | | | | | | |
| 4-NITROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4-NITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| Benzidine | UG/KG | | | | | | | | | | |
| Benzoic acid, SPLP | UG/L | | | | | | | | | | |
| Benzyl alcohol, SPLP | UG/L | | | | | | | | | | |
| BENZYL BUTYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHOXY) METHANE, SPLP | UG/L | | | | | | | | | | |
| bis(2-ETHYLHEXYL) PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DI-n-BUTYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DI-n-OCTYLPHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DIBENZOFURAN, SPLP | UG/L | | | | | | | | | | |
| DIETHYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DIMETHYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| Diphenylamine SPLP | UG/L | | | | | | | | | | |
| Diphenylamine | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | | |
| HEXACHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROBUTADIENE, SPLP | UG/L | | | | | | | | | | |

| | StationID | K162SB019 | | K162SB020 | | K162SB020 | | K162SB021 | | K162SB021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01902 (3-5ft) | | 162SB02001 (0-1ft) | | 162SB02002 (3-5ft) | | 162SB02101 (0-1ft) | | 162SB02102 (3-5ft) | |
| | DateCollected | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | |
| | DateAnalyzed | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | |
| | SDGNumber | 41577 | | 41577 | | 41577 | | 41577 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,2-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,3-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 1,4-DICHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE, SPLP | UG/L | | | | | | | | | | |
| 2,2'-OXYBIS(1-CHLORO)PROPANE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2,4,5-TRICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4,6-TRICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DICHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DIMETHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DINITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2,4-DINITROTOLUENE, SPLP | UG/L | | | | | | | | | | |
| 2,6-DINITROTOLUENE, SPLP | UG/L | | | | | | | | | | |
| 2-CHLORONAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| 2-CHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 2-METHYLNAPHTHALENE SPLP | UG/L | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2-METHYLPHENOL (o-CRESOL), SPLP | UG/L | | | | | | | | | | |
| 2-METHYLPHENOL (o-CRESOL) | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2-NITROANILINE, SPLP | UG/L | | | | | | | | | | |
| 2-NITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| 3,3'-DICHLOROBENZIDINE, SPLP | UG/L | | | | | | | | | | |
| 3-Methylphenol (m-Cresol), SPLP | UG/L | | | | | | | | | | |
| 3-Methylphenol (m-Cresol) | UG/KG | | | | | | | | | | |
| 3-NITROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4,6-DINITRO-2-METHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER, SPLP | UG/L | | | | | | | | | | |
| 4-CHLORO-3-METHYLPHENOL, SPLP | UG/L | | | | | | | | | | |
| 4-CHLOROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4-CHLOROPHENYL PHENYL ETHER, SPLP | UG/L | | | | | | | | | | |
| 4-NITROANILINE, SPLP | UG/L | | | | | | | | | | |
| 4-NITROPHENOL, SPLP | UG/L | | | | | | | | | | |
| Benzidine | UG/KG | | | | | | | | | | |
| Benzoic acid, SPLP | UG/L | | | | | | | | | | |
| Benzyl alcohol, SPLP | UG/L | | | | | | | | | | |
| BENZYL BUTYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHOXY) METHANE, SPLP | UG/L | | | | | | | | | | |
| bis(2-ETHYLHEXYL) PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DI-n-BUTYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DI-n-OCTYLPHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DIBENZOFURAN, SPLP | UG/L | | | | | | | | | | |
| DIETHYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| DIMETHYL PHTHALATE, SPLP | UG/L | | | | | | | | | | |
| Diphenylamine, SPLP | UG/L | | | | | | | | | | |
| Diphenylamine | UG/KG | | | | | | | | | | |
| HEXACHLOROBENZENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROBUTADIENE, SPLP | UG/L | | | | | | | | | | |

| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162CB002S1RE (0-1ft) | | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/19/1999 | | 10/19/1999 | | 10/14/1999 | | 10/19/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| Parameter | Units | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| HEXACHLOROETHANE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| ISOPHORONE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| N-NITROSODI-n-PROPYLAMINE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| N-Nitrosodimethylamine, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| N-Nitrosodimethylamine | UG/KG | | | | | | | 360 | U | 390 | U |
| NITROBENZENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| PENTACHLOROPHENOL, SPLP | UG/L | 50 | R | 50 | U | 50 | U | | | | |
| PHENOL, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| PHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| ACENAPHTHYLENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| ACENAPHTHYLENE | UG/KG | | | | | | | 360 | U | 390 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER), | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-CHLOROPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| ACENAPHTHENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| ACENAPHTHENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 1,3-DICHLOROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |
| FLUORENE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| FLUORENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 1 4-DICHLOROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |
| PHENANTHRENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| PHENANTHRENE | UG/KG | | | | | | | 360 | U | 390 | U |
| ANTHRACENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| ANTHRACENE | UG/KG | | | | | | | 360 | U | 390 | U |
| Benzyl alcohol | UG/KG | | | | | | | 360 | U | 390 | U |
| FLUORANTHENE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| FLUORANTHENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 1,2-DICHLOROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |
| PYRENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| PYRENE | UG/KG | | | | | | | 68 | J | 390 | U |
| BENZO(a)ANTHRACENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZO(a)ANTHRACENE | UG/KG | | | | | | | 46 | J | 390 | U |
| CHRYSENE SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| CHRYSENE | UG/KG | | | | | | | 52 | J | 390 | U |
| BENZO(b)FLUORANTHENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZO(b)FLUORANTHENE | UG/KG | | | | | | | 360 | U | 390 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-METHYLPHENOL (p-CRESOL) | UG/KG | | | | | | | | | | |
| BENZO(k)FLUORANTHENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZO(k)FLUORANTHENE | UG/KG | | | | | | | 360 | U | 390 | U |
| BENZO(a)PYRENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZO(a)PYRENE | UG/KG | | | | | | | 360 | U | 390 | U |
| HEXACHLOROETHANE | UG/KG | | | | | | | 360 | U | 390 | U |
| INDENO(1,2,3-c,d)PYRENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| INDENO(1 2,3-c,d)PYRENE | UG/KG | | | | | | | 360 | U | 390 | U |
| NITROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |

| | StationID | K162SB012 | | K162SB012 | | K162SB013 | | K162SB013 | | K162SB014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01201 (0-1ft) | | 162SB01202 (3-5ft) | | 162SB01301 (0-1ft) | | 162SB01302 (3-5ft) | | 162SB01401 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROETHANE, SPLP | UG/L | | | | | | | | | | |
| ISOPHORONE, SPLP | UG/L | | | | | | | | | | |
| N-NITROSODI n-PROPYLAMINE SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| NITROBENZENE, SPLP | UG/L | | | | | | | | | | |
| PENTACHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| ACENAPHTHYLENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHYLENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER), | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2-CHLOROPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| ACENAPHTHENE SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 1,3-DICHLOROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| FLUORENE, SPLP | UG/L | | | | | | | | | | |
| FLUORENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 1,4-DICHLOROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| PHENANTHRENE, SPLP | UG/L | | | | | | | | | | |
| PHENANTHRENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| ANTHRACENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| Benzyl alcohol | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| FLUORANTHENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 1,2-DICHLOROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| PYRENE, SPLP | UG/L | | | | | | | | | | |
| PYRENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| BENZO(a)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)ANTHRACENE | UG/KG | 380 | U | 400 | U | 24 | J | 420 | U | 380 | U |
| CHRYSENE, SPLP | UG/L | | | | | | | | | | |
| CHRYSENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| BENZO(b)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(b)FLUORANTHENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-METHYLPHENOL (p-CRESOL) | UG/KG | | | | | | | | | | |
| BENZO(k)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(k)FLUORANTHENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| BENZO(a)PYRENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)PYRENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| HEXACHLOROETHANE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| INDENO(1,2,3-c,d)PYRENE, SPLP | UG/L | | | | | | | | | | |
| INDENO(1,2,3-c,d)PYRENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| NITROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |

| | StationID | K162SB014 | | K162SB015 | | K162SB015 | | K162SB016 | | K162SB016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01402 (3-5ft) | | 162SB01501 (0-1ft) | | 162SB01502 (3-5ft) | | 162SB01601 (0-1ft) | | 162SB01602 (3-5ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROETHANE, SPLP | UG/L | | | | | | | | | | |
| ISOPHORONE, SPLP | UG/L | | | | | | | | | | |
| N-NITROSODI-n-PROPYLAMINE, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| NITROBENZENE, SPLP | UG/L | | | | | | | | | | |
| PENTACHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| ACENAPHTHYLENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHYLENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER), | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2-CHLOROPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| ACENAPHTHENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 1,3-DICHLOROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| FLUORENE, SPLP | UG/L | | | | | | | | | | |
| FLUORENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 1,4-DICHLOROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| PHENANTHRENE, SPLP | UG/L | | | | | | | | | | |
| PHENANTHRENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| ANTHRACENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| Benzyl alcohol | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| FLUORANTHENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 1,2-DICHLOROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| PYRENE, SPLP | UG/L | | | | | | | | | | |
| PYRENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| BENZO(a)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)ANTHRACENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| CHRYSENE, SPLP | UG/L | | | | | | | | | | |
| CHRYSENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| BENZO(b)FLUORANTHENE SPLP | UG/L | | | | | | | | | | |
| BENZO(b)FLUORANTHENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-METHYLPHENOL (p-CRESOL) | UG/KG | | | | | | | | | | |
| BENZO(k)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(k)FLUORANTHENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| BENZO(a)PYRENE SPLP | UG/L | | | | | | | | | | |
| BENZO(a)PYRENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| HEXACHLOROETHANE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| INDENO(1,2,3-c,d)PYRENE, SPLP | UG/L | | | | | | | | | | |
| INDENO(1,2,3-c,d)PYRENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| NITROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |

| | StationID | K162SB017 | | K162SB017 | | K162SB018 | | K162SB018 | | K162SB019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | | 162SB01802a (3-5ft) | | 162SB01901 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 12/22/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 01/07/2000 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROETHANE, SPLP | UG/L | | | | | | | | | | |
| ISOPHORONE, SPLP | UG/L | | | | | | | | | | |
| N-NITROSODI-n-PROPYL AMINE, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | | |
| NITROBENZENE SPLP | UG/L | | | | | | | | | | |
| PENTACHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| ACENAPHTHYLENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHYLENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER), | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2-CHLOROPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| ACENAPHTHENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 1,3-DICHLOROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| FLUORENE, SPLP | UG/L | | | | | | | | | | |
| FLUORENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 1,4-DICHLOROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| PHENANTHRENE, SPLP | UG/L | | | | | | | | | | |
| PHENANTHRENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| ANTHRACENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| Benzyl alcohol | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| FLUORANTHENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 19 | J |
| 1,2-DICHLOROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| PYRENE, SPLP | UG/L | | | | | | | | | | |
| PYRENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 19 | J |
| BENZO(a)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)ANTHRACENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| CHRYSENE, SPLP | UG/L | | | | | | | | | | |
| CHRYSENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| BENZO(b)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(b)FLUORANTHENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-METHYLPHENOL (p-CRESOL) | UG/KG | | | | | | | | | 370 | U |
| BENZO(k)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(k)FLUORANTHENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| BENZO(a)PYRENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)PYRENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| HEXACHLOROETHANE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| INDENO(1,2,3-c,d)PYRENE, SPLP | UG/L | | | | | | | | | | |
| INDENO(1,2,3-c,d)PYRENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| NITROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |

| | StationID | K162SB019 | | K162SB020 | | K162SB020 | | K162SB021 | | K162SB021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01902 (3-5ft) | | 162SB02001 (0-1ft) | | 162SB02002 (3-5ft) | | 162SB02101 (0-1ft) | | 162SB02102 (3-5ft) | |
| | DateCollected | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | |
| | DateAnalyzed | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | |
| | SDGNumber | 41577 | | 41577 | | 41577 | | 41577 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE, SPLP | UG/L | | | | | | | | | | |
| HEXACHLOROETHANE, SPLP | UG/L | | | | | | | | | | |
| ISOPHORONE, SPLP | UG/L | | | | | | | | | | |
| N-NITROSODI-n-PROPYLAMINE, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine, SPLP | UG/L | | | | | | | | | | |
| N-Nitrosodimethylamine | UG/KG | | | | | | | | | | |
| NITROBENZENE, SPLP | UG/L | | | | | | | | | | |
| PENTACHLOROPHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL, SPLP | UG/L | | | | | | | | | | |
| PHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| ACENAPHTHYLENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHYLENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER), | UG/L | | | | | | | | | | |
| bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2-CHLOROPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| ACENAPHTHENE, SPLP | UG/L | | | | | | | | | | |
| ACENAPHTHENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 1,3-DICHLOROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| FLUORENE, SPLP | UG/L | | | | | | | | | | |
| FLUORENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 1,4-DICHLOROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| PHENANTHRENE, SPLP | UG/L | | | | | | | | | | |
| PHENANTHRENE | UG/KG | 380 | U | 430 | U | 400 | U | 23 | J | 400 | U |
| ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| ANTHRACENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| Benzyl alcohol | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| FLUORANTHENE | UG/KG | 380 | U | 29 | J | 400 | U | 40 | J | 400 | U |
| 1,2-DICHLOROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| PYRENE, SPLP | UG/L | | | | | | | | | | |
| PYRENE | UG/KG | 380 | U | 39 | J | 400 | U | 43 | J | 400 | U |
| BENZO(a)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)ANTHRACENE | UG/KG | 380 | U | 430 | U | 400 | U | 25 | J | 400 | U |
| CHRYSENE, SPLP | UG/L | | | | | | | | | | |
| CHRYSENE | UG/KG | 380 | U | 27 | J | 400 | U | 33 | J | 400 | U |
| BENZO(b)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(b)FLUORANTHENE | UG/KG | 380 | U | 27 | J | 400 | U | 25 | J | 400 | U |
| N-NITROSODI-n-PROPYLAMINE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-METHYLPHENOL (p-CRESOL) | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| BENZO(k)FLUORANTHENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(k)FLUORANTHENE | UG/KG | 380 | U | 23 | J | 400 | U | 21 | J | 400 | U |
| BENZO(a)PYRENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(a)PYRENE | UG/KG | 380 | U | 25 | J | 400 | U | 21 | J | 400 | U |
| HEXACHLOROETHANE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| INDENO(1,2,3-c,d)PYRENE, SPLP | UG/L | | | | | | | | | | |
| INDENO(1,2,3-c,d)PYRENE | UG/KG | 380 | U | 24 | J | 400 | U | 380 | U | 400 | U |
| NITROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |

| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162CB002S1RE (0-1ft) | | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/19/1999 | | 10/19/1999 | | 10/14/1999 | | 10/19/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| Parameter | Units | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| DIBENZ(a,h)ANTHRACENE | UG/KG | | | | | | | 360 | U | 390 | U |
| ISOPHORONE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-NITROPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| BENZO(g,h,i)PERYLENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| BENZO(g,h,i)PERYLENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2,4-DIMETHYLPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/KG | | | | | | | 360 | U | 390 | U |
| Benzoic acid | UG/KG | | | | | | | 1800 | U | 2000 | U |
| 2,4-DICHLOROPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| 1,2,4-TRICHLOROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-CHLOROANILINE | UG/KG | | | | | | | 710 | U | 780 | U |
| HEXACHLOROBUTADIENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2,4,6-TRICHLOROPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| 2,4,5-TRICHLOROPHENOL | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-CHLORONAPHTHALENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 2-NITROANILINE | UG/KG | | | | | | | 1800 | U | 2000 | U |
| 2,6-DINITROTOLUENE | UG/KG | | | | | | | 360 | U | 390 | U |
| 3-NITROANILINE | UG/KG | | | | | | | 1800 | U | 2000 | U |
| 2,4-DINITROPHENOL | UG/KG | | | | | | | 1800 | U | 2000 | UJ |
| DIBENZOFURAN | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-NITROPHENOL | UG/KG | | | | | | | 1800 | U | 2000 | U |
| 2,4-DINITROTOLUENE | UG/KG | | | | | | | 360 | U | 390 | U |
| DIMETHYL PHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |
| DIETHYL PHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/KG | | | | | | | 360 | U | 390 | U |
| 4-NITROANILINE | UG/KG | | | | | | | 1800 | U | 2000 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/KG | | | | | | | 1800 | U | 2000 | U |
| N-NITROSODIPHENYLAMINE | UG/KG | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | UG/KG | | | | | | | 360 | U | 390 | U |
| HEXACHLOROBENZENE | UG/KG | | | | | | | 360 | U | 390 | U |
| PENTACHLOROPHENOL | UG/KG | | | | | | | 1800 | U | 2000 | U |
| DI-n-BUTYL PHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |
| BENZYL BUTYL PHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |
| 3,3'-DICHLOROBENZIDINE | UG/KG | | | | | | | 710 | U | 780 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |
| DI-n-OCTYLPHTHALATE | UG/KG | | | | | | | 360 | U | 390 | U |

| | StationID | K162SB012 | | K162SB012 | | K162SB013 | | K162SB013 | | K162SB014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01201 (0-1ft) | | 162SB01202 (3-5ft) | | 162SB01301 (0-1ft) | | 162SB01302 (3-5ft) | | 162SB01401 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| ISOPHORONE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2-NITROPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| BENZO(g,h,i)PERYLENE SPLP | UG/L | | | | | | | | | | |
| BENZO(g,h,i)PERYLENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2,4-DIMETHYLPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| Benzoic acid | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| 2,4-DICHLOROPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 1,2,4-TRICHLOROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-CHLOROANILINE | UG/KG | 750 | U | 810 | U | 760 | U | 840 | U | 760 | U |
| HEXACHLOROBUTADIENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2,4,6-TRICHLOROPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2,4,5-TRICHLOROPHENOL | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2-CHLORONAPHTHALENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 2-NITROANILINE | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| 2,6-DINITROTOLUENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 3-NITROANILINE | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| 2,4-DINITROPHENOL | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| DIBENZOFURAN | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-NITROPHENOL | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| 2,4-DINITROTOLUENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| DIMETHYL PHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| DIETHYL PHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 4-NITROANILINE | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| N-NITROSODIPHENYLAMINE | UG/KG | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| HEXACHLOROBENZENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| PENTACHLOROPHENOL | UG/KG | 1900 | U | 2100 | U | 2000 | U | 2200 | U | 2000 | U |
| DI-n-BUTYL PHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| BENZYL BUTYL PHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| 3,3'-DICHLOROBENZIDINE | UG/KG | 750 | U | 810 | U | 760 | U | 840 | U | 760 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| DI-n-OCTYLPHTHALATE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |

| | StationID | K162SB014 | | K162SB015 | | K162SB015 | | K162SB016 | | K162SB016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01402 (3-5ft) | | 162SB01501 (0-1ft) | | 162SB01502 (3-5ft) | | 162SB01601 (0-1ft) | | 162SB01602 (3-5ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| ISOPHORONE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2-NITROPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| BENZO(g,h,i)PERYLENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(g,h,i)PERYLENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2,4-DIMETHYLPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| Benzoic acid | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| 2,4-DICHLOROPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 1,2,4-TRICHLOROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-CHLOROANILINE | UG/KG | 840 | U | 780 | U | 740 | U | 790 | U | 790 | U |
| HEXACHLOROBUTADIENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2,4,6-TRICHLOROPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2,4,5-TRICHLOROPHENOL | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2-CHLORONAPHTHALENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 2-NITROANILINE | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| 2,6-DINITROTOLUENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 3-NITROANILINE | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| 2,4-DINITROPHENOL | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| DIBENZOFURAN | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-NITROPHENOL | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| 2,4-DINITROTOLUENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| DIMETHYL PHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| DIETHYL PHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 4-NITROANILINE | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| N-NITROSODIPHENYLAMINE | UG/KG | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| HEXACHLOROBENZENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| PENTACHLOROPHENOL | UG/KG | 2200 | U | 2000 | U | 1900 | U | 2000 | U | 2000 | U |
| DI-n-BUTYL PHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| BENZYL BUTYL PHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| 3,3'-DICHLOROBENZIDINE | UG/KG | 840 | U | 780 | U | 740 | U | 790 | U | 790 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| DI-n-OCTYLPHTHALATE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |

| | StationID | K162SB017 | | K162SB017 | | K162SB018 | | K162SB018 | | K162SB019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | | 162SB01802a (3-5ft) | | 162SB01901 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 12/22/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 01/07/2000 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| ISOPHORONE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2-NITROPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| BENZO(g,h,i)PERYLENE, SPLP | UG/L | | | | | | | | | | |
| BENZO(g,h,i)PERYLENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2,4-DIMETHYLPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| Benzoic acid | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 41 | J |
| 2,4-DICHLOROPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 1,2,4-TRICHLOROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-CHLOROANILINE | UG/KG | 720 | U | 800 | U | 710 | U | 750 | U | 370 | U |
| HEXACHLOROBUTADIENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2,4,6 TRICHLOROPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2,4,5-TRICHLOROPHENOL | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 930 | U |
| 2-CHLORONAPHTHALENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 2-NITROANILINE | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| 2,6-DINITROTOLUENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 3-NITROANILINE | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| 2,4-DINITROPHENOL | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| DIBENZOFURAN | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-NITROPHENOL | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| 2,4-DINITROTOLUENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| DIMETHYL PHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| DIETHYL PHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 4-NITROANILINE | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| N-NITROSODIPHENYLAMINE | UG/KG | | | | | | | | | 370 | U |
| 4-BROMOPHENYL PHENYL ETHER | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| HEXACHLOROBENZENE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| PENTACHLOROPHENOL | UG/KG | 1800 | U | 2000 | U | 1800 | U | 1900 | U | 930 | U |
| DI-n-BUTYL PHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| BENZYL BUTYL PHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |
| 3,3'-DICHLOROBENZIDINE | UG/KG | 720 | U | 800 | U | 710 | U | 750 | U | 370 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 35 | J |
| DI-n-OCTYLPHTHALATE | UG/KG | 360 | U | 400 | U | 360 | U | 380 | U | 370 | U |

| | StationID | K162SB019 | | K162SB020 | | K162SB020 | | K162SB021 | | K162SB021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01902 (3-5ft) | | 162SB02001 (0-1ft) | | 162SB02002 (3-5ft) | | 162SB02101 (0-1ft) | | 162SB02102 (3-5ft) | |
| | DateCollected | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | |
| | DateAnalyzed | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | |
| | SDGNumber | 41577 | | 41577 | | 41577 | | 41577 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE, SPLP | UG/L | | | | | | | | | | |
| DIBENZ(a,h)ANTHRACENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| ISOPHORONE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2-NITROPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| BENZO(g,h,i)PERYLENE SPLP | UG/L | | | | | | | | | | |
| BENZO(g,h,i)PERYLENE | UG/KG | 380 | U | 29 | J | 400 | U | 21 | J | 400 | U |
| 2,4-DIMETHYLPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| bis(2-CHLOROETHOXY) METHANE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| Benzoic acid | UG/KG | 380 | U | 78 | J | 400 | U | 77 | J | 400 | U |
| 2,4-DICHLOROPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 1,2,4-TRICHLOROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-CHLOROANILINE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| HEXACHLOROBUTADIENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-CHLORO-3-METHYLPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| HEXACHLOROCYCLOPENTADIENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2,4,6-TRICHLOROPHENOL | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2,4,5-TRICHLOROPHENOL | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| 2-CHLORONAPHTHALENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 2-NITROANILINE | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| 2,6-DINITROTOLUENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 3-NITROANILINE | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| 2,4-DINITROPHENOL | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| DIBENZOFURAN | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-NITROPHENOL | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| 2,4-DINITROTOLUENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| DIMETHYL PHTHALATE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| DIETHYL PHTHALATE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-CHLOROPHENYL PHENYL ETHER | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-NITROANILINE | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| 4,6-DINITRO-2-METHYLPHENOL | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| N-NITROSODIPHENYLAMINE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 4-BROMOPHENYL PHENYL ETHER | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| HEXACHLOROBENZENE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| PENTACHLOROPHENOL | UG/KG | 960 | U | 1100 | U | 1000 | U | 960 | U | 990 | U |
| DI-n-BUTYL PHTHALATE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| BENZYL BUTYL PHTHALATE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| 3,3'-DICHLOROBENZIDINE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |
| bis(2-ETHYLHEXYL) PHTHALATE | UG/KG | 45 | J | 52 | J | 27 | J | 56 | J | 28 | J |
| DI-n-OCTYLPHTHALATE | UG/KG | 380 | U | 430 | U | 400 | U | 380 | U | 400 | U |

| | StationID | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | | K162SB002 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162CSB002S1RE (0-1ft) | | 162SB002S1 (0-1ft) | | 162SB002S2 (3-5ft) | | 162SB002T1 (0-1ft) | | 162SB002T2 (3-5ft) | |
| | DateCollected | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | | 10/12/1999 | |
| | DateAnalyzed | 10/20/1999 | | 10/19/1999 | | 10/19/1999 | | 10/14/1999 | | 10/19/1999 | |
| | SDGNumber | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | | NBCK01 | |
| **Parameter** | **Units** | | | | | | | | | | |
| BENZENE | UG/KG | | | | | | | | | | |
| CHLOROMETHANE | UG/KG | | | | | | | | | | |
| NAPHTHALENE, SPLP | UG/L | 10 | R | 10 | U | 10 | U | | | | |
| NAPHTHALENE | UG/KG | | | | | | | 360 | U | 390 | U |
| TOLUENE | UG/KG | | | | | | | | | | |
| VINYL CHLORIDE | UG/KG | | | | | | | | | | |
| BROMOMETHANE | UG/KG | | | | | | | | | | |
| ETHYLBENZENE | UG/KG | | | | | | | | | | |
| CHLOROETHANE | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHENE | UG/KG | | | | | | | | | | |
| METHYLENE CHLORIDE | UG/KG | | | | | | | | | | |
| XYLENES, TOTAL | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| CHLOROFORM | UG/KG | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| CARBON TETRACHLORIDE | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| TRICHLOROETHYLENE (TCE) | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | UG/KG | | | | | | | | | | |
| BROMODICHLOROMETHANE | UG/KG | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| TETRACHLOROETHYLENE(PCE) | UG/KG | | | | | | | | | | |
| DIBROMOCHLOROMETHANE | UG/KG | | | | | | | | | | |
| CHLOROBENZENE | UG/KG | | | | | | | | | | |
| STYRENE | UG/KG | | | | | | | | | | |
| BROMOFORM | UG/KG | | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | | | | | | | | | | |
| ACETONE | UG/KG | | | | | | | | | | |
| CARBON DISULFIDE | UG/KG | | | | | | | | | | |
| Vinyl acetate | UG/KG | | | | | | | | | | |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | | | | | | | | | | |
| 2-Chloroethyl vinyl ether | UG/KG | | | | | | | | | | |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | | | | | | | | | | |
| cis-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| trans-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| 2-HEXANONE | UG/KG | | | | | | | | | | |
| 1,2-Dichloroethene (total) | UG/KG | | | | | | | | | | |

| | StationID | K162SB012 | | K162SB012 | | K162SB013 | | K162SB013 | | K162SB014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01201 (0-1ft) | | 162SB01202 (3-5ft) | | 162SB01301 (0-1ft) | | 162SB01302 (3-5ft) | | 162SB01401 (0-1ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| BENZENE | UG/KG | | | | | | | | | | |
| CHLOROMETHANE | UG/KG | | | | | | | | | | |
| NAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| NAPHTHALENE | UG/KG | 380 | U | 400 | U | 380 | U | 420 | U | 380 | U |
| TOLUENE | UG/KG | | | | | | | | | | |
| VINYL CHLORIDE | UG/KG | | | | | | | | | | |
| BROMOMETHANE | UG/KG | | | | | | | | | | |
| ETHYLBENZENE | UG/KG | | | | | | | | | | |
| CHLOROETHANE | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHENE | UG/KG | | | | | | | | | | |
| METHYLENE CHLORIDE | UG/KG | | | | | | | | | | |
| XYLENES, TOTAL | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| CHLOROFORM | UG/KG | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| CARBON TETRACHLORIDE | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| TRICHLOROETHYLENE (TCE) | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | UG/KG | | | | | | | | | | |
| BROMODICHLOROMETHANE | UG/KG | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| TETRACHLOROETHYLENE(PCE) | UG/KG | | | | | | | | | | |
| DIBROMOCHLOROMETHANE | UG/KG | | | | | | | | | | |
| CHLOROBENZENE | UG/KG | | | | | | | | | | |
| STYRENE | UG/KG | | | | | | | | | | |
| BROMOFORM | UG/KG | | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | | | | | | | | | | |
| ACETONE | UG/KG | | | | | | | | | | |
| CARBON DISULFIDE | UG/KG | | | | | | | | | | |
| Vinyl acetate | UG/KG | | | | | | | | | | |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | | | | | | | | | | |
| 2-Chloroethyl vinyl ether | UG/KG | | | | | | | | | | |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | | | | | | | | | | |
| cis-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| trans-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| 2-HEXANONE | UG/KG | | | | | | | | | | |
| 1,2-Dichloroethene (total) | UG/KG | | | | | | | | | | |

| | StationID | K162SB014 | | K162SB015 | | K162SB015 | | K162SB016 | | K162SB016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01402 (3-5ft) | | 162SB01501 (0-1ft) | | 162SB01502 (3-5ft) | | 162SB01601 (0-1ft) | | 162SB01602 (3-5ft) | |
| | DateCollected | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| | DateAnalyzed | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | | 11/28/1999 | |
| | SDGNumber | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| BENZENE | UG/KG | | | | | | | | | | |
| CHLOROMETHANE | UG/KG | | | | | | | | | | |
| NAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| NAPHTHALENE | UG/KG | 420 | U | 390 | U | 370 | U | 390 | U | 400 | U |
| TOLUENE | UG/KG | | | | | | | | | | |
| VINYL CHLORIDE | UG/KG | | | | | | | | | | |
| BROMOMETHANE | UG/KG | | | | | | | | | | |
| ETHYLBENZENE | UG/KG | | | | | | | | | | |
| CHLOROETHANE | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHENE | UG/KG | | | | | | | | | | |
| METHYLENE CHLORIDE | UG/KG | | | | | | | | | | |
| XYLENES, TOTAL | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| CHLOROFORM | UG/KG | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| CARBON TETRACHLORIDE | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| TRICHLOROETHYLENE (TCE) | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | UG/KG | | | | | | | | | | |
| BROMODICHLOROMETHANE | UG/KG | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| TETRACHLOROETHYLENE(PCE) | UG/KG | | | | | | | | | | |
| DIBROMOCHLOROMETHANE | UG/KG | | | | | | | | | | |
| CHLOROBENZENE | UG/KG | | | | | | | | | | |
| STYRENE | UG/KG | | | | | | | | | | |
| BROMOFORM | UG/KG | | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | | | | | | | | | | |
| ACETONE | UG/KG | | | | | | | | | | |
| CARBON DISULFIDE | UG/KG | | | | | | | | | | |
| Vinyl acetate | UG/KG | | | | | | | | | | |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | | | | | | | | | | |
| 2-Chloroethyl vinyl ether | UG/KG | | | | | | | | | | |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | | | | | | | | | | |
| cis-1,3 DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| trans-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| 2-HEXANONE | UG/KG | | | | | | | | | | |
| 1,2-Dichloroethene (total) | UG/KG | | | | | | | | | | |

| StationID | | K162SB017 | | K162SB017 | | K162SB017 | | K162SB018 | | K162SB018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SampleID | | 162SB01701b (0-1ft) | | 162SB01702a (3-5ft) | | 162SB01702a (3-5ft) | | 162SB01801a (0-1ft) | | 162SB01802a (3-5ft) | |
| DateCollected | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | | 11/17/1999 | |
| DateAnalyzed | | 11/28/1999 | | 11/28/1999 | | 11/29/1999 | | 11/28/1999 | | 11/28/1999 | |
| SDGNumber | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | | NBCK05 | |
| Parameter | Units | | | | | | | | | | |
| BENZENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| CHLOROMETHANE | UG/KG | 7 8 | U | | | 7 9 | U | 8 8 | U | 8 4 | U |
| NAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| NAPHTHALENE | UG/KG | 360 | U | 400 | U | | | 360 | U | 360 | U |
| TOLUENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| VINYL CHLORIDE | UG/KG | 7 8 | U | | | 7 9 | U | 8.8 | U | 8 4 | U |
| BROMOMETHANE | UG/KG | 7 8 | U | | | 7 9 | U | 8 8 | U | 8 4 | U |
| ETHYLBENZENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| CHLOROETHANE | UG/KG | 7 8 | U | | | 7 9 | U | 8.8 | U | 8 4 | U |
| 1,1-DICHLOROETHENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| METHYLENE CHLORIDE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| XYLENES, TOTAL | UG/KG | 7 8 | U | | | 7 9 | U | 8.8 | U | 8 4 | U |
| 1,1-DICHLOROETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| CHLOROFORM | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| 1,1,1-TRICHLOROETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| CARBON TETRACHLORIDE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| 1,2-DICHLOROETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| TRICHLOROETHYLENE (TCE) | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| 1,2-DICHLOROPROPANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| BROMODICHLOROMETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| 1,1,2-TRICHLOROETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| TETRACHLOROETHYLENE(PCE) | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| DIBROMOCHLOROMETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| CHLOROBENZENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| STYRENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| BROMOFORM | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| ACETONE | UG/KG | 39 | U | | | 40 | U | 44 | U | 42 | U |
| CARBON DISULFIDE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| Vinyl acetate | UG/KG | 7 8 | U | | | 7 9 | U | 8 8 | U | 8 4 | U |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | 20 | U | | | 20 | U | 22 | U | 21 | U |
| 2-Chloroethyl vinyl ether | UG/KG | 39 | R | | | 40 | R | 44 | R | 42 | R |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | 20 | U | | | 20 | U | 22 | U | 21 | U |
| cis-1,3-DICHLOROPROPENE | UG/KG | 3 9 | U | | | 4 | U | 4 4 | U | 4 2 | U |
| trans-1,3-DICHLOROPROPENE | UG/KG | 3 9 | U | | | 4 | U | 4.4 | U | 4 2 | U |
| 2-HEXANONE | UG/KG | 20 | U | | | 20 | U | 22 | U | 21 | U |
| 1,2-Dichloroethene (total) | UG/KG | 3 9 | U | | | 4 | U | 4.4 | U | 4 2 | U |

| | StationID | K162SB019 | | K162SB019 | | K162SB020 | | K162SB020 | | K162SB021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SampleID | 162SB01901 (0-1ft) | | 162SB01902 (3-5ft) | | 162SB02001 (0-1ft) | | 162SB02002 (3-5ft) | | 162SB02101 (0-1ft) | |
| | DateCollected | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | | 12/22/1999 | |
| | DateAnalyzed | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | | 01/07/2000 | |
| | SDGNumber | 41577 | | 41577 | | 41577 | | 41577 | | 41577 | |
| Parameter | Units | | | | | | | | | | |
| BENZENE | UG/KG | | | | | | | | | | |
| CHLOROMETHANE | UG/KG | | | | | | | | | | |
| NAPHTHALENE, SPLP | UG/L | | | | | | | | | | |
| NAPHTHALENE | UG/KG | 370 | U | 380 | U | 430 | U | 400 | U | 21 | J |
| TOLUENE | UG/KG | | | | | | | | | | |
| VINYL CHLORIDE | UG/KG | | | | | | | | | | |
| BROMOMETHANE | UG/KG | | | | | | | | | | |
| ETHYLBENZENE | UG/KG | | | | | | | | | | |
| CHLOROETHANE | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHENE | UG/KG | | | | | | | | | | |
| METHYLENE CHLORIDE | UG/KG | | | | | | | | | | |
| XYLENES, TOTAL | UG/KG | | | | | | | | | | |
| 1,1-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| CHLOROFORM | UG/KG | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| CARBON TETRACHLORIDE | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROETHANE | UG/KG | | | | | | | | | | |
| TRICHLOROETHYLENE (TCE) | UG/KG | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | UG/KG | | | | | | | | | | |
| BROMODICHLOROMETHANE | UG/KG | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | UG/KG | | | | | | | | | | |
| TETRACHLOROETHYLENE(PCE) | UG/KG | | | | | | | | | | |
| DIBROMOCHLOROMETHANE | UG/KG | | | | | | | | | | |
| CHLOROBENZENE | UG/KG | | | | | | | | | | |
| STYRENE | UG/KG | | | | | | | | | | |
| BROMOFORM | UG/KG | | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | | | | | | | | | | |
| ACETONE | UG/KG | | | | | | | | | | |
| CARBON DISULFIDE | UG/KG | | | | | | | | | | |
| Vinyl acetate | UG/KG | | | | | | | | | | |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | | | | | | | | | | |
| 2-Chloroethyl vinyl ether | UG/KG | | | | | | | | | | |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | | | | | | | | | | |
| cis-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| trans-1,3-DICHLOROPROPENE | UG/KG | | | | | | | | | | |
| 2-HEXANONE | UG/KG | | | | | | | | | | |
| 1,2-Dichloroethene (total) | UG/KG | | | | | | | | | | |

| | StationID | K162SB021 | |
|---|---|---|---|
| | SampleID | 162SB02102 (3-5ft) | |
| | DateCollected | 12/22/1999 | |
| | DateAnalyzed | 01/07/2000 | |
| | SDGNumber | 41577 | |
| Parameter | Units | | |
| BENZENE | UG/KG | | |
| CHLOROMETHANE | UG/KG | | |
| NAPHTHALENE, SPLP | UG/L | | |
| NAPHTHALENE | UG/KG | 400 | U |
| TOLUENE | UG/KG | | |
| VINYL CHLORIDE | UG/KG | | |
| BROMOMETHANE | UG/KG | | |
| ETHYLBENZENE | UG/KG | | |
| CHLOROETHANE | UG/KG | | |
| 1,1-DICHLOROETHENE | UG/KG | | |
| METHYLENE CHLORIDE | UG/KG | | |
| XYLENES, TOTAL | UG/KG | | |
| 1,1-DICHLOROETHANE | UG/KG | | |
| CHLOROFORM | UG/KG | | |
| 1,1,1-TRICHLOROETHANE | UG/KG | | |
| CARBON TETRACHLORIDE | UG/KG | | |
| 1,2-DICHLOROETHANE | UG/KG | | |
| TRICHLOROETHYLENE (TCE) | UG/KG | | |
| 1,2-DICHLOROPROPANE | UG/KG | | |
| BROMODICHLOROMETHANE | UG/KG | | |
| 1,1,2-TRICHLOROETHANE | UG/KG | | |
| TETRACHLOROETHYLENE(PCE) | UG/KG | | |
| DIBROMOCHLOROMETHANE | UG/KG | | |
| CHLOROBENZENE | UG/KG | | |
| STYRENE | UG/KG | | |
| BROMOFORM | UG/KG | | |
| 1,1,2,2-TETRACHLOROETHANE | UG/KG | | |
| ACETONE | UG/KG | | |
| CARBON DISULFIDE | UG/KG | | |
| Vinyl acetate | UG/KG | | |
| METHYL ETHYL KETONE (2-BUTANONE) | UG/KG | | |
| 2-Chloroethyl vinyl ether | UG/KG | | |
| METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE) | UG/KG | | |
| cis-1,3-DICHLOROPROPENE | UG/KG | | |
| trans-1,3-DICHLOROPROPENE | UG/KG | | |
| 2-HEXANONE | UG/KG | | |
| 1,2-Dichloroethene (total) | UG/KG | | |

APPENDIX C

# Validation Reports from Samples Collected after RFI Completion

Appendix C is provided in .pdf format on the CDROM provided in the front pocket of this notebook. It contains data validation reports from the sampling subsequent to the Revision 0 Zone K RFI Report (EnSafe, 1999).

APPENDIX D

# Risk Summary Tables

**APPENDIX D**
Decision Table for Surface Soils at SWMU 162
*Charleston Naval Complex*

| Sample Group ID | Units | Parameter | Number of Analyses | Number of Detects | Minimum Detected Concentration | Maximum Detected Concentration | Residential Soil RBC[1] | Exceeds RBC | Reference Concentration[2] | Exceeds RC | Minimum Detected Background Concentration[3] | Maximum Detected Background Concentration[3] | Exceeds Maximum Background | COPC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K162_SS | mg/kg | Alpha-chlordane | 8 | 5 | 5.87E-03 | 7.01E-02 | 1.60E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Aluminum | 15 | 15 | 5.19E+03 | 9.45E+03 | 7.61E+03 | TRUE | 1.12E+04 | TRUE | 4.05E+03 | 2.47E+04 | FALSE | FALSE |
| K162_SS | mg/kg | Antimony | 15 | 1 | 3.10E-01 | 3.10E-01 | 3.13E+00 | FALSE | 4.50E-01 | FALSE | 4.80E-01 | 2.20E+00 | FALSE | FALSE |
| K162_SS | mg/kg | Arsenic | 15 | 15 | 6.10E-01 | 7.47E+01 | 3.90E-01 | TRUE | 3.59E+01 | TRUE | 6.00E-01 | 9.23E+01 | FALSE | FALSE |
| K162_SS | mg/kg | Barium | 15 | 15 | 8.30E+00 | 1.96E+01 | 5.37E+02 | FALSE | 2.56E+01 | TRUE | 6.60E+00 | 5.13E+01 | FALSE | FALSE |
| K162_SS | mg/kg | BENZO(A)ANTHRACENE | 20 | 6 | 2.40E-02 | 4.80E-01 | 6.21E-01 | FALSE | 3.80E-03 | TRUE | 1.80E-03 | 2.20E-03 | FALSE | FALSE |
| K162_SS | mg/kg | BENZO(A)PYRENE | 20 | 5 | 2.10E-02 | 4.40E-01 | 6.21E-02 | TRUE | 3.78E-02 | TRUE | 1.73E-02 | 2.16E-02 | FALSE | **TRUE** |
| K162_SS | mg/kg | BENZO(B)F_UORANTHENE | 20 | 5 | 2.50E-02 | 7.10E-01 | 6.21E-01 | TRUE | 3.70E-03 | TRUE | 2.50E-03 | 2.50E-03 | FALSE | **TRUE** |
| K162_SS | mg/kg | BENZO(G,H,I)PERYLENE | 20 | 4 | 2.10E-02 | 2.00E-01 | 2.30E+02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | BENZO(K)F_UORANTHENE | 20 | 3 | 2.10E-02 | 2.40E-01 | 6.21E+00 | FALSE | 4.00E-04 | TRUE | 2.00E-04 | 2.00E-04 | FALSE | FALSE |
| K162_SS | mg/kg | Benzoic Acid | 20 | 3 | 4.10E-02 | 7.80E-02 | 1.00E+05 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Beryllium | 15 | 10 | 4.00E-02 | 1.90E-01 | 1.54E+01 | FALSE | 1.70E-01 | TRUE | 6.00E-02 | 9.90E-01 | FALSE | FALSE |
| K162_SS | mg/kg | Bis(2-ETHYLHEXYL) PHTHA_ATE | 20 | 3 | 3.50E-02 | 5.60E-02 | 3.47E+01 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Cadmium | 15 | 4 | 6.00E-02 | 3.40E-01 | 3.70E+00 | FALSE | 1.30E-01 | TRUE | 8.00E-02 | 4.20E-01 | FALSE | FALSE |
| K162_SS | mg/kg | Calcium | 15 | 15 | 2.67E+02 | 2.39E+03 | | | | | 2.75E+02 | 5.90E+04 | FALSE | FALSE |
| K162_SS | mg/kg | Chromium, Total | 15 | 15 | 5.00E+00 | 1.32E+01 | 2.10E+02 | FALSE | 8.40E+00 | TRUE | 2.80E+00 | 4.59E+01 | FALSE | FALSE |
| K162_SS | mg/kg | Chrysene | 20 | 6 | 2.70E-02 | 5.10E-01 | 6.21E+01 | FALSE | 4.00E-05 | FALSE | 2.00E-05 | 2.00E-05 | FALSE | FALSE |
| K162_SS | mg/kg | Cobalt | 15 | 10 | 4.00E-01 | 1.10E+00 | 4.69E+02 | FALSE | 3.40E-01 | TRUE | 1.60E-01 | 4.50E+00 | FALSE | FALSE |
| K162_SS | mg/kg | Copper | 15 | 15 | 1.20E+00 | 3.20E+01 | 2.91E+02 | FALSE | 2.10E+00 | FALSE | 2.00E-01 | 2.50E+00 | FALSE | FALSE |
| K162_SS | mg/kg | Dieldrin | 8 | 1 | 7.45E-03 | 7.45E-03 | 3.04E-02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Diesel Hydrocarbons | 5 | 2 | 2.02E+01 | 2.24E+01 | | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Endrin Aldehyde | 8 | 2 | 4.90E-04 | 4.24E-03 | 1.80E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Endrin Ketone | 8 | 1 | 2.10E-04 | 2.10E-04 | 1.80E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Fluoranthene | 20 | 6 | 1.90E-02 | 7.40E-01 | 2.29E+02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Gamma-Chlordane | 8 | 6 | 3.30E-04 | 1.23E-01 | 1.60E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Heptachlor Epoxide | 8 | 2 | 2.87E-03 | 5.68E-03 | 5.34E-02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | INDENO(1,2,3-C,D)PYRENE | 20 | 4 | 2.40E-02 | 1.90E-01 | 6.21E-01 | FALSE | 3.80E-03 | TRUE | 1.80E-03 | 2.20E-03 | FALSE | FALSE |
| K162_SS | mg/kg | Iron | 15 | 15 | 2.22E+03 | 4.77E+03 | 2.35E+03 | TRUE | 7.06E+03 | FALSE | 1.20E+03 | 2.34E+04 | FALSE | FALSE |
| K162_SS | mg/kg | Lead | 15 | 15 | 4.90E+00 | 2.34E+01 | 4.00E+02 | FALSE | 3.96E+01 | FALSE | 8.90E+00 | 2.59E+02 | FALSE | FALSE |
| K162_SS | mg/kg | Magnesium | 15 | 15 | 1.32E+02 | 3.37E+02 | | | | | 6.56E+01 | 4.24E+03 | FALSE | FALSE |

**APPENDIX D**
Decision Table for Surface Soils at SWMU 162
*Charleston Naval Complex*

| Sample Group ID | Units | Parameter | Number of Analyses | Number of Detects | Minimum Detected Concentration | Maximum Detected Concentration | Residential Soil RBC[1] | Exceeds RBC | Reference Concentration[2] | Exceeds RC | Minimum Detected Background Concentration[3] | Maximum Detected Background Concentration[3] | Exceeds Maximum Background | COPC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K162_SS | mg/kg | Manganese | 15 | 15 | 5.00E+00 | 1.52E+01 | 1.76E+02 | FALSE | 2.64E+01 | FALSE | 3.20E+00 | 1.05E+03 | FALSE | FALSE |
| K162_SS | mg/kg | Mercury | 15 | 13 | 3.00E-02 | 6.00E+00 | 2.30E+00 | TRUE | | | 1.70E-01 | 5.20E-01 | TRUE | **TRUE** |
| K162_SS | mg/kg | Methoxychlor | 8 | 1 | 2.70E-04 | 2.70E-04 | 3.06E+01 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Naphthalene | 20 | 1 | 2.10E-02 | 2.10E-02 | 5.59E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Nickel | 15 | 15 | 1.20E+00 | 3.60E+00 | 1.56E+02 | FALSE | 1.70E+00 | TRUE | 3.90E-01 | 1.61E+01 | FALSE | FALSE |
| K162_SS | mg/kg | P,P'-DDD | 8 | 6 | 3.50E-03 | 1.47E-01 | 2.44E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | P,P'-DDE | 8 | 6 | 2.20E-02 | 4.50E-01 | 1.72E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | P,P'-DDT | 8 | 5 | 2.79E-02 | 6.00E-01 | 1.72E+00 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Phenanthrene | 20 | 4 | 2.30E-02 | 1.50E-01 | 2.31E+02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Potassium | 15 | 15 | 8.15E+01 | 2.43E+02 | | | | | 4.22E+01 | 2.01E+03 | FALSE | FALSE |
| K162_SS | mg/kg | Pyrene | 20 | 7 | 1.90E-02 | 6.00E-01 | 2.31E+02 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Sodium | 15 | 5 | 1.49E+01 | 6.01E+01 | | | | | 1.10E+01 | 2.53E+03 | FALSE | FALSE |
| K162_SS | mg/kg | Thallium | 15 | 2 | 4.00E-01 | 5.50E-01 | 5.20E-01 | FALSE | | | | | | FALSE |
| K162_SS | mg/kg | Tin | 15 | 2 | 1.09E+01 | 1.15E+01 | 4.69E+03 | FALSE | | | 1.05E+01 | 4.60E+01 | FALSE | FALSE |
| K162_SS | mg/kg | Vanadium | 15 | 15 | 6.20E+00 | 1.32E+01 | 5.47E+01 | FALSE | 1.58E+01 | FALSE | 5.30E+00 | 5.12E+01 | FALSE | FALSE |
| K162_SS | mg/kg | Zinc | 15 | 13 | 8.10E+00 | 4.63E+02 | 2.35E+03 | FALSE | 1.48E+01 | TRUE | 2.38E+01 | 1.45E+02 | TRUE | FALSE |

[1] RBC Surrogate Values:

Alpha-chlordane--chlordane

Gamma-chlordane--chlordane

Benzo(G,H,I)perylene--pyrene

Phenanthrene--pyrene

Endrin aldehyde--endrin

Endrin ketone--endrin

[2] Original RFI Reference Concentration or Preliminary Reference Concentration from CH2MHILL. 2001. Preliminary Results for Additional Background PAH Sampling from CNC Main Base Railroad Lines and Annex (Zone K). Submitted to CNCBCT on May 3, 2001.

[3] Minimum and maximum detected concentrations for Zone K

**APPENDIX D-1**
Decision Table for Subsurface Soil at SWMU 162
*Charleston Navy Complex: Zone K*

| Sample Group ID | Units | Parameter | Number of Analyses | Number of Detects | Maximum Non-Detected Value | Minimum Detected Concentration | Maximum Detected Concentration | Residential Soil RBC[1] | Exceeds RBC | Reference Concentration[2] | Exceeds RC | Minimum Detected Background Concentration[3] | Maximum Detected Background Concentration[3] | Exceeds Maximum Background | COPC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K162_SB | MG/KG | ALPHA-CHLORDANE | 8 | 3 | 0.00222 | 0.00023 | 0.00247 | 1.60E+00 | FALSE | | | | | FALSE | FALSE |
| K162_SB | MG/KG | ALUMINUM | 11 | 11 | | 5940 | 20900 | 7614.195085 | TRUE | 10500 | TRUE | 3090 | 14200 | TRUE | |
| K162_SB | MG/KG | ANTIMONY | 11 | 1 | 0.46 | 0.23 | 0.23 | 3.128571233 | FALSE | | | 0.29 | 0.43 | FALSE | FALSE |
| K162_SB | MG/KG | ARSENIC | 11 | 11 | | 0.45 | 3.5 | 0.389623911 | TRUE | 1.98 | TRUE | 0.32 | 13.7 | FALSE | FALSE |
| K162_SB | MG/KG | BARIUM | 11 | 11 | | 4 | 14.8 | 537.4905836 | FALSE | 6.83 | TRUE | 1.8 | 24.1 | FALSE | FALSE |
| K162_SB | MG/KG | BERYLLIUM | 11 | 6 | 0.09 | 0.03 | 0.13 | 15.43741586 | FALSE | 0.12 | TRUE | 0.03 | 0.62 | FALSE | FALSE |
| K162_SB | MG/KG | bis(2-ETHYLHEXYL) PHTHALATE | 16 | 3 | 0.43 | 0.027 | 0.045 | 34.74146517 | FALSE | | | | | FALSE | FALSE |
| K162_SB | MG/KG | CALCIUM | 11 | 11 | | 34 | 3350 | | | | | 19.7 | 18200 | FALSE | FALSE |
| K162_SB | MG/KG | CHROMIUM, TOTAL | 11 | 11 | | 5.1 | 16.8 | 2.10E+02 | FALSE | 8.76 | TRUE | 2.4 | 25.7 | FALSE | FALSE |
| K162_SB | MG/KG | COBALT | 11 | 10 | 0.14 | 0.25 | 1.8 | 469.2813097 | FALSE | 0.62 | TRUE | 0.12 | 3.1 | FALSE | FALSE |
| K162_SB | MG/KG | COPPER | 11 | 8 | 0.2 | 0.42 | 1.2 | 290.5085162 | FALSE | 0.34 | TRUE | 0.17 | 22.2 | FALSE | FALSE |
| K162_SB | MG/KG | GAMMA-CHLORDANE | 8 | 1 | 0.00222 | 0.00015 | 0.00015 | 1.60E+00 | FALSE | | | | | FALSE | FALSE |
| K162_SB | MG/KG | IRON | 11 | 11 | | 1630 | 7170 | 2346.318462 | TRUE | 5130 | TRUE | 560 | 17200 | FALSE | FALSE |
| K162_SB | MG/KG | LEAD | 11 | 11 | | 3.1 | 6.8 | 400 | FALSE | 6.43 | TRUE | 2.1 | 18.2 | FALSE | FALSE |
| K162_SB | MG/KG | MAGNESIUM | 11 | 11 | | 102 | 437 | | | | | 28.1 | 2960 | FALSE | FALSE |
| K162_SB | MG/KG | MANGANESE | 11 | 11 | | 2.2 | 11.5 | 176.2353193 | FALSE | 5.93 | TRUE | 1.4 | 355 | FALSE | FALSE |
| K162_SB | MG/KG | MERCURY | 11 | 8 | 0.06 | 0.01 | 0.13 | 2.3 | FALSE | | | 0.04 | 0.2 | FALSE | FALSE |
| K162_SB | MG/KG | NICKEL | 11 | 11 | | 0.72 | 5.5 | 156.428082 | FALSE | 2.64 | TRUE | 0.23 | 7.2 | FALSE | FALSE |
| K162_SB | MG/KG | p,p'-DDE | 8 | 5 | 0.00414 | 0.00027 | 0.00867 | 1.719955237 | FALSE | | | | | FALSE | FALSE |
| K162_SB | MG/KG | p,p'-DDT | 8 | 7 | 0.00396 | 0.00025 | 0.0103 | 1.719955404 | FALSE | | | | | FALSE | FALSE |
| K162_SB | MG/KG | POTASSIUM | 11 | 11 | | 66.2 | 219 | | | | | 14.7 | 1430 | FALSE | FALSE |
| K162_SB | MG/KG | SODIUM | 11 | 2 | 33.6 | 19.5 | 74.1 | | | | | 6.1 | 2430 | FALSE | FALSE |
| K162_SB | MG/KG | THALLIUM | 11 | 2 | 0.76 | 0.42 | 0.47 | 5.20E-01 | FALSE | | | 0.58 | 1.5 | FALSE | FALSE |
| K162_SB | MG/KG | VANADIUM | 11 | 11 | | 4.9 | 20.4 | 54.74994005 | FALSE | 12.2 | TRUE | 2.7 | 29 | FALSE | FALSE |
| K162_SB | MG/KG | ZINC | 11 | 6 | 10.6 | 5.2 | 40.5 | 2346.318462 | FALSE | | | 0.58 | 57.5 | FALSE | FALSE |

[1] RBC Surrogate Values:
Alpha-chlordane--chlordane
Gamma-chlordane--chlordane

[2] ENSAFE background value

**APPENDIX D-1**
Decision Table for Subsurface Soil at SWMU 162
*Charleston Navy Complex, Zone K*

| Sample Group ID | Units | Parameter | Number of Analyses | Number of Detects | Maximum Non-Detected Value | Minimum Detected Concentration | Maximum Detected Concentration | Residential Soil RBC[1] | Exceeds RBC | Reference Concentration[2] | Exceeds RC | Minimum Detected Background Concentration[3] | Maximum Detected Background Concentration[3] | Exceeds Maximum Background | COPC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

[3] Minimum and maximum detected concentrations for Zone K

[2] Reference concentration from: CH2MHILL. 2001. Preliminary Results for Additional Background PAH Sampling from CNC Main Base Railroad Lines and Annex (Zone K). Submitted to CNCBCT on May 3, 2001.

Appendix D-2. Surface Soil - Hypothetical Future Industrial Worker Scenario
*Charleston Navy Complex - ZoneK, SWMU 162*

| | | Carcinogenic | Noncarcinogenic |
|---|---|---|---|
| **Ingestion:** | | | |
| **CDI =** | $\frac{Cs * IR * FI * EF * ED * CF}{BW * AT}$ | | |
| **Cs =** | Concentration in soil (mg/kg) | EPC | EPC |
| **IR =** | Ingestion Rate (mg/day) | 50 a | 50 a |
| **FI =** | Fraction Ingested (unitless) | 1 | 1 |
| **EF =** | Exposure Frequency (day/year) | 250 a | 250 a |
| **ED =** | Exposure Duration (year) | 25 a | 25 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 9125 a |
| **Dermal:** | | | |
| **CDI =** | $\frac{Cs * SA * AF * ABS * ET * EF * ED * CF}{BW * AT}$ | | |
| **Cs =** | Concentration in soil (mg/kg) | EPC | EPC |
| **SA =** | Surface Area ($cm^2$) | 2679 c,d | 2679 c,d |
| **AF =** | Soil-Skin Adherence Factor ($mg/cm^2$) | 0.03 c,e | 0.03 c,e |
| **ABS =** | Absorption Factor (unitless) | (Chemical Specific) f | (Chemical Specific) f |
| **ET =** | Exposure Time (8 hours per 8 hour workday) | 1 b | 1 b |
| **EF =** | Exposure Frequency (day/year) | 250 a | 250 a |
| **ED =** | Exposure Duration (year) | 25 a | 25 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 9125 a |
| **Inhalation:** | | *for volatiles:* | |
| **CDI =** | $\frac{Cs * (1/PEF) * IR * ET * EF * ED}{BW * AT}$ | $\frac{Cs * ((1/VFind)+(1/PEF)) * IR * ET * EF * ED}{BW * AT}$ | |
| **Cs =** | Concentration in soil (mg/kg) | EPC | EPC |
| **PEF =** | Particulate Emission Factor ($m^3/kg$) | 1.32E+09 g | 1.32E+09 g |
| **VFind =** | Volatilization Factor ($m^3/kg$) | (Chemical Specific) h | (Chemical Specific) h |
| **IR =** | Inhalation Rate ($m^3/day$) | 20 a | 20 a |
| **ET =** | Exposure Time (8 hours per 8 hour workday) | 1 b | 1 b |
| **EF =** | Exposure Frequency (day/year) | 250 a | 250 a |
| **ED =** | Exposure Duration (year) | 25 a | 25 a |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 9125 a |

**References:**

a = U.S EPA, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-03, March 25, 1991.

b = Time spent outdoors in the contaminated areas using best professional judgement, based on the nature of the activity

c = U.S EPA Exposure Factors Handbook, August 1997.

d = Surface area of 1/2 head, forearms and the hands of an adult worker.

e = AF for soil adherence is default value recommended by EPA Region IV, Supplemental Guidance to RAGS

f = In the absence of chemical specific data, EPA Region IV default values: 80% for VOCs, 50% for SVOCs, and 20% for Inorganics were used

g = Particulate emission factor (PEF), adapted from U.S.EPA, Soil Screening Guidance. Technical Background Document, May 1996.

h = Industrial volatilization factor (VFind) adapted from FDEP Brownfields Table 4, Chapter 62-777, F.A C., December 1998.

Appendix D-2 Surface Soil - Hypothetical Future Industrial Worker Scenario
*Charleston Navy Complex - ZoneK, SWMU 162*

| | | | | | | | | | | Ingestion | | Dermal | | Inhalation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units** | **Chemical** | **WOE** | **RfDo** | **RfDd** | **RfDI** | **VFInd** | **EPC** | **ABSgI** | **DABS** | **CDI** | **HQ** | **CDI** | **HQ** | **CDI** | **HQ** |
| MG/KG | BENZO(a)PYRENE | B2 | | | | 2 98E+07 | 2 73E-01 | 50% | 0 13 | 1.34E-07 | | 2 79E-08 | | 1 83E-09 | |
| MG/KG | BENZO(b)FLUORANTHENE | B2 | | | | 5 74E+06 | 3 03E-01 | 50% | 0 1 | 1 48E-07 | | 2.38E-08 | | 1 04E-08 | |
| MG/KG | MERCURY | D | 3 00E-04 | 2 10E-05 | | | 1 03E+01 | 7% | 0 001 | 5 04E-06 | 0 02 | 8 10E-09 | 0 0004 | 1 53E-09 | |
| | **Hazard Index** | | | | | | | | | | **0.02** | | **0.0004** | | |
| | | | | | | | | | | | | | **Total HI=** | **0.02** | |

Notes WOE = Weight of Evidence, CDI = Chronic Daily Intake, EPC = Exposure Point Concentration, HQ = Hazard Quotient, HI = Hazard Index

**Ingestion:**

Intake for non-carcinogenic compounds:

$$CDI = \frac{Cs * IR * FI * EF * ED * CF}{BW * AT}$$

Age-adjusted intake for carcinogenic compounds only:

$$CDI_{adj} = \frac{Cs * IR_{adj} * FI * EF * CF}{AT}$$

| | | Carcinogenic | Noncarcinogenic |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | RME |
| **IR =** | Ingestion Rate (mg/day) | -- | 100 a |
| **IRadj =** | Age-adjusted Ingestion Rate [(mg-yr)/(kg-day)] | 114.29 a | -- |
| **FI =** | Fraction Ingested (unitless) | 100% | 100% |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 30 a | 30 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 10950 a |

**Dermal:**

Intake for non-carcinogenic compounds:

$$CDI = \frac{Cs * SA * AF * ABS * EF * ED * CF}{BW * AT}$$

Age-adjusted dose for carcinogenic compounds only:

$$CDI_{adj} = \frac{Cs * SA^{adj} * AF * ABS * EF * CF}{BW}$$

| | | | |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | |
| **SA =** | Surface Area ($cm^2$) | -- | 7612 c |
| **SAadj =** | Age-adjusted Skin Surface Area [($cm^2$-yr)/(kg-day)] | 4086 c | -- |
| **AF =** | Soil-Skin Adherence Factor ($mg/cm^2$) | 0.03 d | 0.03 d |
| **ABS =** | Absorption Factor (unitless) | (Chemical Specific) e | (Chemical Specific) e |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 30 a | 30 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 10950 a |

**Particulate/Volatile Inhalation:**

Intake for non-carcinogenic compounds:

$$CDI = \frac{Cs * ((1/PEF)+(1/VF)) * IR * EF * ED}{BW * AT}$$

Age-adjusted intake for carcinogenic compounds only:

$$CDI_{adj} = \frac{Cs * ((1/PEF)+(1/VF)) * IR_{adj} * EF}{BW}$$

| | | | |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | RME |
| **PEF =** | Particulate Emission Factor ($m^3$/kg) | 1.32E+09 f | 1.32E+09 f |
| **VF =** | Volatilization Factor ($m^3$/kg) | (Chemical Specific) g | (Chemical Specific) g |
| **IR =** | Inhalation Rate ($m^3$/day) | -- | 20 a |
| **$IR_{adj}$ =** | Age-adjusted Inhalation Rate [($m^3$-yr)/(kg-day)] | 13 a | -- |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 30 a | 30 a |
| **BW =** | Body Weight (kg) | 70 a | 70 a |
| **AT =** | Averaging Time (days) | 25550 a | 10950 a |

**References:**

a = U.S. EPA, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-03, March 25, 1991.

b = Time spent outdoors in the contaminated areas using best professional judgement, based on the nature of the activity per NASA 1997 workplan.

c = Surface area of hands, arms and legs of an adult (average of male and female mean SA), adapted from U.S.EPA, Exposure Factors Handbook, Vol. I,II,III, August 1996.

d = U.S.EPA, Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, November 1995

e = In the absence of chemical specific data, EPA Region IV default values: 80% for VOCs, 50% for SVOCs, and 20% for Inorganics were used

f = Particulate emission factor (PEF), adapted from U.S.EPA, Soil Screening Guidance: Technical Background Document, May 1996.

g = Residential volatilization factor (VFres) adapted from FDEP Brownfields Table 4, Chapter 62-777, F.A.C., December 1998.

Appendix D-3 Surface Soil - Future Residential Adult Carcinogenic Scenario
*Charleston Navy Complex - ZoneK, SWMU 162*

| | | | | | | | | | | Ingestion | | Dermal | | Inhalation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units** | **Chemical** | **WOE** | **RfDo** | **RfDd** | **RfDi** | **RME** | **DE** | **ABS** | **VFres** | **CDI** | **HQ** | **CDI** | **HQ** | **CDI** | **HQ** |
| MG/KG | BENZO(a)PYRENE | B2 | | | | 2 73E-01 | 50% | 0 13 | 1 33E+07 | 3 74E-07 | | 1 11E-07 | | 5 67E-09 | |
| MG/KG | BENZO(b)FLUORANTHENE | B2 | | | | 3.03E-01 | 50% | 0 1 | 2 57E+06 | 4 14E-07 | | 9 46E-08 | | 3 24E-08 | |
| MG/KG | MERCURY | D | 3 00E-04 | 2 10E-05 | | 1 03E+01 | 7% | 0 001 | | 1 41E-05 | 0 05 | 3 22E-08 | 0 002 | 2 14E-09 | |
| | **Hazard Index** | | | | | | | | | | 0 05 | | 0 002 | | |
| | | | | | | | | | | | | | **Total HI =** | **0.05** | |

Notes WOE = Weight of Evidence, CDI = Chronic Daily Intake, RME = Reasonable Maximum Exposure Concentration, HQ = Hazard Quotient, HI = Hazard Index

Appendix D-4. Surface Soil - Future Residential Child Non-carcinogenic Scenario
*Charleston Navy Complex - ZoneK, SWMU 162*

**Ingestion:**

$$CDI = \frac{Cs * IR * FI * EF * ED * CF}{BW * AT}$$

| | | Carcinogenic | Noncarcinogenic |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | RME |
| **IR =** | Ingestion Rate (mg/day) | 200 a | 200 a |
| **FI =** | Fraction Ingested (unitless) | 100% | 100% |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 6 a | 6 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 15 a | 15 a |
| **AT =** | Averaging Time (days) | 25550 a | 2190 a |

**Dermal:**

$$CDI = \frac{Cs * SA * AF * ABS * EF * ED * CF}{BW * AT}$$

| | | | |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | |
| **SA =** | Surface Area ($cm^2$) | 3690 c | 3690 c |
| **AF =** | Soil-Skin Adherence Factor ($mg/cm^2$) | 0.15 d | 0.15 d |
| **ABS =** | Absorption Factor (unitless) | (Chemical Specific) e | (Chemical Specific) e |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 6 a | 6 a |
| **CF =** | Conversion Factor (kg/mg) | 1.00E-06 | 1.00E-06 |
| **BW =** | Body Weight (kg) | 15 a | 15 a |
| **AT =** | Averaging Time (days) | 25550 a | 2190 a |

**Particulate/Volatile Inhalation:**

$$CDI = \frac{Cs * ((1/PEF)+(1/VF)) * IR * EF * ED}{BW * AT}$$

| | | | |
|---|---|---|---|
| **Cs =** | Concentration in soil (mg/kg) | RME | RME |
| **PEF =** | Particulate Emission Factor ($m^3/kg$) | 1.32E+09 f | 1.32E+09 f |
| **VF =** | Volatilization Factor ($m^3/kg$) | (Chemical Specific) g | (Chemical Specific) g |
| **IR =** | Inhalation Rate ($m^3/day$) | 15 a | 15 a |
| **EF =** | Exposure Frequency (day/year) | 350 a | 350 a |
| **ED =** | Exposure Duration (year) | 6 a | 6 a |
| **BW =** | Body Weight (kg) | 15 a | 15 a |
| **AT =** | Averaging Time (days) | 25550 a | 2190 a |

**References:**

a = U.S. EPA, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-03, March 25, 1991.

b = Time spent outdoors in the contaminated areas using best professional judgement, based on the nature of the activity per NASA 1997 workplan.

c = Surface area of hands, arms, legs, and feet of a child (1-6 year average), adapted from U.S.EPA, Exposure Factors Handbook, Vol. I,II,III, August 1996.

d = U.S.EPA, Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, November 1995.

e = In the absence of chemical specific data, EPA Region IV default values: 80% for VOCs, 50% for SVOCs, and 20% for Inorganics were used

f = Particulate emission factor (PEF), adapted from U.S.EPA, Soil Screening Guidance: Technical Background Document, May 1996

g = Residential child volatilization factor (VFchild) adapted from FDEP Brownfields Table 4, Chapter 62-777, F.A.C., December 1998.

Appendix D-4 Surface Soil - Future Residential Child Non-carcinogenic Scenario
*Charleston Navy Complex - ZoneK, SWMU 162*

| | | | | | | | | | | Ingestion | | Dermal | | Inhalation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units** | **Chemical** | **WOE** | **RfDo** | **RfDd** | **RfDi** | **RME** | **DE** | **ABS** | **VF CHILD** | **CDI** | **HQ** | **CDI** | **HQ** | **CDI** | **HQ** |
| MG/KG | BENZO(a)PYRENE | B2 | | | | 2 73E-01 | 50% | 0 13 | 2.98E+07 | 3.49E-06 | | 1 26E-06 | | 8 99E-09 | |
| MG/KG | BENZO(b)FLUORANTHENE | B2 | | | | 3 03E-01 | 50% | 0.1 | 5.74E+06 | 3.87E-06 | | 1 07E-06 | | 5 08E-08 | |
| MG/KG | MERCURY | D | 3.00E-04 | 2.10E-05 | | 1.03E+01 | 7% | 0.001 | | 1.32E-04 | 0.44 | 3 64E-07 | 0 02 | 7 48E-09 | |
| | **Hazard Index** | | | | | | | | | | 0.44 | | 0 02 | | |
| | | | | | | | | | | | | | **Total HI =** | | **0.5** |

Notes: WOE = Weight of Evidence, CDI = Chronic Daily Intake, RME = Reasonable Maximum Exposure Concentration, HQ = Hazard Quotient, HI = Hazard Index

APPENDIX E

# Response to SCDHEC Comments on the Draft Zone K RFI Report

**Comment 19:**
All site-specific discussions should include the data for all four rounds of groundwater sampling in the final report. The additional data will confirm or refute the presence of contaminants at each individual site.

**Response 19:**
**All four rounds of groundwater data have been included in the revised report.**

**Comment 20**
**SWMU 161**
Table 10.1.3, page 10.1.5:

- The value for the soil screening level for copper is listed in table 6.4 as 457 mg/Kg. Please correct this value on table 10.1.3 and the number of detections exceeding the soil screening level.

**Response 20:**
**The table has been revised.**

**Comment 21:**
**SWMU 162**
Section 10.2.2 "Nature and Extent of Contamination", Page 10.2.8:

- This section should correct the text of the "Semivolatiles Organic Compound in Soil" to replace TEQs by BEQs. Additionally, correct the heading of figure 10.2.2.

**Response 21:**
**The heading and text have been revised.**

**Comment 22:**
The ecological risk assessment related to Ecological Subzone K-4, which includes the area of SWMU 162, found that further evaluation is required for the protection of ecological receptors at subzone K-4. This conclusion should be acknowledged in section 10.2.7 "Corrective Measures Considerations" which summarizes risk posed by media and receptors. Please modify this section.

**Response 22:**
**Because multiple sites may be encompassed in each ecological subzone, any further evaluations recommended in the Zone K ERA are included in the Conclusions and Preliminary Recommendations Section 11.**

**Comment 23:**
**SWMU 163**
The results of four quarters of groundwater data are needed to reach a final decision on this site due to the potential leaching problem posed by PCE in soil boring 163SB003 and N-nitroso-di-n-propylamine in soil boring 163SB002. Please include these data in the final report.

**Response 23:**
**As stated above all four quarters of groundwater data will be provided in the revised report. Additional soil sampling and monitoring well installation/sampling were completed at this site based on new information regarding site history. The new data have been included in the revised report as well.**

**Comment 24:**
**SWMU 164**
The investigation has demonstrated that isolated areas at SWMU 164 have soil contamination, however it is not clear why samples were not taken closer to the blasting operation. There are no samples within 50 feet of the operation. Please justify this approach, or more samples should be collected closer to the blasting operation, since it is obviously expected that the area next to the blasting operation would be more likely impacted.

**Response 24:**
**The reason samples were not collected closer is that the blast booth is an enclosed structure sitting on a concrete slab within the confines of a building. The sample locations were chosen based on storm water runoff drainage patterns and selecting the nearest unpaved surfaces that would receive the runoff since this is believed to be the primary migration pathway. Per the December 1998 project team meeting, the floor of the building was checked to determine if cracks or other potential migration pathways exist to determine if any additional samples are warranted.**

**A survey of the floor was completed in March 1999 and no cracks or other potential migration pathways for the blast media were noted.**