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NSB Kings Bay Administrative Record
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FINAL

RCRA FACILITY INVESTIGATION/SITE INSPECTION TECHNICAL MEMORANDUM No. 1

NAVAL INSTALLATION RESTORATION PROGRAM
NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

CONTRACT NO. N62467-89-D-0317

JUNE 1992

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA
29411-0068

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FINAL

RCRA FACILITY INVESTIGATION/
SITE INSPECTION
TECHNICAL MEMORANDUM No. 1

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

Prepared for:

Southern Division
Naval Facilities Engineering Command
Charleston, South Carolina 29411-0068

Prepared by:

ABB Environmental Services, Inc.
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Oak Ridge, Tennessee 37830

June 1992

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), conducted site investigation activities at three of four former wastes disposal sites at Naval Submarine Base (NSB) Kings Bay, Georgia. This Technical Memorandum is the first of five Technical Memorandums associated with the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) and Site Inspection (SI) that will continue into calendar year 1993. The RFI/SI field program and preparation of this report were completed under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract (contract number N62467-89-D-0317, Contract Task Order [CTO] Number 041) between SOUTHNAVFACENGCOM and ABB-ES.

The overall purpose of the RFI/SI is to characterize three of four previously identified sites with potential for contamination and/or contaminant migration. The three sites are identified as follows:

- Site 5 - Army Reserve Disposal Area, Towhee Trail;
- Site 11 - Old Camden County Landfill; and
- Site 16 - Army Reserve Disposal Area.

This Technical Memorandum No. 1 presents discussions of the RFI/SI field program conducted at NSB Kings Bay, Georgia, and summarizes findings, results, and recommendations based on information and data collected as a result of the January and February 1992 RFI/SI field effort, which included groundwater sample event No. 1.

The RFI/SI field program consisted of: (1) magnetometer and terrain conductivity surveys; (2) collection and chemical analysis of seven surface soils; (3) collection and chemical analysis of 22 subsurface soil samples; (4) installation of 20 groundwater monitoring wells; (5) measurements of groundwater elevation; and (6) collection and analysis of 22 groundwater samples. Aquifer tests (slug tests) were conducted in four monitoring wells from each site to provide a means of estimating hydraulic conductivity of the uppermost aquifer. A locational survey of sample points was also performed and site maps were developed from the survey data.

The information obtained during the RFI/SI field and laboratory program was used to make preliminary recommendations regarding deletion of certain parameters from future groundwater sample events. Evaluation of laboratory data for the second groundwater sample event will be done to confirm conclusions drawn from the data associated with groundwater sample event No. 1. Recommendations made herein could change if warranted by results of the analysis of samples collected during the second groundwater sample event.

At Site 5 geophysical surveys identified limited areas of buried ferrous material. Several volatile organic compounds (VOCs), including carbon disulfide, trichlorofluoromethane, 4-methyl-2-pentanone, ethylbenzene, and xylene, have been detected in groundwater from the site, and VOCs should continue to be monitored in groundwater from the site. No site-related semivolatile organic compounds (SVOCs) were identified in groundwater samples from Site 5. Detection of organic compounds in soil samples from the site do not indicate significant environmental impact from past waste disposal. The SVOCs naphthalene and methylphenol were

detected in surface soil samples from the site and benzoic acid and bis(2-ethylhexyl)phthalate were detected in both surface soil and subsurface soil samples from the site. The detection of these SVOCs in soil was limited to two surface soil samples and one subsurface soil sample, with the exception of bis(2-ethylhexyl)phthalate which was detected in all soil samples. A recommendation has been made in Section 5.0 to delete SVOCs from the monitoring program at Site 5 if laboratory analysis of groundwater samples from the second sampling event do not contain site-related SVOCs.

No pesticides, herbicides, ploychlorinated biphenyls (PCBs), dioxins or furans were detected in groundwater from Site 5. One pesticide compound, 4,4'-DDE, and one PCB compound, Aroclor 1260, were detected in one surface soil sample at low concentrations. A recommendation has been made in Section 5.0 to delete pesticides, herbicides, dioxins, and furans from the monitoring program at Site 5. PCBs should continue to be monitored because of the 53 μg/L concentration of Aroclor 1260 detected in on-site surface soil. Additional soil sampling may be warranted to evaluate Site 5 for PCBs.

Inorganic compounds should continue to be monitored at Site 5 during future groundwater sample events. Chromium has been identified at concentrations above its Primary Drinking Water Standard maximum contaminant level (MCL) in both upgradient and downgradient groundwater samples. Arsenic was detected in upgradient groundwater at a concentration above its Primary Drinking Water Standard MCL. Cadmium was detected in groundwater from downgradient monitoring wells at concentrations above its Primary Drinking Water Standard MCL. Several other inorganics were detected in groundwater from downgradient monitoring wells at concentrations greater than two times that detected in groundwater from upgradient monitoring wells. Inorganic compounds should continue to be monitored at Site 5. Additional measures should be taken to evaluate whether suspended soil particles are contributing to inorganic concentrations reported for the samples.

Several VOCs were detected in groundwater samples collected from Site 11 during the first groundwater sample event, including vinyl chloride, 1,2-dichloroethene, 4-methyl-2-pentanone, chlorobenzene, ethylbenzene, xylene, and 1,4-dichlorobenzene. Xylene is the only site-related VOC detected in subsurface soil samples. The only site-related SVOC detected in groundwater from the site is 1,4-dichlorobenzene, which was also analyzed as a VOC. A recommendation has been made to delete SVOCs from the monitoring program, and to continue monitoring VOCs in groundwater at Site 11, which would include 1,4-dichlorobenzene. Pesticides, herbicides, PCBs, dioxins, or furans were not detected in soil or groundwater samples from the site and these compounds should be deleted from the monitoring list for this site.

At Site 11 chromium was identified in groundwater samples from upgradient monitoring wells at concentrations above its Primary Drinking Water Standard MCL. Samples from one downgradient well contained chromium at a concentration above that detected in upgradient groundwater. The same downgradient monitoring well contained several other inorganics at concentrations greater than two times the concentration detected in upgradient groundwater samples and contained lead above its MCL. All monitoring wells should continue to be monitored for inorganic analytes. Additional measures should be taken to evaluate whether suspended soil particles are contributing to inorganic concentrations reported for the samples.

VOCs detected in groundwater from Site 16 that are potentially site-related include 4-methyl-2-pentanone, ethylbenzene, and xylene. Other VOCs were detected in soil samples, as was xylene. VOCs should continue to be monitored during future groundwater sample events at the site.

One soil sample from Site 16 contained 10 polynuclear aromatic hydrocarbon (PAH) compounds, which are included in the base/neutral fraction of SVOCs. No other site-related SVOCs were identified in soil or groundwater from the site. A recommendation has been made to include the base/neutral fraction of SVOCs in future monitoring events, but not to include analysis of the acid extractable fraction of Appendix IX SVOCs.

No pesticides, herbicides, PCBs, dioxins or furans were detected in groundwater samples collected from Site 16. One pesticide, 4,4'-DDD was detected in one subsurface soil sample from the site at a concentration of 1 J $\mu g/kg$, which has been attributed to incidental deposition from past use of pesticides at the Base. A recommendation has been made to delete pesticides, herbicides, PCBs, dioxins, and furans from the groundwater monitoring program for Site 16.

Chromium was present in groundwater from all four monitoring wells at Site 16 at concentrations above its Primary Drinking Water Standard MCL. Several other inorganics were present in downgradient groundwater samples at concentrations greater than two times that detected in the upgradient groundwater sample. Inorganics should continue to be monitored during future sample events at Site 16. Additional measures should be taken to evaluate whether suspended soil particles are contributing to concentrations of inorganics detected in the groundwater samples.

FOREWORD

The Department of the Navy developed the Installation Restoration (IR) Program to locate, identify, and remediate environmental contamination from the past disposal of hazardous materials at Navy and Marine Corps installations. The Navy IR Program follows the Department of Defense's Environmental Restoration Program as created by the Superfund Amendments and Reauthorization Act of 1986.

The IR Program consists of three phases. Phase one consists of the Preliminary Assessment and Site Inspection to identify the location (site) and presence of pollutants and assess their potential or actual threat to public health and the environment. Phases two and three are initiated based on the degree of threat and the need for remediation of the contamination. Phase two consists of a Remedial Investigation and Feasibility Study to analyze the site contamination and determine the optimum remediation solution. Phase three is the implementation of the solution.

Three sites at Naval Submarine Base (NSB) Kings Bay, Georgia, were identified for investigation under the IR Program. A work plan for conducting a RCRA Facility Investigation/Site Inspection (RFI/SI) at each of the three sites has been completed and implemented. The NSB, Kings Bay, Georgia, Public Works Department is conducting a records review of a fourth site. The results of this records review will be included in the RFI/SI Report. This technical memorandum discussed the RFI/SI filed program conducted at the activity and summarizes findings, results, and recommendations based on information and data collected as a result of the January and February 1992 field effort, which included the first of six groundwater sample went. Recommendations are made for deletion of certain Appendix IX parameters from the groundwater monitoring program based on results of laboratory analysis of environmental samples collected during the RFI/SI field program.

Questions regarding this report should be addressed to the Commanding Officer, Southern Division, SOUTHNAVFACENGCOM, Code 18222, at AUTOVON 563-0611 or (803) 743-0611.

ACKNOWLEDGEMENTS

In preparing this report, the personnel at ABB Environmental Services, Inc., commend the support, assistance, and cooperation provided by the personnel at NSB Kings Bay, Georgia, and SOUTHNAVFACENGCOM. In particular, we acknowledge the outstanding effort, dedication, and professionalism provided by the following people in the preparation of this report.

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RCRA Facility Investigation/Site Inspection
Technical Memorandum No. 1

Naval Installation Restoration Program
Naval Submarine Base
Kings Bay, Georgia

Section	Description	Page No.
EXECUTIVE SUMMARY		ES-1
FOREWORD		i
ACKNOWLEDGEMENT		ii
ACRONYMS		viii
1.0	INTRODUCTION	1-1
1.1	PURPOSE	1-1
1.2	SCOPE	1-1
2.0	FIELD PROGRAM	2-1
2.1	GEOPHYSICAL SURVEYS	2-1
2.2	SOIL BORINGS AND SUBSURFACE SOIL SAMPLING	2-4
2.3	MONITORING WELL INSTALLATION	2-9
2.4	AQUIFER TESTS	2-9
2.5	GROUNDWATER SAMPLING	2-11
2.6	SURVEY OF SAMPLE LOCATIONS	2-11
2.6.1	Location and Elevation Survey	2-11
2.6.2	Survey Accuracy	2-12
3.0	ANALYTICAL PROGRAM	3-1
3.1	CHEMICAL ANALYSES	3-1
3.2	DATA QUALITY ASSESSMENT	3-1
3.2.1	Analytical Performance	3-7
3.2.2	Evaluation of Field QC Samples	3-15
4.0	RESULTS OF INVESTIGATIONS	4-1
4.1	SITE 5, ARMY RESERVE DISPOSAL AREA, TOWHEE TRAIL	4-1
4.1.1	Geophysical Surveys	4-1
4.1.2	Surface Soils	4-3
4.1.2.1	Volatile Organic Compounds in Surface Soil	4-3
4.1.2.2	Semivolatile Organic Compounds in Surface Soil	4-8
4.1.2.3	Pesticides, Herbicides, and PCBs in Surface Soil	4-9
4.1.2.4	Dioxins and Furans in Surface Soil	4-9
4.1.2.5	Inorganic Compounds in Surface Soil	4-9
4.1.3	Subsurface Soils	4-9
4.1.3.1	Volatile Organic Compounds in Subsurface Soil	4-11

4.1.3.2 Semivolatile Organic Compounds in Subsurface Soil 4-11
4.1.3.3 Pesticides, Herbicides, and PCBs in Subsurface Soil 4-12
4.1.3.4 Dioxins and Furans in Subsurface Soil 4-12
4.1.3.5 Inorganic Compounds in Subsurface Soil 4-12
4.1.4 Groundwater 4-12
4.1.4.1 Volatile Organic Compounds in Groundwater . . 4-15
4.1.4.2 Semivolatile Organic Compounds in Groundwater 4-18
4.1.4.3 Pesticides, Herbicides, and PCBs in Groundwater 4-18
4.1.4.4 Dioxins and Furans in Groundwater 4-18
4.1.4.5 Inorganics in Groundwater 4-18
4.1.5 Summary 4-21
4.2 SITE 11, OLD CAMDEN COUNTY LANDFILL 4-22
4.2.1 Geophysical Surveys 4-22
4.2.2 Subsurface Soils 4-25
4.2.2.1 Volatile Organic Compounds in Subsurface Soil 4-25
4.2.2.2 Semivolatile Organic Compounds in Subsurface Soil 4-25
4.2.2.3 Pesticides, Herbicides, and PCBs in Subsurface Soil 4-32
4.2.2.4 Dioxins and Furans in Subsurface Soil 4-32
4.2.2.5 Inorganic Compounds in Subsurface Soil 4-32
4.2.3 Groundwater 4-33
4.2.3.1 Volatile Organic Compounds in Groundwater . . 4-35
4.2.3.2 Semivolatile Organic Compounds in Groundwater 4-38
4.2.3.3 Pesticides, Herbicides, and PCBs in Groundwater 4-39
4.2.3.4 Dioxins and Furans in Groundwater 4-39
4.2.3.5 Inorganics in Groundwater 4-39
4.2.4 Summary 4-42
4.3 SITE 16, ARMY RESERVE DISPOSAL AREA, MOTOR MISSILE MAGAZINES. 4-42
4.3.1 Geophysical Survey 4-42
4.3.2 Subsurface Soil 4-43
4.3.2.1 Volatile Organic Compounds in Subsurface Soil 4-43
4.3.2.2 Semivolatile Organic Compounds in Subsurface Soil 4-48
4.3.2.3 Pesticides, Herbicides, and PCBs in Subsurface Soil 4-49
4.3.2.4 Dioxins and Furans in Subsurface Soil 4-49
4.3.2.5 Inorganics in Subsurface Soil 4-49
4.3.3 Groundwater 4-49
4.3.3.1 Volatile Organic Compounds in Groundwater . . 4-50
4.3.3.2 Semivolatile Organic Compounds in Groundwater 4-53
4.3.3.3 Pesticides, Herbicides, and PCBs in Groundwater 4-53
4.3.3.3 Dioxins and Furans in Groundwater 4-53
4.3.3.4 Inorganics in Groundwater 4-53

RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SI	Site Inspection
s.u.	standard units
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SB	soil boring
SS	surface soil
SVOC	semivolatile organic compound
TDS	total dissolved solids
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 PURPOSE. ABB Environmental Services, Inc. (ABB-ES), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), conducted site investigation activities at three of four former wastes disposal sites at Naval Submarine Base (NSB) Kings Bay, Georgia. This Technical Memorandum is the first of five Technical Memoranda associated with the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) and Site Inspection (SI) that will continue into calendar year 1993. The RFI/SI field program and preparation of this report were completed under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract (contract number N62467-89-D-0317, Contract Task Order [CTO] Number 041) between SOUTHNAVFACENGCOM and ABB-ES.

An Initial Assessment Study (IAS) was conducted in 1985 (C.C. Johnson and Associates, 1985) at NSB Kings Bay, Georgia. The IAS identified a total of 16 waste spill sites. None of the 16 sites required further action under the Navy Installation Restoration Program; however, four of the sites required further action under the Hazardous Waste Facility Permit. In February 1988, a Resource Conservation and Recovery Act (RCRA) and Hazardous and Solid Waste Amendments (HSWA) permit was issued to NSB Kings Bay by the Georgia Environmental Protection Division.

The overall purpose of the RFI/SI is to characterize three of the four previously identified sites with potential for contamination and/or contaminant migration. The three sites are identified as follows:

- Site 5 - Army Reserve Disposal Area, Towhee Trail;
- Site 11 - Old Camden County Landfill; and
- Site 16 - Army Reserve Disposal Area.

The fourth site, Site 12 - Army Reserve Disposal Area, Future Dry Dock, is included in the RFI/SI but no sampling or analyses will be conducted. NSB Kings Bay Public Works Department will conduct a records search and information review to be reported in the comprehensive RFI/SI Report. The RFI/SI Report will be prepared following completion of six groundwater sample events scheduled to take place during calendar year 1992.

The information obtained during the RFI/SI will be used to eliminate sites from further consideration within the Navy IR Program (i.e., no further action) or present the necessary information (i.e., nature and distribution of contaminants) to plan further response actions including a Corrective Measures Study (CMS) and/or RCRA permit modification.

This Technical Memorandum No. 1 presents discussions of the RFI/SI field program conducted at NSB Kings Bay, Georgia, and summarizes findings, results, and recommendations based on information and data collected as a result of the January and February 1992 RFI/SI field effort, which included groundwater sample event No. 1.

1.2 SCOPE. The RFI/SI field program consisted of: (1) magnetometer and terrain conductivity surveys; (2) collection and chemical analysis of seven surface soils; (3) collection and chemical analysis of 22 subsurface soil samples; (4) installation of 20 groundwater monitoring wells; (5) measurements of groundwater

elevation; and (6) collection and analysis of 22 groundwater samples. Aquifer tests (slug tests) were conducted in four monitoring wells from each site to provide a means of estimating hydraulic conductivity of the uppermost aquifer. A locational survey of sample points was also performed and site maps were developed from the survey data.

The specific scope of explorations and environmental measurements conducted during the RFI/SI is described in Section 2.0. Section 3.0 discusses the analytical program and data quality for the environmental samples collected during field effort. Section 4.0 includes presentation and interpretation of data collected to date. Section 5.0 presents preliminary recommendations for deletion of certain compounds from the groundwater monitoring parameter list based on evidence that these certain compounds are not contaminants of concern.

2.0 FIELD PROGRAM

The RFI/SI field program conducted at NSB, Kings Bay, Georgia, during January and February 1992 included the following activities:

- geophysical surveys at each site;
- collection of subsurface soil samples from soil borings installed at each site;
- collection of surface soil samples from Site 5;
- installation of monitoring wells at each site;
- slug tests of four monitoring wells at each site;
- collection of groundwater samples from each site; and
- survey of sample locations.

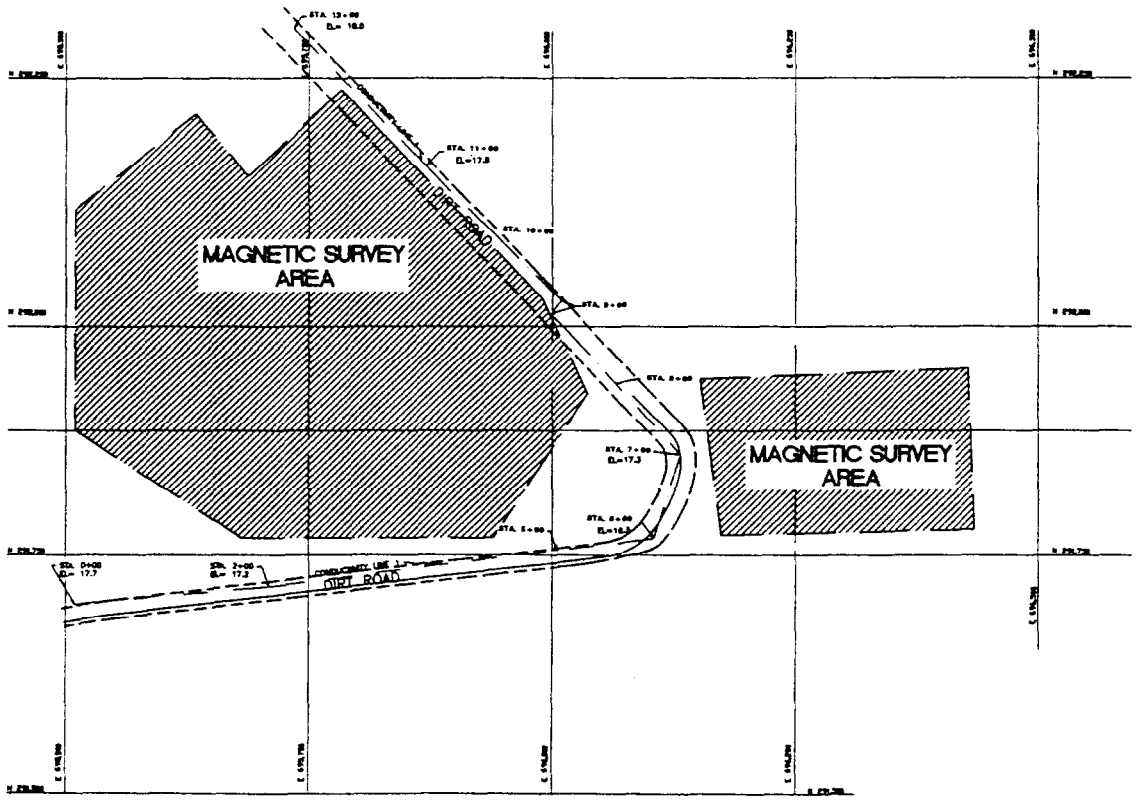
The following subsections summarize the methods and scope of each of the above activities associated with the RFI/SI.

2.1 GEOPHYSICAL SURVEYS. Geophysical techniques used at the sites during the RFI/SI field program included magnetometer and terrain conductivity surveys. Geophysical surveys were performed by ABB-ES personnel. The procedures used in the field were directed by a geophysicist. At Site 11 and Site 5 both magnetometer and terrain conductivity surveys were completed. At Site 16 a terrain conductivity survey was completed. Results of geophysical surveys are discussed in Section 4.0.

Discussions during the kickoff meeting on January 27, 1992, revealed that conditions at Site 16 were not conductive to successfully completing a magnometer survey. Site 16 is the location of an active construction area where motor missile magazines are being built to provide additional storage for missle components. Above-ground steel affects magnometer readings. Upon visiting the site, heavy equipment, trucks, office trailers, and steel rebar were observed over the site. A decision was made to only perform a terrain conductivity survey at Site 16.

The level of effort planned for the magnetometer survey at Site 16 was used at Site 11, which had not been scoped for magnetometry. Magnetometry at Site 11 was considered appropriate because there was a high probability that the limits of the landfill and location of fill cells could be identified. Results of the magnetometer survey at Site 11 confirmed that expectations were met.

An Omni Plus™ magnetometer was used for the magnetic surveys conducted at Sites 5 and 11. The magnetometer surveys were comprised of staked survey lines spaced 100 feet apart and oriented according to magnetic north. The staked survey lines were used as references for readings collected on 20-foot centers. Once magnetic anomalies were identified, additional measurements were collected to define the area of the anomaly. Figures 2-1 and 2-2 show the configuration of the staked grids at Sites 5 and 11, respectively. Two base lines (Line 0+00 and Position 0+00) were selected for horizontal location by a registered land surveyor. The base lines were surveyed relative to existing benchmarks at the Base. Survey maps submitted by Privett and Associates Surveyors and Land Planners, St. Marys, Georgia, provide the necessary information to accurately locate the position of the baselines. Any other survey point or survey line can be located relative to baselines.



LEGEND

AREA OF MAGNETIC SURVEYING

TERRAIN CONDUCTIVITY PROFILE

GRAPHIC SCALE (FT.)

100 0 100 200

FIGURE 2-1
SITE 5
ARMY DISPOSAL AREA
GEOPHYSICAL SURVEY -
AREA OF MAGNETIC SURVEYING
AND TERRAIN CONDUCTIVITY
PROFILE LOCATIONS

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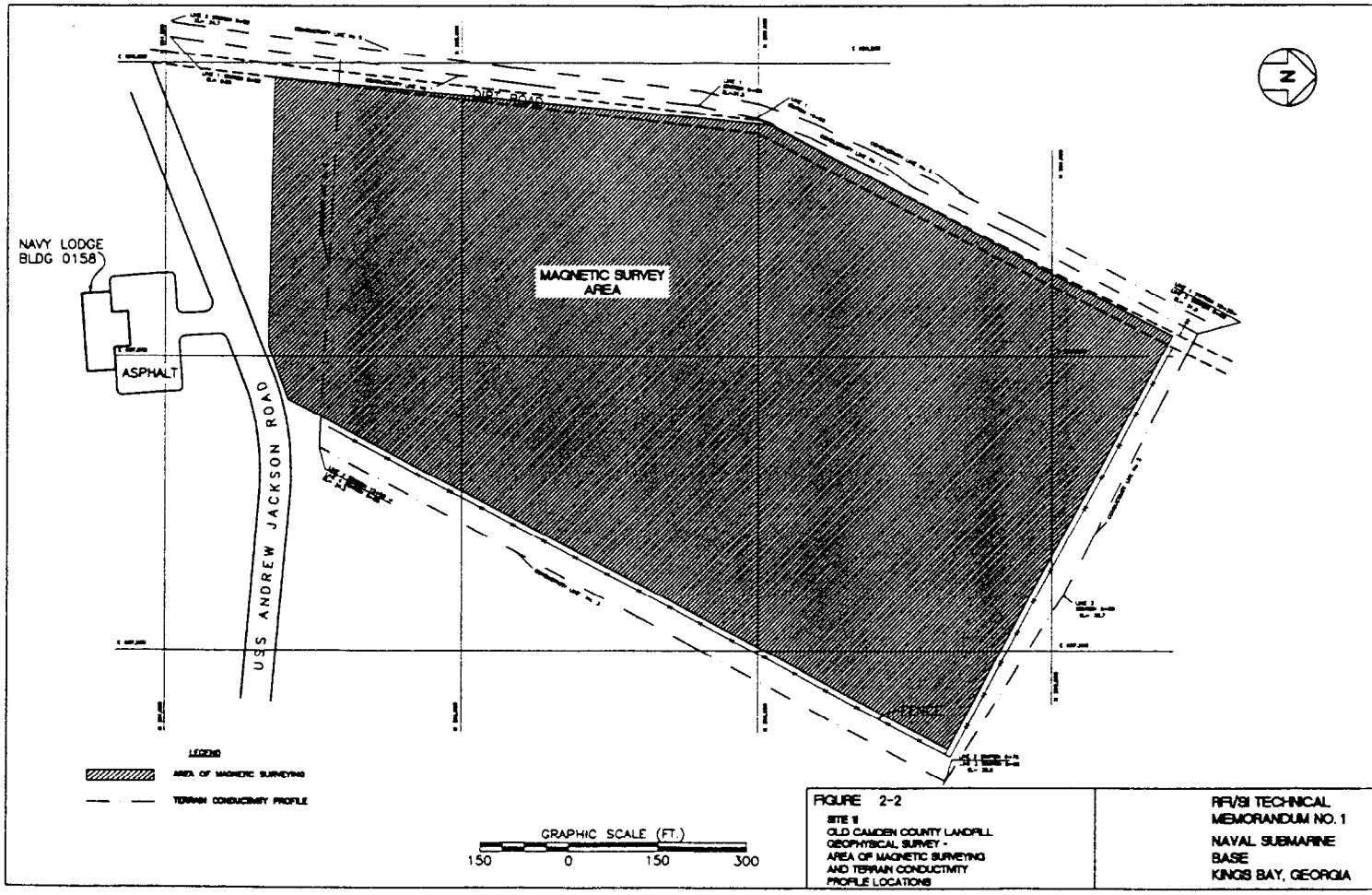

FIGURE 2-2
SITE 1
OLD CAMDEN COUNTY LANDFILL
GEOPHYSICAL SURVEY -
AREA OF MAGNETIC SURVEYING
AND TERRAIN CONDUCTIVITY
PROFILE LOCATIONS

RFI/SI TECHNICAL
MEMORANDUM NO. 1
NAVAL SUBMARINE
BASE
KINGS BAY, GEORGIA

Terrain conductivity surveys were preformed using an EM-31™. Terrain conductivity surveys were conducted around the perimeters of all three sites included in the RFI/SI field program. At Site 5 terrain conductivity measurements were collected around areas of magnetic anomalies in addition to measurements collected around the perimeter of the site, as specified in the RFI/SI Workplan. The conductivity surveys around the sites were comprised of readings collected each 20 feet along a traverse. Traverses were flagged each 100 feet for reference. Traverses were located horizontally by a registered land surveyor relative to existing benchmarks at the Base. Survey maps of each site provide the information necessary to locate each traverse line, or to locate a data point along a particular traverse. Figures 2-1, 2-2, and 2-3 show the location of terrain conductivity surveys at the three sites.

2.2 SOIL BORINGS AND SUBSURFACE SOIL SAMPLING. A total of 20 soil borings were completed during the RFI/SI at NSB Kings Bay. Seven borings were completed at Site 5 (05-SB-01 through 05-SB-07). Nine borings were completed at Site 11 (11-SB-01 through 11-SB-09) and four at Site 16 (16-SB-01 through 16-SB-07). All soil borings correspond to locations for monitoring well installations. At Site 5 seven shallow hand-augered borings (05-SS-01 through 05-SS-07) were completed for collection of surface soil samples in addition to borings drilled for monitoring well installation. Sample locations are shown in Figures 2-4, 2-5, and 2-6.

Groundwater Protection, Inc., Orlando, Florida, provided drilling services for this project. Borings were drilled using a Central Mining Equipment(CME) 45 drill rig equipped with 8-inch outside diameter (O.D.) hollow stem augers. Each boring was initiated with post-hole diggers as a precautionary measure in case unidentified utilities were present at the drilling location. Split-spoon samples were collected continuously at 2-foot intervals in each borehole. Each split-spoon sample was screened for VOCs with a photoionization detector (PID). VOC screening data were recorded on field boring logs. Split-spoon samples were logged at each drilling location by a geologist. Information recorded on field logs was used to create the Geotechnical Graphics System™ (GTGS) logs present in Appendix A.

The split-spoon sample from the interval above the groundwater table was collected, placed in sample jars, and submitted to the laboratory for analysis of Appendix IX parameters. One sample per boring (20 borings), plus two duplicate samples, were analyzed by the laboratory. Field QC samples included two field duplicates, a matrix spike and matrix spike duplicate, seven trip blanks, seven equipment rinseate samples, and two field blanks. Results of laboratory analysis of soil samples are discussed in Sections 3.0 and 4.0.

At Site 5 seven surface soil samples were collected using a hand auger. Sample depths ranged from 0.8 feet below land surface (BLS) to 2.7 feet BLS. Samples were selected below intervals where changes in soil characteristics indicated the original surface of the landfill. Four of the samples were collected from locations where magnetic anomalies had been identified. These four samples (05-SS-01 through 05-SS-04) were collected from the 7-acre portion of Site 5. Three other surface soil samples (05-SS-05 through 05-SS-07) were collected from the 1.5-acre portion of Site 5. Locations for these three samples were arbitrarily selected because no magnetic anomalies had been identified in that area of the site. Analysis of the seven surface soil samples and associated QC samples included Appendix IX parameters. QC samples included one duplicate sample, a

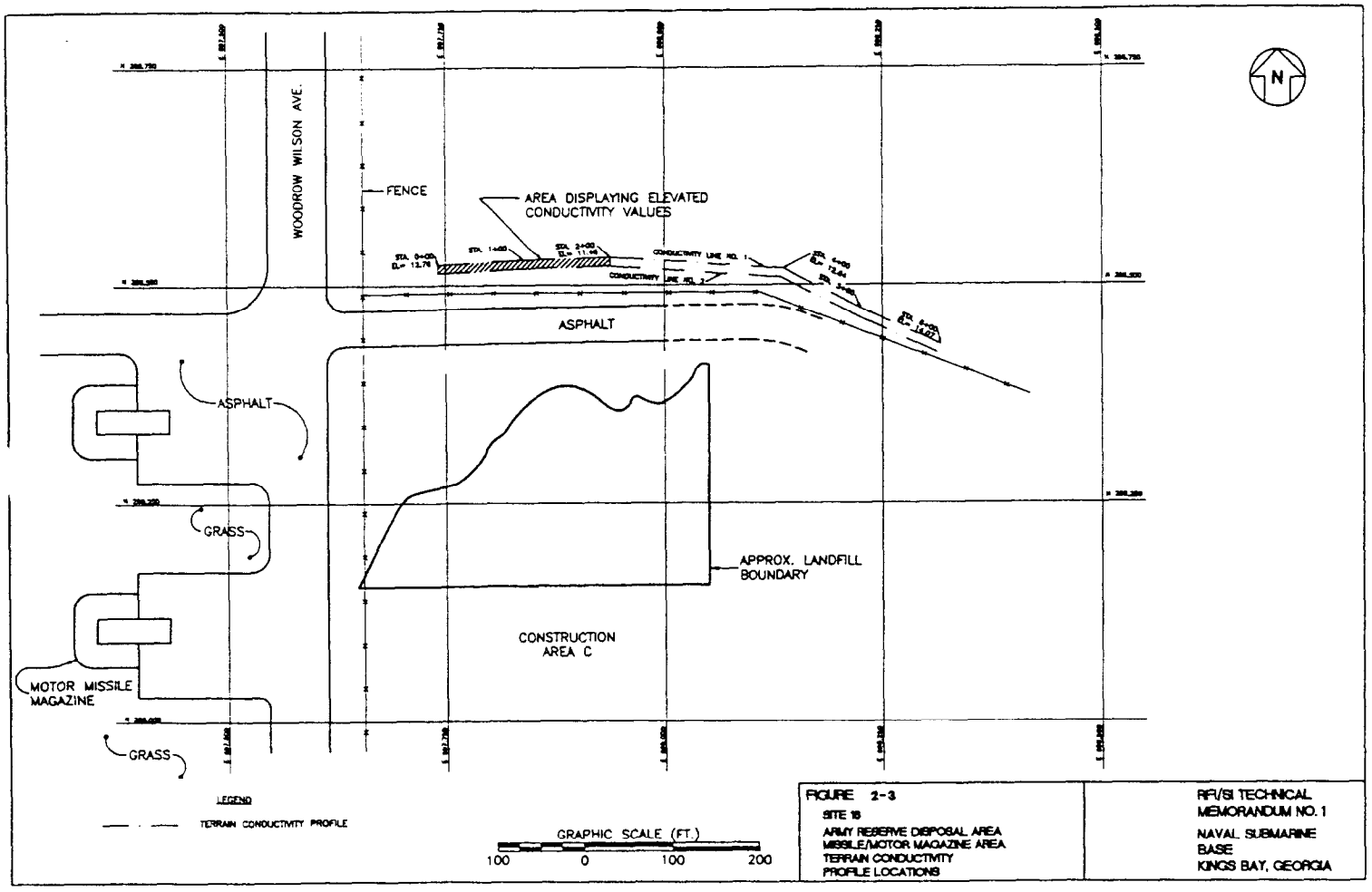

FIGURE 2-3
SITE 16
ARMY RESERVE DISPOSAL AREA
MISSILE/MOTOR MAGAZINE AREA
TERRAIN CONDUCTIVITY
PROFILE LOCATIONS

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KINGS BAY, GEORGIA

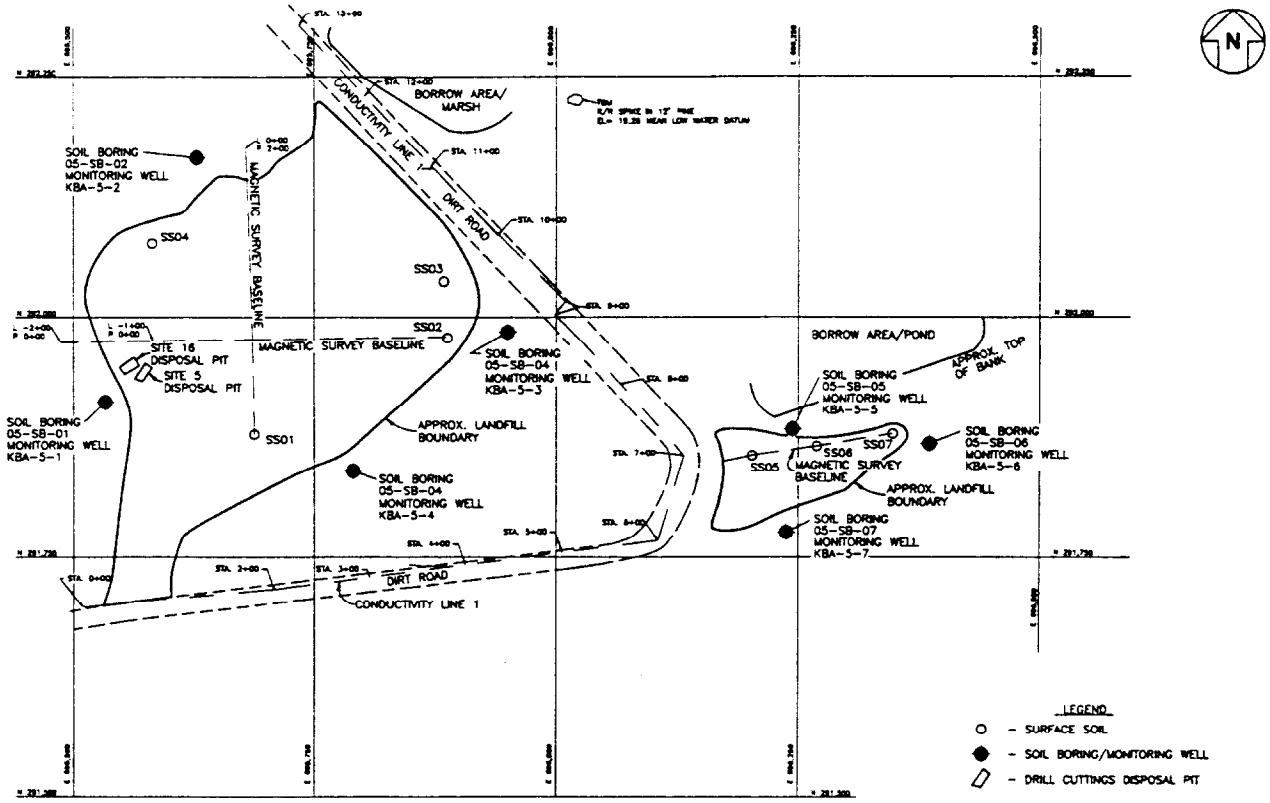

FIGURE 2-4
SITE 5
ARMY RESERVE DISPOSAL AREA
TOWHEE TRAIL
SAMPLING LOCATIONS

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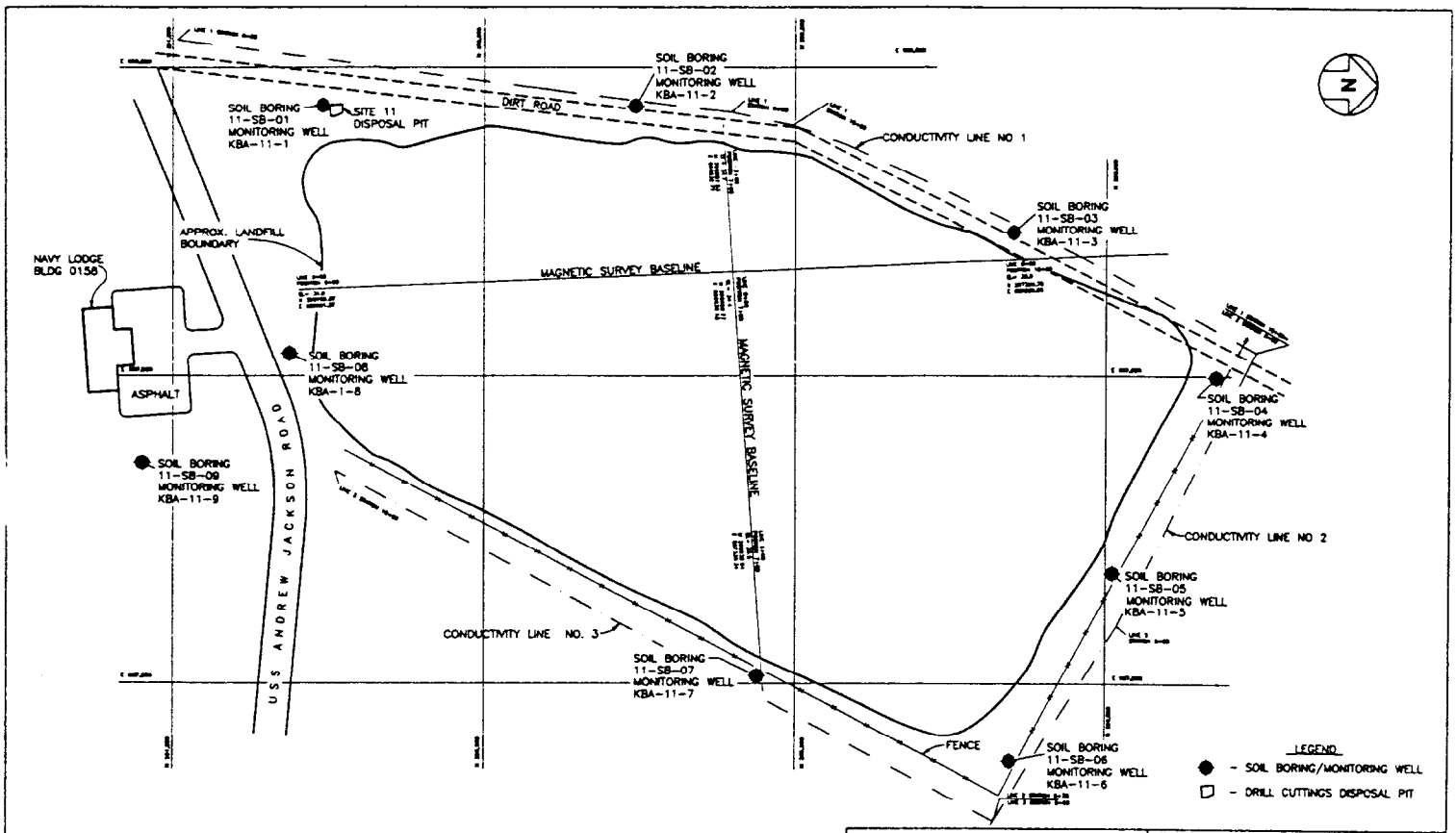

FIGURE 2-5
SITE 11
OLD CAMDEN COUNTY LANDFILL
SAMPLING LOCATIONS

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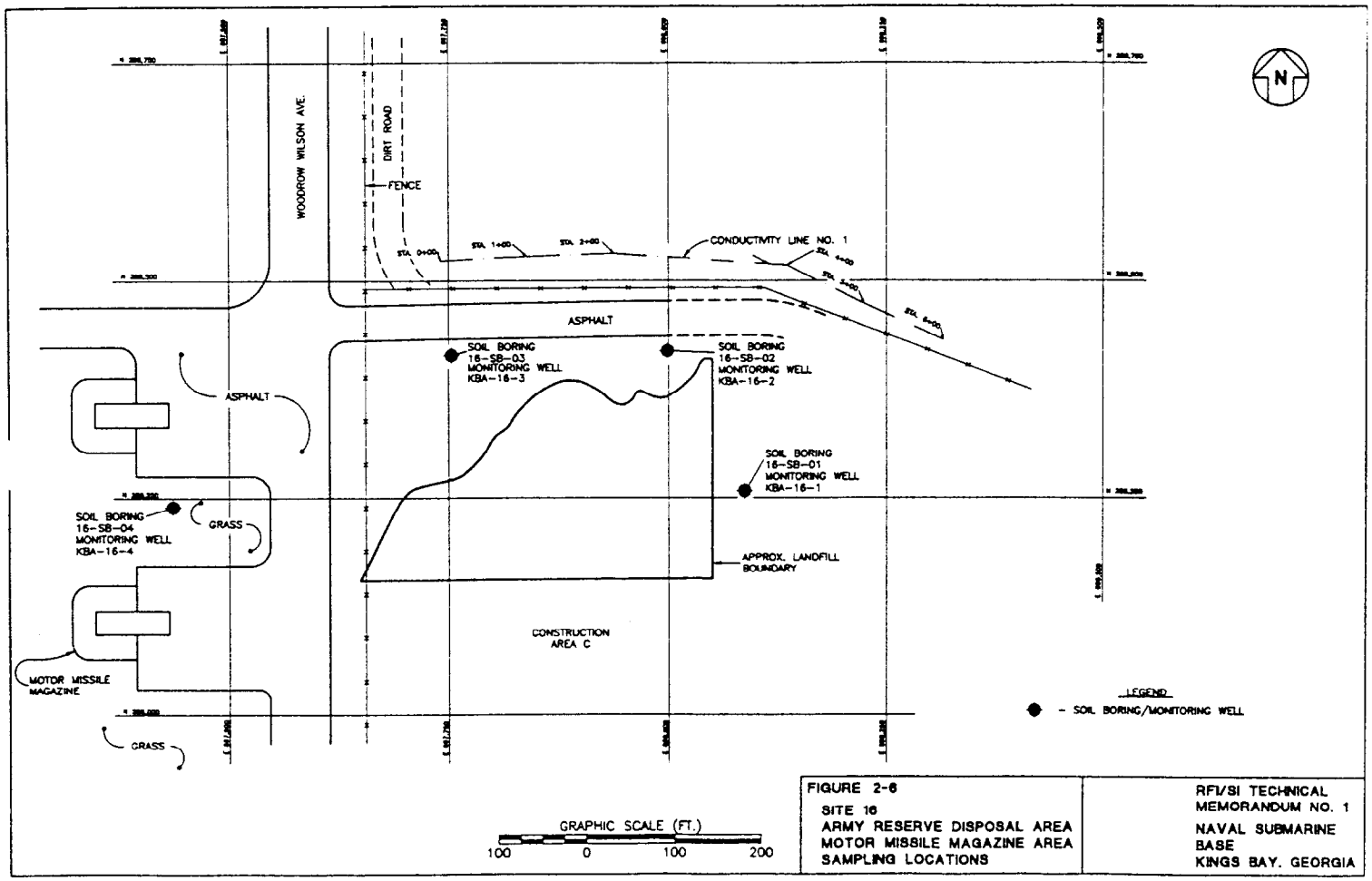

FIGURE 2-6
SITE 16
ARMY RESERVE DISPOSAL AREA
MOTOR MISSILE MAGAZINE AREA
SAMPLING LOCATIONS

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BASE
KINGS BAY, GEORGIA

matrix spike and matrix spike duplicate, one equipment rinseate, and one trip blank.

2.3 MONITORING WELL INSTALLATION. Twenty groundwater monitoring wells were installed during the RFI/SI field program. Seven monitoring wells were installed at Site 5 (KBA-5-1 through KBA-5-7), nine were installed at Site 11 (KBA-11-1 through KBA-11-9) and four were installed at Site 16 (KBA-16-1 through KBA-16-4). Locations of monitoring wells are shown in Figures 2-4, 2-5, and 2-6.

Monitoring wells were installed in soil borings discussed previously in Section 2.2. Groundwater Protection, Inc. provided drilling services and constructed the monitoring wells under the direction of an ABB-ES geologist. Monitoring wells were constructed inside the hollow-stem augers, with the augers gradually being removed from the boring as well completion progressed. This technique of well construction is standard in boreholes that have a tendency to collapse when the augers are removed.

All 20 monitoring wells are constructed similarly. Figure 2-7 is a monitoring well construction diagram that shows the various elements comprising a typical monitoring well installed at the NSB Kings Bay Sites. Well riser pipe and screen are 2-inch inside diameter (I.D.), schedule 40 PVC. Riser pipe and well screen are comprised of 10-foot sections with flush threaded joints. The well screens have 0.01-inch machined slots. A 20/30 mesh silica sand pack extends approximately 2 feet below the well screen. The workplan specified that the sand pack extend 3 feet above the well screen; however, due to the shallow depth of well installations sand packs generally extend 6 inches to 1 foot above the screen. Likewise, bentonite seals of 1 foot to 2 feet in thickness were specified in the Work Plan, but the shallow depth of wells generally only allowed for 1 foot of bentonite. Height of sand pack above the screens and thickness of bentonite seals were selected based on available space and to provide well integrity.

Type I Portland cement was placed from the top of the bentonite seal to ground surface. Lockable steel protective covers were set into the grout over each PVC riser pipe. Concrete pads measuring 4 feet by 3 feet by 6 inches were constructed around each monitoring well. A steel guard post filled with concrete was set into the ground at each of the four corners of the concrete pad. An aluminum plate was set into each concrete pad showing the appropriate monitoring well identification.

Privett and Associates Surveyors and Land Planners of St. Marys, Georgia, performed a location and elevation survey locating each monitoring well with horizontal accuracy of 0.1 foot and vertical accuracy of 0.01 foot. The elevation survey included the top of the PVC riser pipe at the north edge and the concrete pad. All vertical elevations are relative to mean low water (MLW) as specified by the Base Environmental Coordinator.

2.4 AQUIFER TESTS. Rising head slug tests were performed on four monitoring wells at each site. Tests were performed by lowering a pressure transducer to a depth just above the bottom of a well and introducing a solid tube, or slug, into the well to a depth below static water level. The slug was constructed of a 5-foot long, 3/4-inch diameter PVC pipe filled with silica sand and sealed on both ends. After the slug was introduced into a well the water level was allowed to recover to static level. The slug was then pulled from the well and recharge

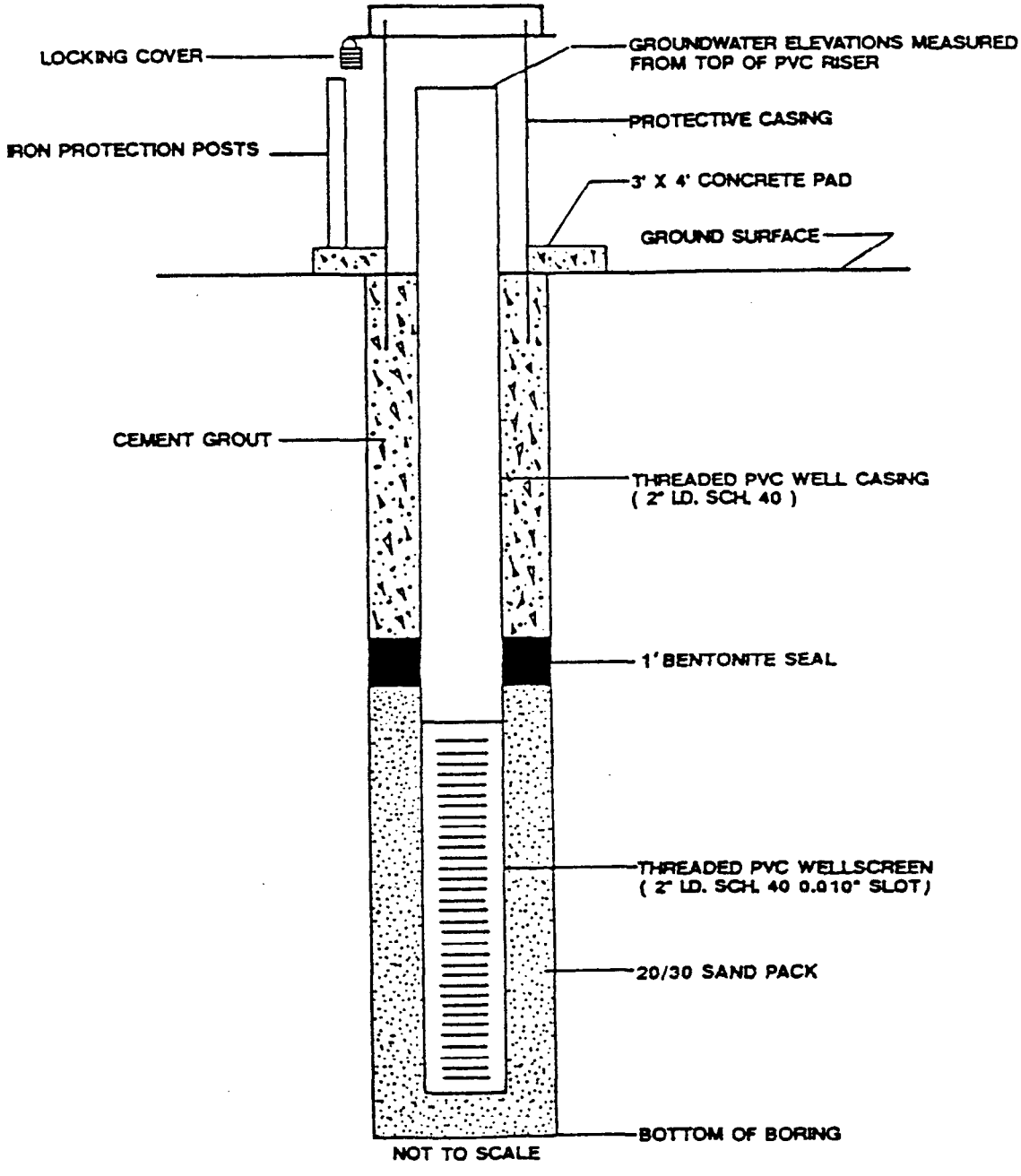


FIGURE 2-7

MONITORING WELL CONSTRUCTION DIAGRAM

RFI/SI TECHNICAL MEMORANDUM NO. 1

NAVAL SUBMARINE BASE

KINGS BAY, GEORGIA

to the well was recorded on an In-Situ, Inc. model 1000C data logger via the transducer.

The recorded data was analyzed using a method developed by Bouwer and Rice (1976) for calculating hydraulic conductivity of an aquifer from partially penetrating wells in an unconfined aquifer. AQTESOLV™ software was used to perform calculations and create graphic representations of the data. Appendix B presents the AQTESOLV™ output of slug test data. The results of aquifer testing are discussed in Section 4.0.

One well at each site was monitored for tidal influence by recording water levels over a period of 24 hours. The ISCO datalogger and pressure transducer were used to record the water levels at 30-minute intervals. The results of this monitoring are discussed in Section 4.0.

2.5 GROUNDWATER SAMPLING. Groundwater sampling was performed February 19, 1992, through February 24, 1992. Groundwater samples were collected from each of the 20 wells installed during the RFI/SI. Analysis of the samples included Appendix IX parameters. Laboratory services were provided by CH2M HILL Laboratories, Inc. in Montgomery, Alabama. Level C data quality objectives and deliverables were specified for the analytical program.

Upon opening each monitoring well the headspace was screened for VOCs using a PID. Prior to sample collection each well was purged of at least three well volumes. Samples were collected within 24 hours following purging. An ISCO model 1580 peristaltic pump with polyethylene tubing was used to purge the monitoring wells. Decontaminated teflon bailers were used to collect samples. Groundwater was transferred from the bailer directly into labelled sample containers. Appropriate preservatives were added to the empty sample containers by the laboratory prior to delivery of the containers to the project. ABB-ES personnel placed the filled containers on ice in ice chests immediately after collection. Chain-of-custody was initiated in the field at the time of sample collection. Samples were shipped via overnight courier service to the laboratory on the date of collection.

Field parameters for groundwater samples included pH, conductivity, and temperature. Due to equipment breakage, many of the wells did not have temperature measurements.

Results of groundwater sample analysis are discussed in Sections 3.0 and 4.0.

2.6 SURVEY OF SAMPLE LOCATIONS.

2.6.1 Location and Elevation Survey A closed loop horizontal and vertical location survey was performed at NSB Kings Bay by Privett and Associates, Surveyors and Land Planners of St. Marys, Georgia. Horizontal and vertical location survey points included 20 soil borings/monitoring wells, 7 surface soil sample locations, magnetometer survey baselines at Site 11 and 5, and terrain conductivity traverse lines at all three sites. Also located were 2 disposal pits for drill cuttings at Site 5, and 1 disposal pit for drill currings at Site 11. Elevations were surveyed as follows:

- at the north side of the top of the PVC riser pipe of all monitoring wells;

- on the finished concrete pad adjacent to the well;
- at the base of wood lathes set by ABB-ES personnel on all soil sample locations; and
- at reference locations for the geophysical survey grids.

All monitoring wells were horizontally located at the center of the locking cover, and all soil sample and geophysical survey locations were horizontally located immediately adjacent to the wood lathes.

2.6.2 Survey Accuracy All horizontial locations were performed to at least a second or third order Class II Survey, as specified in the NSB Kings Bay Work Plan, to within 1 foot in 5000 feet precision. All horizontial locations were tied to existing control points located on the Base and shown in Georgia State Plane Coordinates. These existing control points, however, did not meet the requirements of Class II accuracy. They were used because existing Base maps were made using these same points, and the nearest control points meeting Class II accuracy requirements were located approximately 1 mile away. All vertical elevation information acquired was relative to MLW datum. Vertical information was not converted to mean sea level (MSL) datum because the Base does not use MSL datum. All benchmarks located on the Base are relative to MLW datum. Vertical elevations were performed to 0.01 foot precision.

In addition, the survey data will be organized and reported in accordance with USEPA Locational Data Policy and Revion IV Environmental Monitoring and Data Reporting Requirements. These documents require the identification of sampling locations in terms of latitude/longitude coordinated in both state plane coordinates in accordance with the Federal Interagency Coordinating Committee for Digital Cartography (FICCDC) recommendations.

3.0 ANALYTICAL PROGRAM

This section summarizes the analytical program for surface soil and subsurface soil samples and groundwater samples collected during RFI/SI field activities at NSB Kings Bay. In addition it presents an assessment of data quality, identifies several points of laboratory nonconformance, and assesses the impact of laboratory nonconformancies.

3.1 CHEMICAL ANALYSES. Sampling activities at NSB Kings Bay included the collection of surface and subsurface soil samples, the installation of groundwater monitoring wells, and the collection of groundwater samples. All samples were collected in accordance with the procedures outlined in the Quality Assurance Project Plan, Appendix A of the NSB Kings Bay Work Plan. Samples were submitted to CH2M HILL Laboratories in Montgomery, Alabama, for chemical analyses. Table 3-1 summarizes the sampling and analysis program for samples collected from Sites 5, 11, and 16 during the RFI/SI. Samples were analyzed in accordance with USEPA SW-846 methods (USEPA, 1986) and NEESA Level C documentation for Appendix IX volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), dioxins and furans, organochlorine and organophosphorous pesticides, polychlorinated biphenyls (PCBs), herbicides, and inorganic analytes (including total cyanide and sulfide). Table 3-2 provides a list of Appendix IX compounds and corresponding EPA analytical method numbers.

3.2 DATA QUALITY ASSESSMENT. All soil and groundwater samples collected during the RFI/SI were properly preserved, placed in coolers, and packed with bagged ice immediately after their collection. All samples remained in the custody of the field operations leader until delivery to the courier service providing overnight shipment to the laboratory. All samples were shipped, complete with chain-of-custody forms, to CH2M HILL Laboratories within 24 hours for analysis. Upon arrival at CH2M HILL, the chain-of-custody and preservation of the samples was checked with the contents of each cooler by CH2M HILL personnel. After verification, the chain-of-custody form was signed by CH2M HILL personnel and the samples accepted for analysis.

Review of the field notebook and chain-of-custody forms did not indicate any nonconformance relative to field instrument calibration or sample handling. All required field quality control (QC) samples were collected in conformance with the requirements of the United States Environmental Protection Agency (USEPA), Navy Energy and Environmental Support Activity (NEESA), and ABB-ES Quality Assurance Plans and the June 1988 NEESA "Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program" (NEESA Document 20.2-047B). These field QC samples include field duplicates, equipment rinseate blanks, field blanks, and VOC trip blanks for each VOC sample shipment.

The analytical results for environmental samples collected during the RFI/SI were evaluated and validated according to NEESA Level C quality control criteria in order to determine data quality and useability. The data tables included in Appendix C reflect validation according to Level C criteria. These criteria are described in Section 7.3.2 of NEESA Document 20.2-047B. The following subsections discuss analytical nonconformance and the evaluation of field and laboratory QC samples.

Table 3-1
Summary of Sampling and Analysis Program

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Location and Type of Sampling	Laboratory Analysis					
	A	B	C	D	E	F
Site 5						
Surface Soil	7	7	7	7	7	7
Subsurface Soil	7	7	7	7	7	7
Groundwater	7	7	7	7	7	7
Site 11						
Subsurface Soil	9	9	9	9	9	9
Groundwater	9	9	9	9	9	9
Site 16						
Subsurface Soil	4	4	4	4	4	4
Groundwater	4	4	4	4	4	4
Field Duplicates						
Surface Soil	1	1	1	1	1	1
Subsurface Soil	2	2	2	2	2	2
Groundwater	2	2	2	2	2	2
Quality Control Samples						
Trip Blanks	11	0	0	0	0	0
Rinseate Blanks	11	11	11	11	11	11
Field Blanks	3	3	3	3	3	3

A - Appendix IX Volatiles
B - Appendix IX Semivolatiles
C - Appendix IX Organochlorine pesticides and PCBs
D - Appendix IX Inorganics (including cyanide and sulfide)
E - Appendix IX Dioxins and Furans
F - Appendix IX Herbicides and Organophosphorous pesticides

Table 3-2
Appendix IX, Groundwater Monitoring List

RFI/SI Report
NSB Kings Bay
Kings Bay, Georgia

Parameter	Methods	Parameter	Methods
Acenaphthylene	8100	delta-BHC	8080
	8270		8250
Acetone	8240	gamma-BHC; Lindane	8080
Acetophenone	8270		8250
Acenaphthene	8100		
	8270		
Acetonitrile; Methyl cyanide	8015	Bis(2-chloroethoxy)methane	8270
2-Acetylaminofluorene; 2-AAF	8270	Bis(2-chloroethyl)ether	8270
Acrolein	8030	Bis(2-chloro-1-methylethyl) ether;	8010
	8240	2,2-Dichlorodiisopropyl ether	8270
Acrylonitrile	8030	Bis(2-ethylhexyl)phthalate	8060
	8240		8270
Aldrin	8080	Bromodichloromethane	8010
	8270		8240
Allyl chloride	8010	Bromoform; Tribromomethane	8010
	8240		8240
4-Aminobiphenyl	8270	4-Bromophenyl phenyl ether	8270
Aniline	8270	Butyl benzyl phthalate; Benzyl	8060
Anthracene	8100	butyl phthalate	8270
	8270	Cadmium	6010
Antimony	6010		7130
	7040		7131
	7041	Carbon disulfide	8240
Aramite	8270	Carbon tetrachloride	8010
Arsenic	6010		8240
	7060	Chlordane	8080
	7061		8250
Barium	6010	p-Chloroaniline	8270
	7080	Chlorobenzene	8010
Benzene	8020		8020
	8240		8240
Benzo(a)anthrancene; Benzanthracene	8100	Chlorobenzilate	8270
	8270	p-Chloro-m-cresol	8040
Benzo(b)fluoranthene	8100		8270
	8270	Chloroethane; Ethyl chloride	8010
Benzo(k)fluoranthene	8100		8240
	8270	Chloroform	8010
Benzo(ghi)perylene	8100		8240
	8270	2-Chloronaphthalene	8120
Benzo(a)pyrene	8100		8270
	8270	2-Chlorophenol	8040
Benzyl alcohol	8270		8270
Beryllium	6010	4-Chlorophenyl phenyl ether	8270

Table 3-2 (continued)
Appendix IX, Groundwater Monitoring List

RFI/SI Report
NSB Kings Bay
Kings Bay, Georgia

Parameter	Methods
	7090
	7091
alpha-BHC	8080
	8250
beta-BHC	8080
	8250
Cobalt	6010
	7200
	7201
Copper	6010
	7210
Cyanide	9100
2,4D; 2,4-Dichlorophenoxyacetic acid	8150
4,4'-DDD	8080
	8270
4,4'DDE	8080
	8270
4,4-DDT	8080
	8270
Diallate	8270
Dibenz(a,h)anthracene	8100
	8270
Dibenzofuran	8270
Dibromochloromethane; Chlorodibromomethane	8240
1,2-Dibromo-3-chloropropane; DBCP	8101
	8240
	8270
1,2-Dibromoethane; Ethylene dibromide	8010
	8240
Di-n-butyl phthalate	8060
	8270
o-Dichlorobenzene	8010
	8020
	8120
	8270
m-Dichlorobenzene	8010
	8020
	8120
	8270
Chloroprene	8010
	8240
Chromium	6010
	7190
	7191
Chrysene	8100
1,2-Dichloroethane; Ethylene dichloride	8010
	8240
1,1-Dichloroethylene; Vinylidene chloride	8010
	8240
trans-1,2-Dichoroethylene	8010
	8240
2,4-Dichlorophenol	8040
	8270
2,6-Dichlorophenol	8270
1,2-Dichloropropane	8010
	8240
cis-1,3-Dichloropropene	8010
	8240
trans-1,3-Dichloropropene	8010
	8240
Dieldrin	8080
	8270
Diethyl phthalate	8060
	8270
0,0-Diethyl 0-2pyrazinyl phosphorothioate; Thionazin	8270
Dimethoate	8270
p-(Dimethylamino)azobenzene	8270
7,12-Dimethylbenz(a)anthracene	8270
3,3'-Dimethylbenzidine	8270
alpha, alpha-Dimethylphenethylamine	8270
2,4-Dimethyphenol	8040
	8270
Dimethyl phthalate	8060
	8270
m-Dinitrobenzene	8270
4,6-Dinitro-o-cresol	8040
	8270
2,4-Dinitrophenol	8040
	8270
2,4-Dinitrotoulene	8090
	8270

Table 3-2 (continued)
Appendix IX, Groundwater Monitoring List

RFI/SI Report
NSB Kings Bay
Kings Bay, Georgia

Parameter	Methods	Parameter	Methods
p-Dichlorobenzene	8010	2,6-Dinitrotoulene	8090
	8020		8270
	8120	Dinoseb; DNBP; 2-sec-Butyl-	8150
	8270	4,6-dinitrophenol	8270
3,3-Dichlorobenzidine	8270	Di-n-octyl phthalate	8060
trans-1,4-Dichloro-2-butene	8240		8270
Dichlorodifluoromethane	8010	1,4-Dioxane	8015
	8240	Diphenylamine	8270
1,1-Dichloroethane	8010	Disulfoton	8140
	8240		8270
Endosulfan I	8080	Methacylonitrile	8015
	8250		8240
Endosulfan II	8080	Methapyrilene	8270
Endosulfan sulfate	8080	Methoxychlor	8080
	8270		8270
Endrin	8080	Methyl bromide; Bromomethane	8010
	8250		8240
		Methyl chloride; Chloromethane	8010
			8240
Endrin aldehyde	8080		
	8270		8240
Ethylbenzene	8020	3-Methylcholanthrene	8270
	8240	Methylene bromide; Dibromomethane	8010
Ethyl methacrylate	8015		8240
	8240	Methylene chloride; Dichloromethane	8010
	8270		8240
Ethyl methanesulfonate	8270	Methyl ethyl ketone; MEK	8015
Famfur	8270		8240
Fluoranthene	8100	Methyl iodide; Iodomethane	8010
	8270		8240
Fluorene	8100	Methyl methacrylate	8015
	8270		8240
Heptachlor	8080	Methyl methanesulfonate	8270
	8270	2-Methylnaphthalene	8270
Heptachlor epoxide	8080	methyl parathion; Parathion methyl	8140
	8270		8270
Hexachlorobenzene	8120	4-Methyl-2-pentanone; Methyl	8015
	8270	isobutyl ketone	8240
		3-methyl-phenol	8270
		2-methyl-phenol	8270
		4-methyl-phenol	8270
Hexachlorobutadiene	8120	Naphthalene	8100
	8270		8270

Table 3-2 (continued)
Appendix IX, Groundwater Monitoring List

RFI/SI Report
NSB Kings Bay
Kings Bay, Georgia

Parameter	Methods	Parameter	Methods
Hexachlorocyclopentadiene	8120	1,4-Naphthoquinone	8270
	8270	1-Naphthylamine	8270
Hexachloroethane	8120	2-Naphthylamine	8270
	8270	Nickel	6010
Hexachlorophene	8270		7520
Hexachloropropene	8270	o-Nitroaniline	8270
2-Hexanone	8240	m-Nitroaniline	8270
Indeno(1,2,3-cd)pyrene	8100	p-Nitroaniline	8270
	8270	Nitrobenzene	8090
Isobutyl alcohol	8015		8270
Isodrin	8270	o-Nitrophenol	8040
Isophorone	8090		8270
	8270	p-Nitrophenol	8040
Isosafrole	8270		8270
Kepone	8270	4-Nitroquinoline 1-oxide	8270
Lead	6010	N-Nitrosodi-n-butylamine	8270
	7420	N-Nitrosodiethylamine	8270
	7421	N-Nitrosodimethylamine	8270
Mercury	7470	N-Nitrosodiphenylamine	8270
N-Nitrosodipropylamine; Di-n-propyl-nitrosamine	8270	2,3,7,8-TCDD; 2,3,7,8-Tetrachloro-dibenzo-p-dioxin	8280
N-Nitrosomethylethylamine	8270	1,2,4,5-Tetrachlorobenzene	8270
N-Nitrosomorpholine	8270	1,1,1,2-Tetrachloroethane	8010
N-Nitorsopiperidine	8270		8240
N-Nitrosopyrrolidine	8270	1,1,2,2-Tetrachloroethane	8010
5-Nitro-o-toluidine	8270		8240
Parathion	8270	Tetrachloroethylene; Perchloro-	8010
Polychlorinated biphenyls; PCBs	8080	ethylene; Tetrachloroethene	8240
	8250	2,3,4,6-Tetrachlorophenol	8270
Polychlorinated dibenzo-p-dioxins; PCDDs	8280	Tetraethyl dithiopyrophosphate; Sulfotepp	8270
Polychlorinated dibenzofurans; PCDFs	8280	Thalium	8010
Pentachlorobenzene	8270		7840
Pentachloroethane	8240		7841
	8270	Tin	7870
Pentachloronitrobenzene	8270	Toulene	8020
Pentachlorophenol	8040		8240
	8270	o-Toluidine	8270
Phenacetin	8270	Toxaphene	8080
Phenanthrene	8100		8250
	8270	1,2,4-Trichlorobenzene	8270
Phenol	8040	1,1,1-Trichloroethane; Methyl-chloroform	8240
	8270		

Table 3-2 (continued)
Appendix IX, Groundwater Monitoring List

RFI/SI Report
NSB Kings Bay
Kings Bay, Georgia

Parameter	Methods	Parameter	Methods
p-Phenylenediamine	8270	1,1,2-Trichloroethane	8010
Phorate	8140		8240
	8270	Trichloroethylene; Trichloroethene	8010
2-Picoline	8240		8240
Pronamide	8270		8240
Propionitrile; Ethyl cyanide	8015	2,4,5-Trichlorophenol	8270
	8240	2,4,6-Trichlorophenol	8040
Pyrene	8100		8270
	8270	1,2,3-Trichloropropane	8010
Pyridine	8240		8240
Safrole	8270	0,0,0-Triethyl phosphorothioate	8270
Selenium	6010	sym-Trinitrobenzene	8270
	7740	Vanadium	6010
	7741		7901
Silver	6010		7911
	7760	Vinyl acetate	8240
Silvex; 2,4,5-TP	8150	Vinyl chloride	8010
Styrene	8020		8240
	8240	Xylene (total)	8020
Sulfide	9030		8240
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	8150	Zinc	6010
			7950

3.2.1 Analytical Performance Review of analytical data indicated that the laboratory met all applicable analytical QC criteria for organochlorine pesticide, PCB, and herbicide analyses, but not for VOC, SVOC, dioxan and furan analyses, organophosphorous pesticide analyses, and for certain inorganic analyses. Holding times were met for all sample lots. The data review and validation were performed under a subcontract to Heartland Environmental Services, Inc., St. Peters, Missouri.

For VOC and SVOC analyses, several continuing calibration check standards contained compounds with percent differences exceeding QC limits. Sample results for compounds associated with the differences have been appropriately qualified as estimated and flagged with a "J". For three groundwater samples (KBA-5-4, KBA-11-3, and KBA-16-4), SVOC surrogate recoveries for the base/neutral fraction were below QC limits. For three surface soil samples (05-SS-02, 05-SS-05, and 05-SS-07), VOC internal standards and surrogates were below QC limits. Sample results for associated compounds have been qualified as estimated and flagged with a "J". Furthermore, 12 Appendix IX VOCs and 18 Appendix IX SVOCs only had

a one-point initial calibration instead of the required five-point initial calibration. All sample results associated with these one-point calibrations have been appropriately qualified as estimated and flagged with a "J". All sample results qualified as estimated are considered useable data.

For all soil and groundwater samples, the laboratory did not calibrate the GC/MS system for two SVOCs, diphenylamine and phenyl-tert-butylamine, which resulted in the rejection of all data for these compounds. Calibration of diphenylamine is not possible under the site-specific analytical program due to the presence in the calibration mix of another target compound, N-nitrosodiphenylamine. N-nitrosodiphenylamine is routinely analyzed on the GC/MS system as a Contract Laboratory Program (CLP) compound and is very unstable in the presence of heat. Upon injection into the gas chromatograph (GC), N-nitrosodiphenylamine decomposes to form diphenylamine; thus, resulting in two indistinguishable analytes. The laboratory should not have reported results for diphenylamine for this reason. It should be noted that the environmental sample results for N-nitrosodiphenylamine, which are all non-detects, actually represent the absence of both diphenylamine and N-nitrosodiphenylamine.

All results for phenyl-tert-butylamine were also non-detects. Although an initial calibration for this compound was not performed, a library search was performed to tentatively identify this compound. The search did not reflect any positive sample results for this compound. This search should be considered in relation to the quantitation results obtained in the next sampling period to help determine the presence or absence of phenyl-tert-butylamine.

Analytical blanks associated with certain VOC sample analyses contained detectable concentrations of acetone, methylene chloride, and chloroform. Acetone and methylene chloride are common laboratory solvents and are frequently observed artifacts in laboratory method blanks. Chloroform is a trihalomethane and is a by-product of water treatment process. Table 3-3 summarizes VOC method blank analytical results. For one VOC method blank, VBLKSM, a medium-level preparation was performed prior to VOC analysis because a medium-level preparation was required for corresponding environmental samples. As a result of performing medium-level sample preparation, contract required quantitation limits (CRQLs) for VOC compounds are 120 times greater than the CRQL for low-level analyses. Acetone and methylene chloride were detected in VBLKSM at 770 ug/kg and 330 ug/kg, respectively. These values are high relative to other blank values but are below the CRQL for medium-level analyses (1200 ug/kg and 620 ug/kg, respectively). The presence of these VOCs do not affect the interpretability of associated data because methylene chloride was not detected in associated soil samples and acetone was detected in both associated soil samples (05-SS-3 and 05-SS-03D) but at much greater concentrations (12000 ug/kg and 17000 ug/kg, respectively).

Analytical blanks associated with SVOC sample analyses contained detectable concentrations of di-n-butylphthalate, diethylphthalate, and bis(2-ethylhexylphthalate). Phthalate compounds are common laboratory and field contaminants which may originate from many types of plastic gloves, containers, and tubing used during field and laboratory operations. Table 3-4 summarizes SVOC method blank analytical results.

Qualifications of sample results for VOC and SVOC compounds associated with blank contamination are made according to NEESA Level C quality control guidelines and are as follows:

Table 3-3
Summary of Volatile Organic Chemical Analysis of Method Blanks Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Method Blank ID	Blank Analysis Results			Associated Samples
	Compound	Concentration (µg/L)	CRQL (µg/L)	Sample ID
VBLKW	Acetone	5 J	10	BT-1-FB, BS-1-ER, BS-1-FB
VBLKW	Methylene Chloride	2 J	5	BT-4-FB
	Acetone	2 J	10	
VBLKW-2	Methylene Chloride	5	5	BS-4-ER
	Acetone	3 J	10	
VBLKW	Methylene Chloride	2 J	5	BS-5-ER, BT-5-FB
	Acetone	10	10	
X02262B1	Methylene Chloride	4 J	5	BT-6-FB, BS-6-ER
	Acetone	3 J	10	
VBLKW	Methylene Chloride	3 J	5	BS-7-ER, BT-7-FB
	Acetone	6 J	10	
X03032B1	Methylene Chloride	4 J	5	KBA-5-1, KBA-5-2, KBA-5-3 KBA-11-9, BT-8-FB
	Acetone	4 J	10	
X03042B1	Methylene Chloride	6	5	BS-8-ER, BT-9-FB, BS-9-ER BS-2-FB, BS-3-FB, KBA-5-4 KBA-5-5, KBA-5-6, KBA-5-7 KBA-11-1, KBA-11-6, KBA-11-8 KBA-11-7
	Acetone	8 J	10	
	Chloroform	1 J	5	
K03032B1	Methylene Chloride	2 J	5	KBA-11-2
	Acetone	6 J	10	
K03042B1	Chloroform	1 J	5	BS-10-ER,BS-11-ER
X03052B1	Chloroform	1 J	5	KBA-11-4, KBA-11-5, KBA-16-4
	Methylene Chloride	4 J	5	
	Acetone	3 J	10	
		ug/kg	ug/kg	
VBLKS-2	Methylene Chloride	8	5	05-SB-01, 05-SB-03, 05-SB-04
	Acetone	10	10	
VBLKS	Methylene Chloride	7	5	05-SB-05, 05-SB-06, 05-SB-07
	Acetone	6 J	10	

Table 3-3
Summary of Volatile Organic Chemical Analysis of Method Blanks Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

VBLKS	Methylene Chloride	10	5	11-SB-02, 11-SB-03, 11-SB-03D 11-SB-04, 11-SB-05, 11-SB-06 11-SB-07
	Acetone	6 J	10	
VBLKS	Methylene Chloride	19	5	16-SB-01, 16-SB-03, 16-SB-04
	Acetone	10	10	
C02272B1	Methylene Chloride	12	5	16-SB-02
	Acetone	2 J	10	
VBLKSM	Methylene Chloride	330	620	05-SS-03, 05-SS-03D
	Acetone	770	1200	
VBLKS	Methylene Chloride	8	5	05-SS-01, 05-SS-02, 05-SS-04 05-SS-05, 05-SS-06, 05-SS-07
	Acetone	10	10	

Notes: J = indicates that the reported concentration is estimated because it is below the CRQL

Table 3-4
Summary of Semivolatile Organic Chemical Analysis of Method Blanks Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Method Blank ID	Blank Analysis Results			Associated Samples
	Compound	Concentration (µg/L)	CRQL (µg/L)	Sample ID
SBLKW	Di-n-butylphthalate	3 J	10	BS-1-ER, BS-1-FB
SBLKW	bis(2-ethylhexyl)phthalate	6 J	10	BS-2-ER, BS-3-ER
	di-n-butylphthalate	5 J	10	
C02172B2	di-n-butylphthalate	3 J	10	BS-6-ER
C02242B1	di-n-butylphthalate	5 J	10	BS-8-ER, KBA-5-1, KBA-5-2, KBA-5-3, KBA-5-4, KBA-5-4D, KBA-5-5, KBA-5-6, KBA-5-7
C02242B2	di-n-butylphthalate	5 J	10	KBA-11-1, KBA-11-4, KBA-11-5, KBA-11-6, KBA-11-7, KBA-11-8, KBA-11-9, BS-9-ER BS-3-FB
C02262B2	diethylphthalate	5 J	10	BS-11-ER, KBA-16-4
C02242B1	diethylphthalate	6 J	10	KBA-11-2, KBA-11-3, KBA-11-3D, KBA-16-1, KBA-16-2, KBA-16-3
	di-n-butylphthalate	4 J	10	
	bis(2-ethylhexyl)phthalate	3 J	10	
		ug/kg	ug/kg	
SBLKS1	di-n-butylphthalate	52	330	05-SB-06
SBLKS	bis(2-ethylhexyl)phthalate	38	330	11-SB-02, 11-SB-03 11-SB-03D
SBLKS2	bis(2-ethylhexyl)phthalate	200	330	11-SB-04, 11-SB-05, 11-SB-06, 11-SB-07
SBLKS	di-n-butylphthalate	52	330	11-SB-08
SBLKS	di-n-butylphthalate	44	330	16-SB-01, 16-SB-04
SBLKS	di-n-butylphthalate	55	330	05-SS-01, 05-SS-04
SBLKS2	di-n-butylphthalate	46	330	05-SS-06
SBLKS3	di-n-butylphthalate	44	330	05-SS-05, 05-SS-07

Notes:

J = indicates that the reported concentration is estimated because it is below the CRQL

- If a chemical is present in a method blank but not in associated samples, the sample results are reported unqualified at the CRQL. For the five common VOC and SVOC laboratory contaminants the CRQL is as follows:

	Aqueous	Soil
Methylene chloride	5 U µg/L	5 U µg/kg
Acetone	10 U µg/L	10 U µg/kg
2-butanone	10 U µg/L	10 U µg/kg
Toluene	5 U µg/L	5 U µg/kg
Phthalates	10 U µg/L	330 U µg/kg

- If a chemical is present in the sample above CRQL, but less than 5 times the concentration detected in the associated blanks (10 times for the chemicals listed above), qualify the result as undetected, "U". The "U" designation signifies that the chemical was analyzed for but not detected.

- If the sample result is below the CRQL and less than 5 times the blank value (10 times for the chemicals listed above), qualify by reporting as undetected at the CRQL.

- If the chemical is present at greater than 5 times the CRQL (10 times for the above chemicals), report as an unqualified result.

For organophosphorous pesticide analytes, one continuing calibration standard contained one compound, disulfoton, with a percent difference above the QC limit. As a result non-detect results for one groundwater sample (KBA-16-4) and one equipment rinseate (BS-11-ER) were appropriately qualified as estimated (UJ).

One equipment rinseate blank, BS-7-ER, was not analyzed for Appendix IX dioxins and furans (Method 8280). Since environmental samples associated with this rinseate blank did not contain dioxins or furans; the lack of dioxin and furan data for this blank does not affect the interpretability of sample data.

For each of the GC fractions (organochlorine pesticides, organophosphorous pesticides, and herbicides) three Appendix IX compounds were not analyzed for and therefore not reported due to poor recovery from spiking studies performed at CH2M HILL Laboratory. These compounds are: Kepone, Method 8080; Dimethoate, Method 8140; and Dinoseb, Method 8150. Upon request by ABB-ES, CH2M HILL has arranged to subcontract to another laboratory, if necessary, to provide for the analysis of groundwater samples obtained during the next sampling event for the three compounds to help determine the presence or absence of these compounds.

For metals analyses, all holding times were met. One matrix spike result for antimony, thallium, and arsenic was below QC limits. One duplicate result for zinc, chromium, and arsenic and three duplicate results for lead were outside QC limits. Associated sample results have been appropriately qualified as estimated. Several inorganics were detected in method blanks. Table 3-5 summarizes inorganic preparation and calibration blank analytical results. Inorganic results for environmental samples, in which concentrations of metals were also found in associated blanks, are designated undetected if the concentration in the sample is below CRQL and less than five times the blank value. For sample concentrations between five and 10 times that found in a blank that exhibited negative bias for an inorganic analyte, the sample results are

Table 3-5
Summary of Inorganic Analysis of Preparation Blanks Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Delivery Group No.	Blank Analysis Results			Associated Samples
	Compound	Concentration	CRQL	
20865	Barium	0.204 mg/kg	40	05-SB-01, 05-SB-02,
20867	Chromium	0.672 mg/kg	2	05-SB-02D, 05-SB-03,
	Copper	0.806 mg/kg	5	05-SB-04, 05-SB-05,
	Lead	0.328 mg/kg	0.6	05-SB-06, 05-SB-07,
	Silver	0.486 mg/kg	2	11-SB-01, 11-SB-08,
	Zinc	1.046 mg/kg	4	11-SB-09
	Vanadium	0.506 mg/kg	10	
20873	Chromium	0.602 mg/kg	2	11-SB-02, 11-SB-03,
	Copper	1.666 mg/kg	5	11-SB-03D, 11-SB-04,
	Nickel	0.800 mg/kg	8	11-SB-05, 11-SB-06,
	Zinc	0.808 mg/kg	4	11-SB-07
20917	Lead	0.328 mg/kg	0.6	16-SB-02
	Zinc	1.018 mg/kg	4	
32241	Silver	0.353 mg/kg	2	16-SB-01, 16-SB-03,
	Beryllium	-0.079 mg/kg	1	16-SB-04
	Chromium	-0.484 mg/kg	2	
20940	Arsenic	0.186 mg/kg	2	05-SS-01, 05-SS-02,
	Copper	3.384 mg/kg	5	05-SS-03, 05-SS-04,
	Lead	0.162 mg/kg	0.6	05-SS-03D, 05-SS-05,
				05-SS-06, 05-SS-07
20865	Barium	0.85 µg/L	200	BS-1-FB, BS-1-ER,
20867	Zinc	15.86 µg/L	20	BS-2-ER, BS-3-ER,
20873				BS-4-ER

Table 3-5
Summary of Inorganic Analysis of Preparation Blanks Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Delivery Group No.	Blank Analysis Results			Associated Samples
	Compound	Concentration	CRQL	
20917	Barium	0.95 µg/L	200	BS-6-ER
	Zinc	8.93 µg/L	20	
	Copper	6.60 µg/L	25	
20985	Barium	1.44 µg/L	200	KBA-5-1, KBA-5-2,
	Chromium	2.51 µg/L	10	KBA-5-3, KBA-5-4,
	Copper	3.80 µg/L	25	KBA-5-4D, KBA-5-5,
	Lead	1.36 µg/L	5	KBA-5-6, KBA-5-7,
	Zinc	6.93 µg/L	20	BS-8-ER
	Nickel	-4.32 µg/L	40	
20997	Copper	8.63 µg/L	25	KBA-11-1, KBA-11-4,
	Zinc	6.94 µg/L	20	KBA-11-5, KBA-11-6,
				KBA-11-7, KBA-11-8,
				KBA-11-9, BS-9-ER,
				BS-2-FB, BS-3-FB
21012	Barium	0.88 µg/L	200	KBA-16-4, BS-7-ER,
20940	Copper	13.8 µg/L	25	BS-11-ER
	Lead	1.07 µg/L	5	
	Nickel	6.96 µg/L	40	
	Zinc	12.48 µg/L	20	
21022	Arsenic	0.69 µg/L	10	KBA-11-2, KBA-11-3,
	Barium	0.87 µg/L	200	KBA-11-3D, KBA-16-1,
	Chromium	2.90 µg/L	10	KBA-16-2, KBA-16-3,
	Copper	19.54 µg/L	25	BS-10-ER
	Nickel	5.13 µg/L	40	
	Zinc	13.65 µg/L	20	

qualified as estimated. No qualification is required if the sample value is more than 5 times the blank value and there is no negative bias, or more than 10 times the blank value if there is negative basis. All sample results qualified as estimated are considered useable data.

3.2.2 Evaluation of Field QC Samples Three field blanks, eleven trip blanks, and eleven rinseate blanks were collected during sampling activities. Two field blanks, BS-1-FB and BS-2-FB, represent organic-free, deionized water which was used as a final rinse during equipment decontamination procedures and one field blank, BS-3-FB, represents regular deionized water which was used as an intermediate rinse during equipment decontamination procedures. The eleven equipment rinseate samples were collected during decontamination procedures involving split-spoons, hand augers, and bailers.

No pesticides, PCBs, herbicides, dioxins, or furans were found in field blanks or rinseate blanks collected during the RFI/SI. Two SVOCs, di-n-butylphthalate and bis(2-ethylhexylphthalate, were detected in rinseate blanks as shown in Table 3-6. Phthalate compounds are common laboratory and field contaminants which may originate from certain types of plastic gloves, containers, and tubing used during field and laboratory operations. The concentrations of these particular phthalates found in rinseate blanks and in corresponding method blanks are considered in interpretation of the results of the environmental samples. Occurrence of the observed levels in rinseate blanks and method blanks is common and do not constitute grounds for data rejection.

Several inorganics were detected in field blanks and rinseate blanks as shown in Table 3-6. Concentrations for these inorganics are well below the CRQL for each inorganic. These findings do not affect the interpretability of the data since they would not affect the observed concentrations of these metals in soils and are far below any regulatory limit in water, but will be considered in the evaluation of environmental samples. Inorganics in rinseate blanks represent a mass of the analyte in the sample an order of magnitude or more below the mass present in a sample of background soil.

The VOCs methylene chloride and acetone were detected in three trip blanks as shown in Table 3-6. The VOCs methylene chloride, carbon disulfide, chloroform, chlorobenzene, tetrachloroethene, dibromochloromethane, and bromodichloromethane were detected in field blanks and rinseate blanks. As discussed in Section 3.2.1, method blanks associated with several of these rinseate and trip blanks also contained methylene chloride, acetone, and chloroform. The concentrations of methylene chloride and acetone found in trip blanks and rinseate blanks are considered in interpretation of the results of the environmental samples. Occurrence of the observed levels in blanks is common and does not constitute grounds for data rejection. Carbon disulfide was detected in one rinseate blank (BS-07-ER) at an estimated 1 μg/L.

Carbon disulfide is an industrial solvent used in curing rubber but may also form naturally in the environment as a result of biological activity involving naturally occuring organo-sulfur acids. Carbon disulfide was also detected in the associated surface soil samples. Organics in rinseate blanks represent a mass of the analyte in the sample one order of magnitude or more below the mass present in a sample of background soil.

Table 3-6
Summary of Trip Blanks and Field Blanks
Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Trip Blanks							
Compounds Detected	CRQL	BT-1-FB	BT-2-FB	BT-3-FB	BT-4-FB	BT-5-FB	BT-06-FB
VOCs (μg/L)							
Methylene Chloride	5	3 J	16 U	12 U	6 U	14 U	5 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U

Trip Blanks							
Compounds Detected	CRQL	BT-7-FB	BT-8-FB	BT-9-FB	BT-10-FB	BT-11-FB	
VOCs (μg/L)							
Methylene Chloride	5	10 U	9 U	7 U	3 J	3 J	
Acetone	10	10 U	10 U	10 U	6 J	5 J	

Equipment Rinseate Blanks							
Compounds Detected	CRQL	BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER
VOCs (μg/L)							
Methylene Chloride	5	4 J	19 U	5	5 U	6 U	9 U
Chloroform	5	10	10	10	7	33	17
Bromodichloromethane	5	7	8	7	4 J	14	9
Dibromochloromethane	5	3 J	3 J	4 J	2 J	4 J	4 J
Tetrachloroethene	5	1 J	2 J	5 U	5 U	5 U	5 U
Chlorobenzene	5	2 J	2 J	2 J	5 U	1 J	5 U
SVOCs (μg/L)							
bis(2-Ethylhexyl)Phthalate	10	12	10 U	10 U	10 U	10 U	10 U
Pesticides/PCBs/Herbicides				Not Detected			
Inorganics (μg/L)							
Barium	200	13.7 J	13.6 J	0.65 U	0.73 U	0.33 J	1.1 U
Chromium	10	3.9 J	2.1 U	2.1 U	2.1 U	2.0 U	4.1 J
Copper	25	3.3 J	7.5 J	2.1 U	3.6 J	1.4 U	2.9 U
Lead	5	0.92 J	0.68 U	0.68 U	0.68 U	0.70 J	0.68 U

Table 3-6 (continued)
Summary of Trip Blanks and Field Blanks
Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Equipment rinseate blanks							
Compounds Detected	CRQL	BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER
Inorganics (continued) (µg/L)							
Nickel	40	4.3 J	3.8 U	3.8 U	3.8 U	6.5 U	3.8 U
Vanadium	50	1.9 J	1.7 U	1.7 U	1.7 U	1.2 U	1.7 U
Zinc	20	8.5 U	10.4 U	24.4 U	8.6 U	4.8 J	11.0 U

Equipment Rinseate Blanks						
Compounds Detected	CRQL	BS-7-ER	BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER
VOCs (µg/L)						
Carbon Disulfide	5	1 J	5 U	5 U	5 U	5 U
Chloroform	5	22	5 U	5 U	12	8
Bromodichloromethane	5	9	5 U	5 U	7	3 J
Dibromochloromethane	5	3 J	5 U	5 U	3 J	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	2 J
SVOCs (µg/L)						
Di-n-Butylphthalate	10	10 U	10 U	10 U	2 J	3 J
bis(2-Ethylhexyl)Phthalate	10	10 U	10 U	10 U	2 J	10 U
Pesticides/PCBs/Herbicides	Not Detected					
Inorganics (µg/L)						
Barium	200	1.6 U	11.1 J	1.3 J	0.58 U	1.8 U
Chromium	10	2.1 U	3.4 U	3.4 J	2.1 U	2.3 J
Lead	5	1.3 J	3.1 U	0.70 J	1.6 J	0.68 UJ
Silver	10	1.7 U	1.7 U	2.1 J	1.7 U	1.7 U
Cyanide	10	1.8 U	1.8 U	2.8 J	1.8 U	1.8 U

Table 3-6 (continued)
Summary of Trip Blanks and Field Blanks
Associated with Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

	Field Blanks			
Compounds Detected	CRQL	BS-1-FB	BS-2-FB	BS-3-FB
VOCs (μg/L)				
Chloromethane	10	1 J	10 U	10 U
Methylene Chloride	5	2 J	8 U	15 U
Chloroform	5	9	5 U	5 U
Bromodichloromethane	5	6	5 U	5 U
Dibromochloromethane	5	3 J	5 U	5 U
Chlorobenzene	5	2 J	2 J	5 U
SVOCs (μg/L)	Not Detected			
Pesticides/PCBs/Herbicides	Not Detected			
Inorganics (μg/L)				
Arsenic	10	1.4 J	0.72 J	0.69 U
Barium	200	0.69 U	0.79 J	2.1 J
Chromium	10	2.4 J	2.1 UJ	5.1 J
Copper	25	2.1 U	3.9 U	5.3 U
Lead	5	0.88 J	0.68 UJ	0.68 UJ
Nickel	40	3.8 U	3.8 U	4.8 J
Vanadium	50	1.9 J	1.7 U	1.7 U

* Trip blanks are analyzed for VOCs only.

J = estimated value
U = not detected at the reported value

None of the environmental samples associated with the rinseates that contained chloroform, bromodichloromethane, dibromochloromethane, tetrachloroethene, and chlorobenzene contained these compounds. Chloroform, bromodichloromethane, and chlorodibromomethane are trihalomethanes which form in water chlorinated for drinking water disinfection. They also frequently occur in laboratory deionized (ASTM Type II) water due to carry over in distillation and deionization. However, the water used during rinseate collection was organic-free water and should not have contained organic compounds. Chlorobenzene, chloroform, bromodichloromethane, and chlorodibromomethane were also detected in the field blanks representing organic-free water but were not present in the field blank representing regular deionized water. A possible source of organics in the water is the improper maintenance of the charcoal filters used during filtering processes. Since none of these compounds were present in associated samples, the usability and interpretation of the sample data is not affected.

Review of the field duplicates showed good agreement for soils and groundwater (Table 3-7). During field duplicate comparisons, where an analyte was not detected in one soil or groundwater replicate it was present at less than three times the detection limit in the duplicate. Due to natural nonhomogenity in the distribution of inorganic and organic matter in soils, variation among soil replicates by factors of two to five times is not uncommon. Replication is similiarly variable for sample replicates in which the analyte is present near the detection limit.

Table 3-7
Summary of Field Duplicate Results
for Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Matrix	Sample Idenitification	Results[1]			
Soil Borings	05-SB-02/05-SB-02D 4' - 6' interval	VOCs (µg/kg)			
		Xylene (total)	3 J/ 6 U		
		All other VOCs non-detected			
		SVOCs (µg/kg)			
		Bis(2-ethylhexyl)Phthalate	590 / 360		
		All other SVOCs non-detected			
		Pesticides and PCBs/ Herbicides (µg/kg)			
		No compounds detected			
		Metals (mg/kg)			
		Arsenic	0.24 J/ 0.17 U	Lead	2.7/ 3.2
		Barium	5.0 J/ 5.3 J	Nickel	0.98 J/ 0.98 J
		Beryllium	0.05 J/ 0.07 J	Selenium	0.71 J/ 0.33 J
		Chromium	6.5/ 6.0		
	11-SB-03/ 11-SB-03D 4 - 6' interval	VOCs (µg/kg)			
		Acetone	96/ 210		
		SVOCs (µg/kg)			
		Di-n-Butylphthalate	64 J/ 46 J		

Table 3-7
Summary of Field Duplicate Results
for Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Matrix	Sample Idenitification	Results[1]			
		Pesticides and PCBs/ Herbicides (µg/kg)			
		No compounds detected			
		Metals (mg/kg)			
		Barium	3.0 J/ 2.7 J	Lead	1.8/ 0.88
		Cadmium	0.81 J/ 0.73 U	Vanadium	1.7 J/ 1.6 J
Surface Soil	05-SS-03/ 05-SS-03D	**VOCs (µg/kg)**			
		Acetone		12000/ 17000	
		SVOCs (µg/kg)			
		bis(2-Ethylhexyl)Phthalate		790/ 710	
		Pesticides and PCBs/ Herbicides (µg/kg)			
		No compounds detected			
		Metals (mg/kg)			
		Barium	3.0 J/ 3.0 J	Vanadium	3.4 J/ 3.2 J
		Beryllium	0.15 J/ 0.11 J	Zinc	15.9/ 11.9
		Chromium	6.2/ 6.1	Sulfide	5200U/ 5100
		Lead	5.3/ 5.5		
Groundwater	KBA-5-4/KBA-5-4D	**VOCs (µg/L)**			
		None detected			
		SVOCs(µg/L)			

Table 3-7
Summary of Field Duplicate Results
for Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Matrix	Sample Idenitification	Results[1]			
		None detected			
		Pesticides and PCBs/ Herbicides (µg/L)			
		None detected			
		Metals (µg/L)			
		Antimony	14.0 J/ 10.9 U	Copper	31.7/ 36.9
		Arsenic	15.9/ 18.0	Lead	22.0/ 25.2
		Barium	601/ 588	Nickel	40.2 J/ 42.7 J
		Beryllium	3.1 J/ 2.9 J	Selenium	2.0 J/ 1.6 J
		Cadmium	2.9 U/ 3.7 J	Thallium	1.6 J/ 1.5 J
		Chromium	103/ 101	Tin	232 J/ 208 U
		Cobalt	28.5 J/ 29.1 J	Zinc	153 J/ 177 J
		Vanadium	84.7/ 82.6	Sulfide	300/ 400
	KBA-11-3/ KBA-11-3D	VOCs (µg/L)			
		1,4-Dichlorobenzene		13/ 15	
		Chlorobenzene		6/ 7	
		SVOCs (µg/L)			
		1,4-Dichlorobenzene		4 J/ 7 J	
		Pesticides and PCBs/ Herbicides (µg/L)			
		No compounds detected			

Table 3-7
Summary of Field Duplicate Results
for Samples Collected from all Sites

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Sample Matrix	Sample Idenitification	Results[1]			
		Metals (µg/L)			
		Antimony	11.1 J/ 10.9 UJ	Nickel	19.6 U/ 42.2
		Barium	155 J/ 280	Selenium	24.5/ 26.0
		Beryllium	2.0 J/ 2.9 J	Vanadium	87.4/ 138
		Chromium	113/ 177	Zinc	54.8 U/ 102
		Cobalt	3.9 J/ 5.1 J	Cyanide	3.0 J/ 1.8 U
		Lead	18.8 J/ 14.8 J	Sulfide	600/ 1000
		Mercury	0.60 J/ 0.67 J		

Notes:

[1]Numbers separated by a slash indicate respective concentrations of an analyte in replicate samples identified similarly under the heading for sample identification.

U = undetected at the stated detection limit
J = concentration value estimated. Either below CRQL or due to non-rejectable QA problems.

4.0 RESULTS OF INVESTIGATIONS

The purpose of Section 4.0 is to present the results of the field and laboratory program conducted at the three sites investigated during the RFI/SI at NSB Kings Bay. This Section includes the results of subsurface and surface soil investigations and groundwater sampling event No. 1, which is the first of six groundwater sample events to be conducted as part of the overall RFI/SI. The three sites investigated include:

- Site 5, Army Reserve Disposal Area, Towhee Trail;
- Site 11, Old Camden County Landfill; and
- Site 16, Army Reserve Disposal Area, Motor Missile Magazines.

The contents of this Section are arranged according to site, media sampled, and chemical analysis. Tables included in the following sections summarize analytical data for compounds detected. Appendix C contains tables of validated data for the full list of Appendix IX parameters.

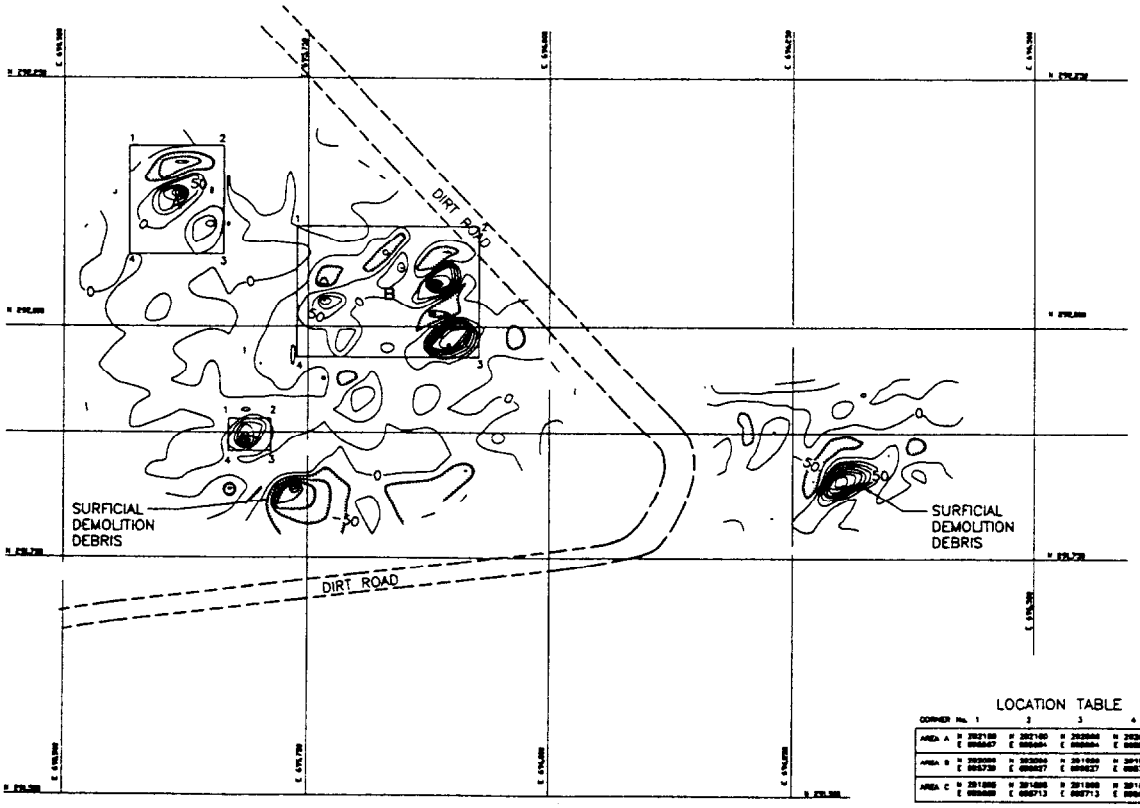
4.1 SITE 5, ARMY RESERVE DISPOSAL AREA, TOWHEE TRAIL RFI/SI activities at Site 5 included magnetometer and terrain conductivity surveys, collection of eight subsurface soil samples (seven locations plus one field duplicate) and eight (seven locations and one field duplicate) surface soil samples, installation of seven monitoring wells, and collection of groundwater samples from each of the seven monitoring wells.

4.1.1 Geophysical Surveys Magnetic and terrain conductivity surveys were conducted at Site 5 for the purposes of delineating the lateral extent of buried wastes alleged to have been disposed of at the site. The results of these surveys are presented in the following subsections.

Figure 2-1 illustrates the lateral extent of the magnetic survey conducted at Site No. 5. The large area to the east is essentially an open field that appears to serve as a demolition debris and soil stockpile area. The area to the west is a separate demolition debris area consisting primarily of concrete rubble.

Magnetic data are presented in the form of vertical gradient contours in Figure 4-1. The magnetic signature of the site suggests the presence of buried ferrous materials. Buried ferrous materials are found in the areas outlined in Figure 4-1 designated as A, B, and C. The locations of these anomalies are documented in state plane coordinates and are presented in the location table in Figure 4-1. These findings imply that the results of the magnetic survey are consistent with the reports of burial activities at Site 5. However, the magnetic signature is not indicative of extensive landfilling practices nor is it suggestive of voluminous amounts of buried ferrous refuse having been emplaced. The signature is indicative of sporadic, spatially intermittent burial of material containing some ferrous metal. Other areas displaying magnetic anomalies found across the site are attributable to surficial metal found at these locations.

Based on field observations and the proximity of surface water bodies, a limited terrain conductivity survey was conducted in an area which was interpreted to be downgradient of the landfill area. One terrain conductivity profile was conducted around the southern and eastern periphery of the landfill area (Figure 2-1) in an attempt to determine if any highly conductive areas could be



LOCATION TABLE

CORNER No.	1	2	3	4
AREA A	N [illegible] E [illegible]	N [illegible] E [illegible]	N [illegible] E [illegible]	N [illegible] E [illegible]
AREA B	N [illegible] E [illegible]	N [illegible] E [illegible]	N [illegible] E [illegible]	N [illegible] E [illegible]
AREA C	N [illegible] E [illegible]	N [illegible] E 666713	N [illegible] E 666713	N [illegible] E [illegible]

LEGEND

VERTICAL GRADIENT CONTOURS
CONTOUR INTERVAL - 50 GAMMAS

A — AREA DISPLAYING ELEVATED VERTICAL GRADIENT VALUES/ BURIED FERROUS WASTE SEE LOCATION TABLE

GRAPHIC SCALE (FT.)
100 0 100 200

FIGURE 4-1
SITE 5
ARMY DISPOSAL AREA
MAGNETOMETER SURVEY - VERTICAL GRADIENT CONTOURS AND APPROXIMATE EXTENT OF BURIED FERROUS WASTE

RFI/SI TECHNICAL MEMORANDUM NO. 1
NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

delineated which may suggest the presence of potentially contaminated groundwater emanating from the landfill.

Figure 4-2 shows the results of the terrain conductivity profile line conducted at Site 5. Conductivity values ranged between 6 and 13 mmhos/m. The conductivity profile shows no significant elevated conductivity values along the length of the traverse, suggesting that no highly conductive groundwater appears to exist in the vicinity of Site 5.

4.1.2 Surface Soils The following subsections discuss the results of laboratory analysis of eight surface soil samples, including one duplicate sample collected from Site 5. The samples were analyzed for Appendix IX compounds. Figure 2-4 shows sample locations for the surface soil samples. Four of the samples were collected from areas of magnetic anomalies identified at the 7.5-acre portion of the site to the west. Three of the samples were collected from the 1.5-acre portion of the site to the east. No magnetic anomalies were identified at the 1.5-acre portion of Site 5.

4.1.2.1 Volatile Organic Compounds in Surface Soil Surface soil samples were analyzed for Appendix IX VOCs by CH2M HILL Laboratories. Table 4-1 summarizes results of VOC analysis of surface soil samples collected from Site 5. VOCs detected in surface soil samples from Site 5 include methylene chloride, acetone, carbon disulfide, trichlorofluoromethane, toluene, and xylene.

Methylene chloride and acetone are common laboratory solvents that were detected in all eight surface soil samples. Methylene chloride was qualified as undetected in six of the samples due to concentrations present in associated method blanks. Acetone was qualified as undetected in five of eight samples due to concentrations in method blanks. As shown in Table 4-1, methylene chloride concentrations for surface soil samples 05-SS-01 and 05-SS-05 were reported to be 110 J µg/kg and 100 J µg/kg, respectively. Surface soil samples 05-SS-03, 05-SS-03D, and 05-SS-07 contained acetone at reported concentrations of 12,000 µg/kg, 17,000 µg/kg, and 160 µg/kg, respectively. These levels are more than 10 times the concentration in the method blank and could not be qualified based on method blank evaluation.

The apparent high levels of acetone reported for surface soil sample 05-SS-03 and duplicate sample 05-SS-03D are considered artificially elevated due to analysis of these samples using procedures for medium level VOC concentrations. The Appendix IX VOC data for these samples do not reveal why medium level analysis was required. It is suspected that tentatively identified compounds could have interfered with low level analysis of these two samples. The reported detection limits for VOC analytes associated with the two surface soil samples are elevated because of analysis using medium concentration procedures.

Carbon disulfide is a compound used in curing rubber that was detected in three surface soil samples, 05-SS-02, 05-SS-05, 05-SS-06, and 05-SS-07, at levels ranging from 6 µg/kg to 24 J µg/kg. This compound was also detected in one subsurface soil sample and four groundwater samples from Site 5. Carbon disulfide is a simple molecule that can also be the result of biological activity involving naturally occurring organo-sulfur acids (Verschueren, 1983).

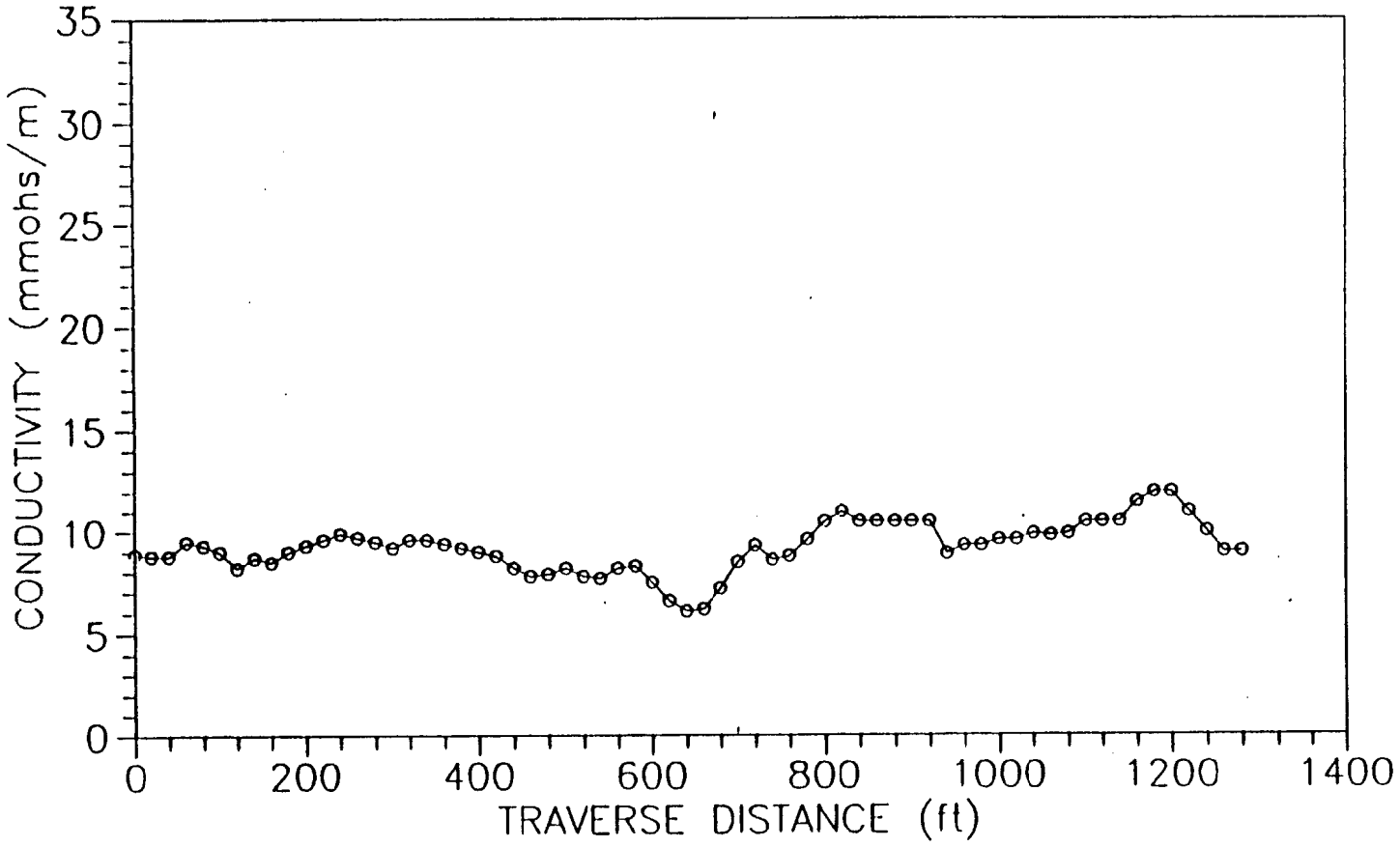


FIGURE 4-2

SITE 5
TERRAIN CONDUCTIVITY
PROFILE, LINE 1

RFI/SI TECHNICAL
MEMORANDUM NO. 1

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

Table 4-1
Summary of Laboratory Analysis of Surface and Subsurface
Soil Samples Collected from Site 5[1,2]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Compounds Detected	05 -	CRQL	SB-01 4 - 6'	SB-02 4 - 6'	SB-02D 4 - 6'	SB-03 4 - 6'	SB-04 4 - 6'	SB-05 4 - 6'	SB-06 4 - 6'	SB-07 4 - 6'
APPENDIX IX VOCs (μg/kg)										
Methylene Chloride		10	20 U	43 U	16 U	27 U	37 U	36 U	90	74
Acetone		10	100	95 U	35 U	22 U	180	170	460	7900
Carbon Disulfide		5	6 U	6 U	6 U	6 U	7 U	7 U	7	32 U
Toluene[3]		5	6 U	6 U	6 U	6 U	7 U	7 U	4 J	32 U
Xylene (total)[3]		5	3 J	3 J	6 U	3 J	3 J	9	15	20
APPENDIX IX SVOCs (μg/kg)										
bis(2-ethylhexyl)Phthalate[3]		330	410	590	360	450	270 J	300 J	360	720
Benzoic Acid[3]		1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	210 J	2200 U
APPENDIX IX Inorganics (mg/kg)										
Arsenic[3]		2	1.1 J	0.24 J	0.17 U	0.70 J	1.0 J	0.17 U	0.17 U	0.19 U
Barium[3]		40	2.8 J	5.0 J	5.3 J	3.6 J	2.8 J	3.6 J	3.5 J	4.9 J
Beryllium[3]		1	0.16 J	0.05 J	0.07 J	0.15 J	0.15 J	0.15 J	0.05 U	0.15 J
Chromium		2	8.7	6.5	6.0	6.5	5.9	5.9	2.4 U	6.8
Copper		5	2.0 U	2.3 U	1.6 U	1.8 U	3.4 U	2.5 U	1.4 U	7.8
Lead		0.6	4.4	2.7	3.2	2.7	6.0	8.5	4.5	7.6
Nickel[3]		8	1.7 J	0.98 J	0.98 J	1.5 J	2.8 J	1.7 J	0.91 U	9.2
Selenium[3]		1	0.93 J	0.71 J	0.33 J	1.3	0.86 J	0.40 J	0.31 U	1.8
Vanadium[3]		10	8.5 J	2.2 U	2.2 U	3.4 J	1.6 U	2.1 U	2.0 U	2.8 J

Table 4-1
Summary of Laboratory Analysis of Surface and Subsurface
Soil Samples Collected from Site 5[1,3]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Zinc	4	6.7	3.3 U	3.7 U	2.8 U	7.4	3.1 U	4.7 U	10.1
Cyanide	1	0.45 U	0.44 U	0.45 U	0.44 U	0.46 U	4.6	0.43 U	5.0
Compounds Detected 05 -	CRQL	SS-01 1.6'-2.0'	SS-02 1.5'-1.9'	SS-03 2.1'-2.5'	SS-03D 2.1'-2.7'	SS-04 1.8'-2.5'	SS-05 0.8'-1.2'	SS-06 1.2'-1.9'	SS-07 1.4'-1.7'
APPENDIX IX VOCs (μg/kg)									
Methylene Chloride[4]	10	31 U	110 J	1100 U	1300 U	35 U	100 J	41 U	72 U
Acetone[4]	10	28 U	41 U	12000	17000	71 U	10 UJ	10 U	160 J
Carbon Disulfide[4]	5	6 U	21 J	790 U	800 U	6 U	24 J	6	14 J
Trichlorofluoromethane[4]	5	6 U	3 J	790 U	800 U	6 U	6 UJ	5 U	6 U
Toluene[5,4]	5	6 U	5 J	790 U	800 U	6 U	4 J	1 J	6 J
Xylene (total)[4]	5	6	11 J	790 U	800 U	10	21 J	10	11 J
APPENDIX IX SVOCs (μg/kg)									
3- & 4- Methylphenol[5]	330	380 U	380 U	430 U	430 U	380 U	380 U	370 U	82 J
Benzoic Acid[5]	1600	1900 U	1800 U	2100 U	2100 U	1900 U	660 J	1800 U	460 J
Naphthalene[5]	330	380 U	380 U	430 U	430 U	380 U	380 U	370 U	44 J
Diethylphthalate[5]	330	69 J	380 U	430 U	430 U	380 U	380 U	370 U	370 U
bis(2-Ethylhexyl)Phthalate[5]	330	53 J	260 J	790	710	280 J	210 J	100 J	160 J
APPENDIX IX Pesticides/PCBs (μg/kg)									
4,4'-DDE[5]	3.3	0.9 U	0.7 J	1.0 U	1.0 U	0.9 U	0.9 U	0.9 U	0.9 U
Aroclor 1260	33	9 U	53	10 U	10 U	9 U	9 U	9 U	9 U
APPE[illegible] inorganics (mg/kg)									

Table 4-1
Summary of Laboratory Analysis of Surface and Subsurface
Soil Samples Collected from Site 5[1,2]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

arium[3]	40	2.7 J	8.0 J	3.0 J	3.0 J	2.5 J	4.3 J	1.5 J	1.8 J
eryllium[3]	1	0.07 J	0.05 J	0.15 J	0.11 J	0.04 U	0.05 J	0.05 U	0.05 U
hromium	2	4.6	3.0	6.2	6.1	2.9	2.9	2.0 U	2.5 U
ead[3]	0.6	5.4	6.4	5.3	5.5	4.1	4.7	1.1	0.46 J
anadium[3]	10	2.9 J	2.6 J	3.4 J	3.2 J	1.2 J	2.7 J	1.0 J	1.4 J
inc	4	15.8	31.0	15.9	11.9	5.0	4.8	0.90 U	2.4 U
ulfide	4000	4600 U	4700 U	5200 U	5100	4600	4600 U	4900 U	5000 U

es:
QL = Contract Required Quantitation Limit
not detected above or below CRQL

Appendix IX pesticides, PCBs, herbicides, dioxins, or furans were detected in subsurface soil samples at this site.
Appendix IX herbicides, dioxins, or furans were detected in surface soil samples at this site.

Qualifiers
mple results flagged J as estimated because concentrations are less than the CRQL.
mple results for 05-SS-02 and 05-SS-07 flagged J as estimated and sample results for 05-SS-05 flagged J/UJ as estimated because surrogate recoveries were below QC limits.

Trichlorofluoromethane was detected in one surface soil sample, 05-SS-02, at an estimated concentration of 3 J µg/kg. This measurement is below the CRQL of 5 µg/kg and is near the instrument detection limit for this compound. Trichlorofluoromethane was detected in one groundwater sample, but was not found in subsurface soil samples from the site. Trichlorofluoromethane is a compound used as a refrigerant and a fire extinguishing agent.

Toluene and xylene are fuel related VOCs detected in surface soil samples from Site 5. Toluene is also a common laboratory solvent. Toluene was detected in four surface soil samples, 05-SS-02, 05-SS-05, 05-SS-06, and 05-SS-07, at concentrations ranging from 1 J µg/kg to 6 J µg/kg. Xylene was detected in six surface soil samples, 05-SS-01, 05-SS-02, 05-SS-04, 05-SS-05, 05-SS-06, and 05-SS-07, at concentrations ranging from 6 µg/kg to 21 µg/kg. Toluene was also detected in one subsurface soil sample and seven groundwater samples from Site 5. Xylene was detected in seven subsurface soil samples and two groundwater samples collected from the site. The presence of low concentrations of fuel related VOCs could be attributed to deposition of exhaust from vehicles used at the site and/or the use of fuel to ignite wastes that were being disposed at the site.

4.1.2.2 **Semivolatile Organic Compounds in Surface Soil** Surface soil samples were analyzed for Appendix IX SVOCs by CH2M HILL Laboratories. Table 4-1 summarizes results of SVOC analysis of surface soil samples collected from Site 5. SVOCs detected in surface soil samples from Site 5 include methylphenol, benzoic acid, naphthalene, and phthalates. For the most part, SVOC concentrations were below CRQLs for the analyte detected.

Methylphenol was detected in one surface soil sample, 05-SS-07, below the CRQL at a concentration of 82 J µg/kg. No other soil or groundwater samples from Site 5 were found to contain methylphenol. Methylphenol is a compound used in the manufacture of herbicides, resins, and textile products. Cresols are common constituents of phenolic cleaners, pine oils, and may also be present in weathering fuels or decomposing wood. The presence of 4-methyl phenol in one soil sample at low concentration may not represent a actual site-related release.

Benzoic acid was detected in two surface soil samples, 05-SS-05 and 05-SS-07, below the CRQL at estimated concentrations of 660 J µg/kg and 460 J µg/kg, respectively. Benzoic acid may be a naturally occurring organic acid unrelated to site activities. Uses of benzoic acid include preparation of commercial chemicals, cosmetics, and pharmaceuticals. It is also used as a plasticizer and food preservative.

Naphthalene is a polynuclear aromatic hydrocarbon (PAH) detected in one surface soil sample, 05-SS-07, at a low concentration of 44 J µg/kg. PAHs are associated with petroleum fuels, such as diesel, reportedly used to ignite debris being disposed at the site. PAHs also occur naturally as breakdown products of wood and or as a result of incomplete combustion of fuel or vegetation due to wildfire. No other soil or groundwater samples from the site contained PAHs. These data do not suggest significant impact from the past use of diesel fuel at the site.

Two phthalate compounds, diethylphthalate and bis(2-ethylhexyl)phthalate were detected in surface soil samples from the site. Diethylphthalate was detected in one sample, 05-SS-02, at a low concentration of 69 J µg/kg. Bis(2-

ethylhexyl)phthalate was detected in all eight surface soil samples at concentrations ranging from 53 J µg/kg to 790 µg/kg. Bis(2-ethylhexyl)phthalate was also detected in all eight subsurface soil samples from the site. Phthalates are common sampling and laboratory contaminants easily introduced into sample material from plastic items such as gloves, tubing, and sample containers. The presence of phthalate compounds in soil samples is not necessarily attributed to disposal activities at the site. Bis(2-ethylhexyl)phthalate was not prevalent in method blanks or rinseate blanks so its presence in surface soil may be site-related. Significant amounts of plastic debris was observed at the site. The presence of bis(2-ethylhexyl)phthalate in subsurface soil suggest buried plastic is present at the site.

4.1.2.3 **Pesticides, Herbicides, and PCBs in Surface Soil** Eight surface soil samples, including one duplicate sample, were analyzed for Appendix IX pesticides, herbicides, and PCBs. No herbicides or organo phosphate pesticides were detected in any of the surface soil samples. One surface soil sample, 05-SS-02, was found to contain the pesticide, 4,4'-DDE at a concentration of 0.7 J µg/kg and the PCB Aroclor-1260 at a concentration of 53 µg/kg. No other soil samples or groundwater samples were found to contain pesticide or PCB compounds. The presence of low concentration of 4,4'-DDE in one sample does not indicate significant impact of environmental media by past activities at the site. The low level of 4,4'-DDE is likely related to the past use of DDT in controlling pests prior to its being banded. 4,4'-DDE is a transformation product of DDT. The presence of Aroclor 1260 in one soil sample at a concentration of 53 mg/kg is suggestive of a release. Additional soil sampling may be warranted to determine if Aroclor 1260 is present elsewhere at higher concentrations.

4.1.2.4 **Dioxins and Furans in Surface Soil** Eight surface soil samples, including one duplicate sample, were analyzed for Appendix IX dioxins and furans. No dioxins or furans were found in surface soil samples from Site 5.

4.1.2.5 **Inorganic Compounds in Surface Soil** Eight surface soil samples, including one duplicate soil sample, were analyzed for Appendix IX inorganic constituents. Inorganic compounds detected in the surface soil samples include barium, beryllium, chromium, lead, vanadium, zinc, and sulfide (Table 4-1).

The concentrations of inorganic trace elements detected in surface soil samples were compared to reported naturally occurring concentrations for soils over limestones and calcareous rocks presented in Table 4-2 (Kabata-Pendias and Pendias, 1984). None of the concentrations of inorganics detected in the surface soil samples exceeded reported natural ranges, and all were below mean concentrations for corresponding compounds. There is no indication that disposal activities at the site have caused elevated concentrations of inorganics in surface soil. The presence of sulfide in surface soil is attributed to decomposition of sulfur rich organic matter present in the soil.

<u>4.1.3 Subsurface Soils</u> The following subsections discuss the results of laboratory analysis of eight subsurface soil samples, including one duplicate sample collected from Site 5. The subsurface soil samples were collected from borings installed for construction of groundwater monitoring wells. Figure 2-4 shows sample locations for the subsurface soil samples.

Table 4-2 Concentrations of Naturally Occurring Inorganic Compounds in Soil[1]		
Compound	Range (mg/kg)	Arithmetic Mean (mg/kg)
Arsenic	1.5 - 21	7.8
Barium	150 - 1500	520
Beryllium	1 - 2	1.6
Cadmium[2]	0.41 - 0.57	NR
Chromium	5 - 150	50
Copper	7 - 70	21
Lead	10 - 50	22
Nickel	<5 - 70	18
Selenium	0.1 - 1.4	0.19
Silver[2]	0.3 - 8	NR
Vanadium	10 - 150	72
Zinc	10 - 106	50

[1]For soils over limestone and calcareous rocks.
[2]As reported for various soil types.
NR = not reported

Source: Kabata-Pendias and Pendias, 1984.

4.1.3.1 **Volatile Organic Compounds in Subsurface Soil** Subsurface soil samples were analyzed for Appendix IX VOCs by CH2M HILL Laboratories. Table 4-1 summarizes results of VOC analysis of subsurface soil samples collected from Site 5. VOCs detected in subsurface soil samples from Site 5 include methylene chloride, acetone, carbon disulfide, toluene, and xylene.

Methylene chloride and acetone are common laboratory solvents detected in all eight subsurface soil samples collected from the site. Methylene chloride was qualified as undetected in six of the samples because of concentrations present in associated method blanks. Acetone was qualified as undetected in three of the samples because of concentrations in associated method blanks. Methylene chloride concentrations for subsurface soil samples 05-SB-06 and 05-SB-07 were reported to be 90 μg/kg and 74 μg/kg, respectively. Acetone concentrations for subsurface soil samples 05-SB-01, 05-SB-04, 05-SB-05, and 05-SB-06 were reported to range from 100 μg/kg to 460 μg/kg. Acetone in sample 05-SB-07 was analyzed using procedures for medium concentrations and was reported to contain 7900 μg/kg acetone. These levels of methylene chloride and acetone were more than 10 times the concentration in associated method blanks and could not be qualified as undetected based on method blank evaluation. The subsurface soil samples were collected from the interval above the water table and any soluble compounds, such as methylene chloride and acetone, found in subsurface soil samples should also be found in associated groundwater samples. With the exception of acetone in one groundwater sample, groundwater sample VOC data do not confirm the presence of methylene chloride and acetone as being present in subsurface soil.

Carbon disulfide is a compound used in curing rubber that was detected in one subsurface soil sample, 05-SB-06, at a concentration of 7 μg/kg. This compound was also detected in three surface soil samples and four groundwater samples. Its presence at the site appears to be related to past activities, and could be a result of using rubber-tire vehicles and equipment at the site or disposal of items having rubber components. Carbon disulfide could also be the result of biological activity involving naturally occurring organo-sulfur acids (Verschueren, 1983).

Toluene and xylene are fuel related VOCs detected in subsurface soil samples from Site 5. Toluene is also a common laboratory solvent. Toluene was detected in one subsurface soil sample, 05-SB-06, at a concentration of 7 μg/kg. Xylene was detected in seven subsurface soil samples, 05-SB-01, 05-SB-02, 05-SB-03, 05-SB-06, and 05-SB-07, at concentrations ranging from 3 J μg/kg to 20 μg/kg. Xylene and toluene were detected in surface soil samples from the site and xylene was detected in groundwater samples collected from the site. The presence of low concentrations of fuel related VOCs could be attributed to deposition of exhaust from vehicles used at the site and/or the use of fuel to ignite wastes that were being disposed at the site.

4.1.3.2 **Semivolatile Organic Compounds in Subsurface Soil** Subsurface soil samples were analyzed for Appendix IX SVOCs by CH2M HILL Laboratories. Table 4-1 summarizes results of SVOC analysis of subsurface soil samples collected from Site 5. SVOCs detected in subsurface soil samples from Site 5 include benzoic acid and a phthalate compound.

Benzoic acid was detected in one subsurface soil sample, 05-SB-06, at a concentration of 210 J μg/kg, which is below the CRQL of 1600 μg/kg for this compound. Benzoic acid was also detected in two surface soil samples collected

from the site. Benzoic acid may be a naturally occurring organic acid unrelated to site activities. Uses of benzoic acid include preparation of commercial chemicals, cosmetics, and pharmaceuticals. It is also used as a plasticizer and food preservative.

Bis(2-ethylhexyl)phthalate was detected in all eight subsurface soil samples at concentrations ranging from 270 J µg/kg to 720 µg/kg. This phthalate compound was also detected in all eight surface soil samples collected from the site. Phthalates are common sampling and laboratory contaminants easily introduced into sample material from plastic items such as gloves, tubing, and sample containers. The presence of phthalate compounds in soil samples is not necessarily attributed to disposal activities at the site. Because bis(2-ethylhexyl)phthalate was not prevalent in method blanks or field QC samples, it should be evaluated as a potential site-related contaminant.

4.1.3.3 **Pesticides, Herbicides, and PCBs in Subsurface Soil** Eight subsurface soil samples, including one duplicate soil sample were analyzed for Appendix IX pesticides, herbicides, and PCBs. No pesticides, herbicides, or PCBs were detected in subsurface soil samples collected from Site 5.

4.1.3.4 **Dioxins and Furans in Subsurface Soil** Eight subsurface soil samples, including one duplicate soil sample, were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in subsurface soil samples collected from Site 5.

4.1.3.5 **Inorganic Compounds in Subsurface Soil** Eight subsurface soil samples, including one duplicate soil sample, were analyzed for Appendix IX inorganic constituents. Inorganic compounds detected in the subsurface soil samples include arsenic, barium, beryllium, chromium, copper, lead, nickel, selenium, vanadium, zinc, and cyanide (Table 4-1).

The concentrations of inorganic trace elements detected in subsurface soil samples were compared to reported naturally occurring concentrations for soils over limestones and calcareous rocks presented in Table 4-2 (Kabata-Pendias and Pendias, 1984). With the exception of selenium, none of the concentrations of inorganics detected in the subsurface soil samples exceeded reported natural ranges, and all were below mean concentrations for corresponding compounds. One sample, 05-SB-07, contained selenium at a concentration of 1.8 mg/kg, which is slightly above the reported natural range of 0.1 mg/kg to 1.4 mg/kg, but is not considered a significant difference. With the possible exception of cyanide, discussed in the following paragraph, there is no indication that disposal activities at the site have caused elevated concentrations of inorganics in subsurface soil.

Cyanide was detected in two subsurface soil samples, 05-SB-05 and 05-SB-07, at concentrations of 4.6 mg/kg and 5.0 mg/kg, respectively. Cyanide was detected in two groundwater samples collected from the 1.5-acre portion of Site 5, which is where the two subsurface soil samples that contained detectable cyanide were collected from. Cyanide should be evaluated as a potential site related contaminant.

4.1.4 Groundwater Seven groundwater monitoring wells were installed at Site 5 during February 1992. On February 21 and 22, 1992, groundwater measurements were collected from monitoring well KBA-5-2 over a period of 24 hours to evaluate the

site for tidal influence. High tides occurred at 12:08 a.m. on February 21, 1992, and at 12:24 pm on February 22, 1992. Low tides occurred at 5:52 p.m. on February 21, 1992, and 6:24 a.m. on February 22, 1992. On these dates the heights of tides were estimated to be 7.1 feet to 7.7 feet. This information was obtained from tide tables available at local establishments in Kingsland and St. Marys, Georgia. The times reported above have been corrected for delays associated with distance between the outer bar where tide calculations are based to the entrance of the Crooked River which is approximately 3.0 miles north-northeast from the site. Appendix D contains a graph of water levels versus time for monitoring well KBA-5-2 at Site 5. This monitoring well was selected because it was on the site boundary adjacent to the nearest surface water body influenced by tides. Variations in water levels during the 24-hour period were limited to approximately 0.35 inch. Based on these data there is no significant tidal influence on groundwater levels at Site 5. A cyclic pattern was observed over the 24-hour period, however, the magnitude of change in water levels was small relative to the height of tides.

Figure 4-3 is a groundwater potentiometric surface map prepared from water level measurements collected on February 19, 1992. The potentiometric surface map indicates that groundwater flow is towards the southeast. Groundwater from the pond is recharging the water-table aquifer in the vicinity of monitoring well KBA-5-5, based on these data. Monitoring wells KBA-5-1 and KBA-5-2 are upgradient of the disposal site and should produce groundwater samples unaffected by waste disposal. More groundwater data will become available as a result of upcoming sample events and the status of monitoring wells KBA-5-1 and KBA-5-2 as upgradient wells will be monitored.

Slug tests were performed on monitoring wells KBA-5-1, KBA-5-2, KBA-5-4, and KBA-5-5. Slug test data were analyzed using AQTESOLV™ software. Hydraulic conductivity estimates were calculated according to methods presented by Bower and Rice (1976) for unconfined aquifers. Hydraulic conductivities were consistent for the wells tested, ranging from 2.1×10^{-3} ft/min to 3.2×10^{-3} ft/min.

Field parameters including pH, specific conductance, and temperature were measured on February 19, 1992. Values for pH ranged from 4.59 standard units (s.u.) at monitoring well KBA-5-1 to 6.38 s.u. at monitoring well KBA-5-7. Specific conductance values ranged from 180 micromhos per centimeter (umhos/cm) at monitoring well KBA-5-1 to 670 umhos/cm at monitoring well KBA-5-4.

Temperature of groundwater from individual monitoring wells was consistently 19° to 19.5° Celsius.

The first of six groundwater sample events took place in February 1992. Eight groundwater samples, including one duplicate sample were collected and submitted to CH2M HILL Laboratories for analysis of Appendix IX parameters. Figure 2-4 shows locations of the seven monitoring wells. Four of the wells are located around the 7.5-acre portion of the site, and three of the wells are located around the 1.5-acre portion of the site. The following subsections discuss the results of laboratory analysis of groundwater samples.

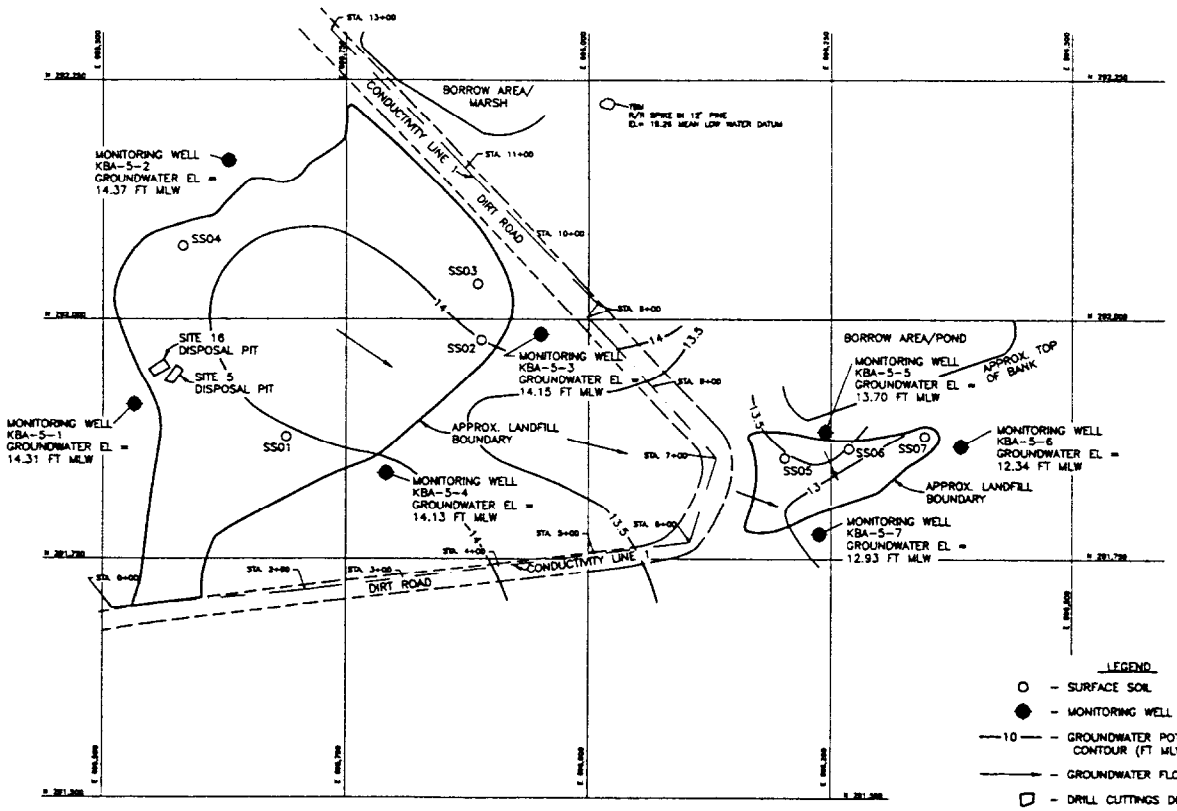


FIGURE 4-3
SITE 5
GROUNDWATER POTENTIOMETRIC SURFACE MAP

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NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

4.1.4.1 **Volatile Organic Compounds in Groundwater** Table 4-3 summarizes results of VOC analysis of groundwater samples collected from Site 5. VOCs detected include acetone, carbon disulfide, trichlorofluoromethane, 4-methyl-2-pentanone, ethylbenzene, and xylene. No VOCs were found at concentrations above Federal Primary Drinking Water Standard Maximum Contaminant Levels (MCLs).

Acetone is a common laboratory solvent that was detected in all eight groundwater samples, but was qualified as undetected in seven groundwater samples because of concentrations in associated method blanks. Groundwater sample KBA-5-1 was reported to contain 72 μg/L of acetone, which is more than 10 times the concentration found in the associated method blank. The concentration of acetone in groundwater from KBA-5-1 of 72 μg/L is, however, less than 10 times the concentration in the method blank associated with other wells at Site 5, which indicates it is possible that the acetone found in groundwater from KBA-5-1 is a laboratory artifact. Acetone was reported in the soil sample from the boring for KBA-5-1 at a level of 100 μg/kg, which is consistent with the level found in groundwater. Therefore, it is recommended that acetone be evaluated in upcoming groundwater sample events to assess whether reported concentrations are representative of actual site conditions.

Carbon disulfide was detected in four groundwater samples, KBA-5-1, KBA-5-2, KBA-5-3, and KBA-5-5, at concentrations of 1 J μg/L and 2 J μg/L. These levels are below the CRQL of 5 μg/L and are near the instrument detection limit for this compound. Carbon disulfide was detected in three surface soil samples and one subsurface soil sample collected from Site 5. Its presence at the site appears to be related to past activities, and could be a result of using rubber-tire vehicles and equipment at the site or disposal of items having rubber components. Likewise, carbon disulfide is a simple molecule that may be the result of biological activity involving naturally occurring organo-sulfur acids (Verschueren, 1983). The presence of carbon disulfide in groundwater from upgradient monitoring wells, KBA-5-1 and KBA-5-2, suggest that it is naturally occurring.

Trichlorofluoromethane was detected in one groundwater sample, KBA-5-6, at a concentration of 7 μg/L. This VOC was also detected in one surface soil sample from the site, but was not found in subsurface soil samples. Trichlorofluoromethane is a compound used as a refrigerant and a fire extinguishing agent.

4-Methyl-2-pentanone is a non-chlorinated solvent used in paints and varnishes. This VOC was detected in two groundwater samples, KBA-5-2 and KBA-5-5, at a concentration of 3 J μg/L, which is below the CRQL of 10 μg/L. No other soil or groundwater samples contained this VOC. 4-Methyl-2-pentanone is used in analytical laboratories for certain metals extractions. Its presence in groundwater from monitoring well KBA-5-2 suggests that it is not a site related contaminant because monitoring well KBA-5-2 is upgradient of the disposal area.

Ethylbenzene and xylene are fuel-related VOCs detected in groundwater from Site 5. Ethylbenzene was detected in one groundwater sample from monitoring well KBA-5-5 at a concentration of 1 J μg/L. This concentration is below the CRQL of 5 μg/L and is near the instrument detection limit for this compound. No other

Table 4-3
Summary of Laboratory Analysis of Groundwater
Samples Collected from Site 5[1]

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Compounds Detected	Monitoring Well Number								
	CRQL	KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6	KBA-5-7
APPENDIX IX VOCs (μg/L)									
Acetone	10	72	12 U	10 U	10 U	12 U	12 U	14 U	10 U
Carbon Disulfide[2]	5	2 J	1 J	2 J	5 U	5 U	1 J	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	7	5 U
4-Methyl-2-Pentanone[2]	10	10 U	3 J	10 U	10 U	10 U	3 J	10 U	10 U
Ethylbenzene[2]	5	5 U	5 U	5 U	5 U	5 U	1 J	5 U	5 U
Xylene (total)[1]	5	5 U	4 J	5 U	5 U	5 U	6	5 U	5 U
APPENDIX IX Inorganics (μg/L)									
Antimony[2]	60	10.9 U	10.9 U	10.9 U	14.0 J	10.9 U	10.9 U	11.3 J	16.8 J
Arsenic	10	36.5	27.9	22.5	15.9	18.0	33.2	14.9	76.9
Barium[2]	200	742	459	161 J	601	588	332	640	748
Beryllium[2]	5	4.2 J	2.7 J	0.92 J	3.1 J	2.9 J	3.0 J	5.1	6.1
Cadmium[2]	5	2.9 U	2.9 U	2.9 U	2.9 U	3.7 J	2.9 U	25.4	25.9
Chromium	10	134	95.7	29.5	103	101	102	152	228
Cobalt[1]	50	36.4 J	21.3 J	11.8 J	28.5 J	29.1 J	29.2 J	30.4 J	48.4 J
Copper	25	37.8	51.5	77.6	31.7	36.9	77.4	63.3	73.4
Lead	5	30.2	23.2	7.2	22.0	25.2	23.0	32.0	43.0
Mercury	0.2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.40	0.16 U
Nickel[1]	40	49.0	50.3	79.8	40.2 J	42.7 J	77.2	59.8	84.4
Selenium[2]	5	1.3 U	1.4 J	1.3 U	2.0 J	1.6 J	2.2 J	1.3 U	1.7 J

Table 4-3
Summary of Laboratory Analysis of Groundwater
Samples Collected from Site 5[1]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Thallium[3]	10	1.4 U	1.4 U	1.4 U	1.6 J	1.5 J	1.6 J	1.6 J	2.2 J
Tin	208	208 U	208 U	208 U	232	208 U	208 U	208 U	208 U
Vanadium[3]	50	117	80.6	24.4 J	84.7	82.6	81.8	138	183
Zinc[4]	20	168 J	322 J	100 J	153 J	177 J	200 J	235 J	260 J
Cyanide[2]	10	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 J	5.6 J
Sulfide	100	300	300	200	300	400	200	2100	300

Notes:
CRQL = Contract Required Quantitation Limit
U = not detected above or below CRQL

[1] No Appendix IX SVOCs, pesticides, PCBs, herbicides, dioxins, or furans were detected in groundwater samples.

Data Qualifiers

[2] Values flagged J as estimated because concentrations are less than the CRQL.
[3] Values flagged J as estimated because preparation blank exhibited negative bias for nickel.
[4] Values flagged J as estimated because the duplicate analysis for zinc was outside QC limits.

groundwater or soil samples from the site were found to contain ethylbenzene. Xylene was detected in two groundwater samples from monitoring wells KBA-5-2 and KBA-5-5 at concentrations of 4 J μg/L and 6 μg/L. Monitoring well KBA-5-2 is upgradient of the disposal area, which suggests that the presence of xylene in groundwater from this well may not be attributable to site conditions.

4.1.4.2 **Semivolatile Organic Compounds in Groundwater** Eight groundwater samples, including one duplicate sample, were analyzed for Appendix IX SVOCs. No SVOCs were detected in groundwater samples collected from Site 5.

4.1.4.3 **Pesticides, Herbicides, and PCBs in Groundwater** Eight groundwater samples, including one duplicate sample were analyzed for Appendix IX pesticides, herbicides, and PCBs. No pesticides, herbicides, or PCBs were detected in groundwater samples collected from Site 5.

4.1.4.4 **Dioxins and Furans in Groundwater** Eight groundwater samples, including one duplicate sample, were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in groundwater samples collected from Site 5.

4.1.4.5 **Inorganics in Groundwater** Eight groundwater samples, including one duplicate sample, were analyzed for Appendix IX inorganic constituents. Table 4-3 summarizes inorganic data from the analysis of groundwater samples from Site 5. Eighteen inorganic compounds were detected in groundwater samples.

Concentrations of inorganics were compared to Federal Primary Drinking Water Standard MCLs to evaluate the site for adverse impact on groundwater quality. Monitoring wells KBA-5-1 and KBA-5-2 are upgradient of the disposal site(s) based on groundwater level measurements collected to date. Laboratory data for these two wells were used in evaluating downgradient groundwater for adverse affects attributed to waste disposal. Figure 4-4 shows analytical data for seven inorganics detected in groundwater in relation to Primary Drinking Water Standard MCLs. Appendix E presents groundwater inorganic data in relation to Primary Drinking Water Standard MCLs in bar-chart form.

Of the inorganics detected in groundwater samples from Site 5, seven have Primary Drinking Water Standard MCLs, including arsenic, barium, cadmium, chromium, lead, mercury, and selenium. Groundwater from monitoring wells KBA-5-1 and KBA-5-2, upgradient of the site, contained chromium at concentrations of 134 μg/L and 95.7 μg/L, respectively, which approximately equals or exceeds the MCL of 100 μg/L for total chromium.

With the exception of monitoring well KBA-5-3, all other monitoring wells at the site contained chromium above its MCL of 100 μg/L. Samples from monitoring wells KBA-5-4 and KBA-5-5 contained chromium at concentrations of 101 μg/L and 102 μg/L, respectively, which are below the concentration detected in groundwater from KBA-5-1, upgradient of the site. Groundwater from monitoring wells KBA-5-6 and KBA-5-7 contained chromium at concentrations of 152 μg/L and 228 μg/L, which is above the MCL for chromium and above the concentration detected in groundwater from locations upgradient of the site.

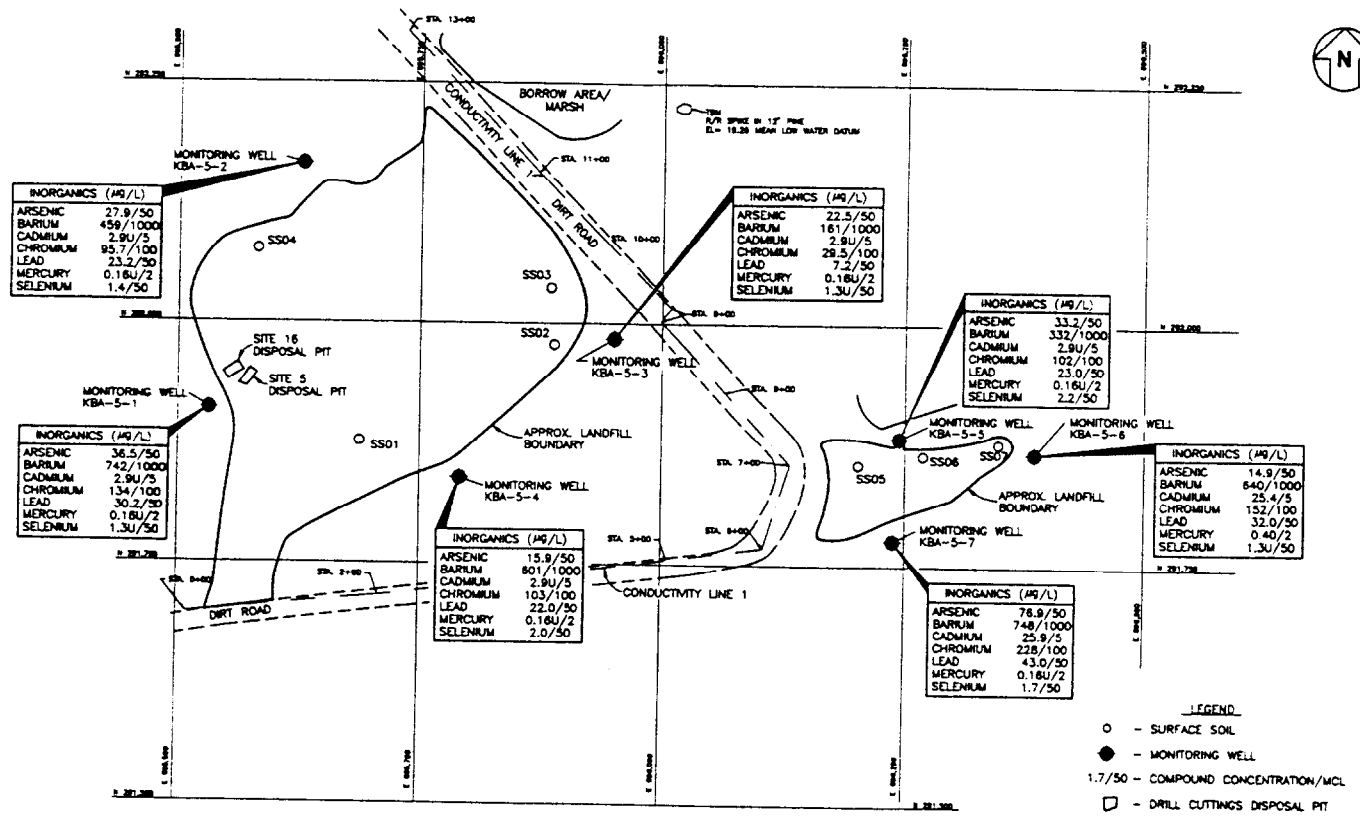

FIGURE 4-4
SITE 5
INORGANICS IN GROUNDWATER RELATIVE TO PRIMARY DRINKING WATER STANDARDS

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Groundwater samples collected from the seven monitoring wells did not contain lead above its Primary Drinking Water Standard MCL of 50 μg/L. Lead concentrations in groundwater from downgradient monitoring wells KBA-5-3, KBA-5-4, and KBA-5-5 range from 7.2 μg/L to 23.0 μg/L and are below the concentration of lead detected in groundwater from upgradient locations. Groundwater from monitoring wells KBA-5-6 and KBA-5-7 contained lead at concentrations of 32.0 μg/L and 43.0 μg/L, respectively, which approximately equals or exceeds the concentration detected in groundwater collected from upgradient locations. These data indicate that groundwater from downgradient wells KBA-5-6 and KBA-5-7 have concentrations of lead and chromium that may be elevated relative to concentrations in upgradient groundwater samples that may be attributed to waste disposal. On December 7, 1992, the MCL for lead will change to 15 μg/L. The concentration of lead in groundwater from upgradient monitoring well KBA-5-2 is greater than 15 μg/L. Samples from downgradient monitoring wells KBA-5-4, KBA-5-6, and KBA-5-7 also contained lead at concentrations greater than 15 μg/L; however, the concentration of lead in groundwater samples from monitoring well KBA-5-4 is equivalent to that in samples from upgradient monitoring well KBA-5-2.

Arsenic was reported at a concentration of 76.9 μg/L in groundwater from monitoring well KBA-5-7, which exceeds the Primary Drinking Water Standard MCL of 50 μg/L. No other groundwater samples exceeded the MCL for arsenic and, with the exception of groundwater from well KBA-5-7, all groundwater samples collected from downgradient locations contained arsenic at concentrations that were below the concentration of arsenic detected in groundwater from upgradient locations.

Barium was detected in groundwater samples from all seven monitoring wells at concentrations below the Primary Drinking Water Standard MCL. Barium was detected in groundwater from upgradient monitoring wells KBA-5-1 and KBA-5-2 at concentrations of 742 μg/L and 459 μg/L, respectively. With the exception of groundwater from monitoring well KBA-5-7, all downgradient samples were within or below the range of barium detected in upgradient groundwater samples. Groundwater from monitoring well KBA-5-7 contained barium at a concentration of 748 μg/L, which is slightly above the concentration detected in upgradient groundwater.

Cadmium was not detected in groundwater from upgradient monitoring wells KBA-5-1 and KBA-5-2. The only groundwater samples containing detectable levels of cadmium were the duplicate sample from monitoring well KBA-5-4 (3.7J μg/L) and groundwater samples from monitoring wells KBA-5-6 and KBA-5-7, where concentrations of 25.4 μg/L and 25.9 μg/L were measured. The concentrations of cadmium in groundwater from monitoring wells KBA-5-6 and KBA-5-7 exceed the Primary Drinking Water Standard MCL of 5 μg/L for cadmium.

Mercury was detected in one groundwater sample from monitoring well KBA-5-6 at a concentration of 0.40 μg/L. The Primary Drinking Water Standard for mercury is 2 μg/L and was not exceeded in groundwater samples collected from the site.

Selenium was detected in five groundwater samples from the site, including groundwater from upgradient well KBA-5-2 where it was found at a concentration of 1.4 μg/L. Groundwater from monitoring wells KBA-5-4 (including a duplicate sample), KBA-5-5, and KBA-5-7 contained selenium at concentrations ranging from 1.7 μg/L to 2.2 μg/L. These concentrations are slightly greater than the concentration reported in upgradient groundwater (1.4 μg/L). The Primary Drinking Water Standard MCL for selenium is 50 μg/L and was not exceeded in groundwater from the site.

Other inorganic analytes detected in groundwater from downgradient locations at concentrations above those in samples from upgradient locations include antimony, beryllium, cobalt, copper, nickel, thallium, tin, vanadium, cyanide, and sulfide. These inorganics do not have Federal Primary Drinking Water Standard MCLs. The majority of groundwater samples having these inorganics above concentrations in upgradient samples are associated with monitoring wells KBA-5-6 and KBA-5-7. With the exception of cyanide concentration in groundwater from monitoring well KBA-5-7 (5.6 μg/L) and sulfide concentration in groundwater from monitoring well KBA-5-6 (2100 μg/L), the above inorganics were present in downgradient groundwater samples at concentrations less than two times the concentrations in upgradient groundwater. This may represent lateral variation in inorganics concentrations rather than impact of wastes disposed. Inorganic constituents should be evaluated during the remaining groundwater sample events planned for Site 5.

4.1.5 Summary At Site 5 magnetometer surveys identified limited areas of buried ferrous material. Results of the terrain conductivity survey did not indicate that conductive leachate was present downgradient of the site.

Surface soil samples from the site contained the VOCs acetone, carbon disulfide, trichlorofluoromethane, toluene, and xylene at concentrations ranging from 1 J μg/kg. Excluding acetone, concentrations of VOCs in surface soil ranged from 1 J μg/kg to 110 J μg/kg. Carbon disulfide, toluene, and xylene were also detected in subsurface soil samples from the site at concentrations ranging from 3 J μg/kg to 15 μg/kg. Acetone and methylene chloride were also detected in subsurface soil. With the exception of acetone concentrations reported to range from 100 μg/kg to 7900 μg/kg, the maximum concentration of any VOC in subsurface soil was reported for methylene chloride at 90 μg/kg. Methylene chloride detected in surface and subsurface soil samples has been attributed to be an introduced laboratory artifact. Acetone, carbon disulfide, trichlorofluoromethane, 4-methyl-2-pentanone, ethylbenzene, and xylene were detected in groundwater from the site at concentrations ranging from 1 J μg/L to 72 μg/L.

The presence of acetone in surface soil, subsurface soil, and groundwater could indicate a release from the wastes disposed. However, the reported concentrations for acetone are considered to be laboratory or sampling artifacts and not indicating a release. This is because acetone was not identified in groundwater from monitoring wells associated with borings that reportedly produced soil samples having relatively high levels of acetone, a highly water soluble VOC.

Other organic compounds detected in surface soil, but not in subsurface soil or groundwater, include methylphenol, naphthalene, Aroclor-1260 and 4,4'-DDE. Detection of these compounds was sporadic and concentrations were low. The presence of 4,4'-DDE is attributed to incidental deposition from past use of pesticides, and is not considered to indicate a release of pesticides from the wastes disposed at the site. Aroclor 1260 in one soil sample at a concentration of 53 μg/kg may indicate a release of PCBs from the waste. Additional soil sampling may be warranted to evaluate the site for PCB contamination.

Inorganic data for the surface soil samples do not suggest a release of metals from wastes. Cyanide was detected in two subsurface soils and two groundwater samples from identical locations, which indicates it may be site related. No

other inorganics were identified in subsurface soil samples at concentrations indicative of contribution from wastes disposed.

Chromium and arsenic are present in groundwater upgradient of the site at concentrations above Primary Drinking Water Standard MCLs. Chromium, lead, and cadmium are present in groundwater downgradient of the site at concentrations above that in upgradient groundwater, and chromium and cadmium also exceed Primary Drinking Water Standard MCLs. Antimony, beryllium, cobalt, copper, nickel, thallium, tin, vanadium, cyanide, and sulfide are present in downgradient groundwater at concentrations above that detected in upgradient groundwater. With the exception of cyanide and sulfide, these inorganics are present at concentrations less than two times that detected in upgradient groundwater, and may not be indicative of impact from waste disposal. The upgradient/downgradient pattern will be further defined in the collection of additional rounds of groundwater samples.

4.2 SITE 11, OLD CAMDEN COUNTY LANDFILL. RFI/SI activities at Site 11 included magnetometer and terrain conductivity surveys, collection of 10 subsurface soil samples, including a duplicate sample, installation of nine groundwater monitoring wells, and collection of groundwater samples from the nine monitoring wells.

4.2.1 Geophysical Surveys Magnetic and terrain conductivity surveys were conducted at Site 11 for the purposes of delineating the lateral extent of buried wastes and provide evidence for the possible disposal of drums and to show evidence for the existence of highly conductive groundwater plumes emanating from the site. The results of these surveys are presented in the following subsections.

Figure 2-2 illustrates the lateral extent of the magnetic survey conducted at Site 11. Magnetic data are presented in the form of vertical gradient contours shown superimposed over site features in Figure 4-5. The magnetic signature of the southern portion of the site is indicative of trenching activities. Vertical gradient contours display a northwesterly lineation. This magnetic signature strongly suggests that trenching of wastes was conducted during its construction. Trenching is also evident at the land surface due to the rille-like, hummocky nature of the landfill terrain. Magnetic anomalies are not strong enough to indicate large numbers or concentrations of drums. Although, there appear to be no apparent 'hot spots' within the confines of the landfill, there do appear to be, four higher magnetically anomalous areas. These areas are outlined in Figure 4-5. Also, one or two trenched areas of the landfill do not appear to display the magnitude of anomalies as other portions of the landfill suggesting that there appears to be less ferrous debris in this area or that refuse may not be as thick.

Five terrain conductivity profiles were conducted along the outer periphery of the landfill in an attempt to provide evidence for the presence of a highly conductive groundwater plume emanating from the landfill (Figure 4-6). One terrain conductivity profile was conducted around the southern and eastern periphery of the landfilled area in an attempt to determine if any highly conductive areas could be delineated which may suggest the presence of potentially contaminated groundwater emanating from the alleged landfill area.

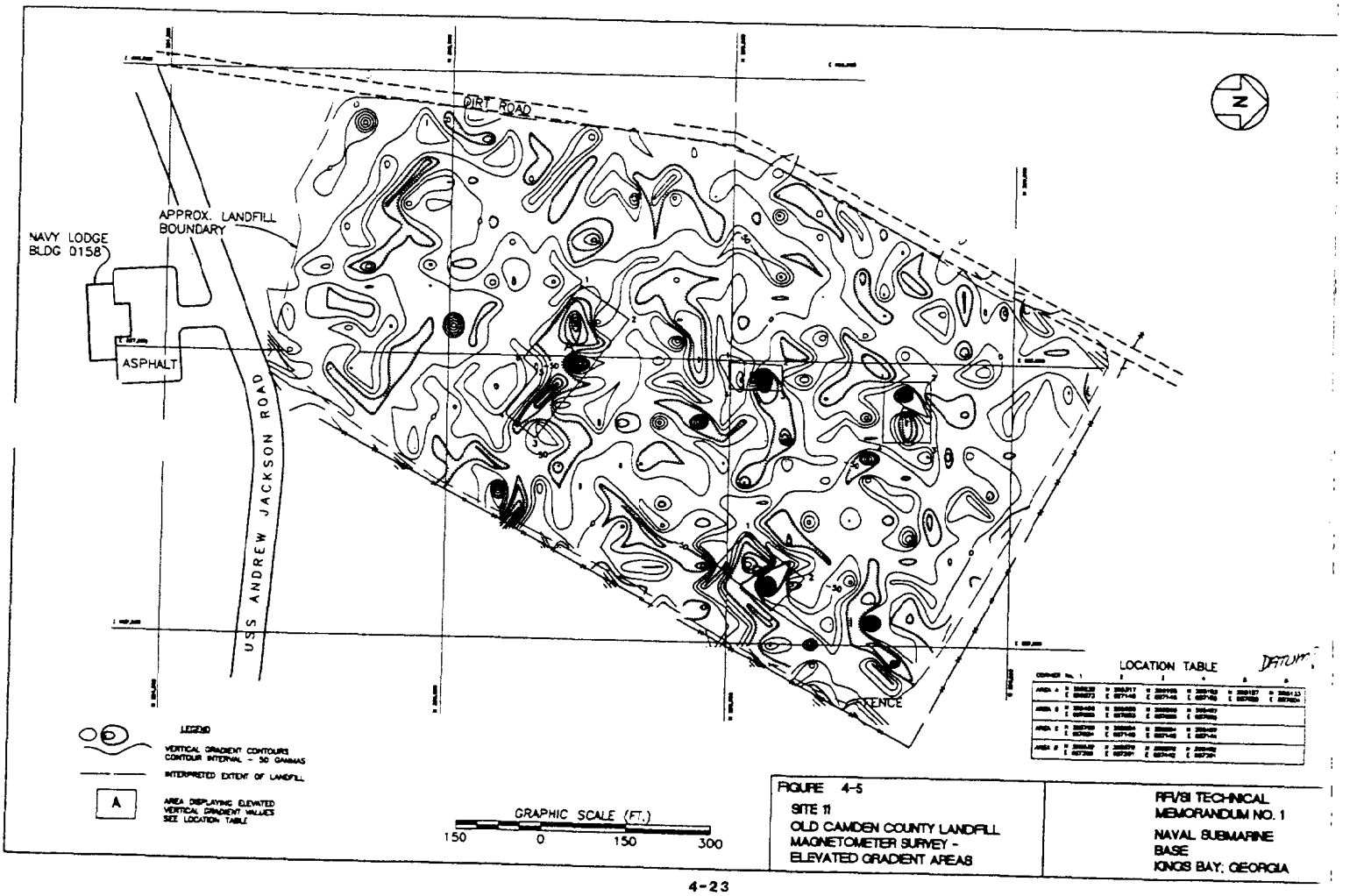

FIGURE 4-5
SITE 11
OLD CAMDEN COUNTY LANDFILL
MAGNETOMETER SURVEY -
ELEVATED GRADIENT AREAS

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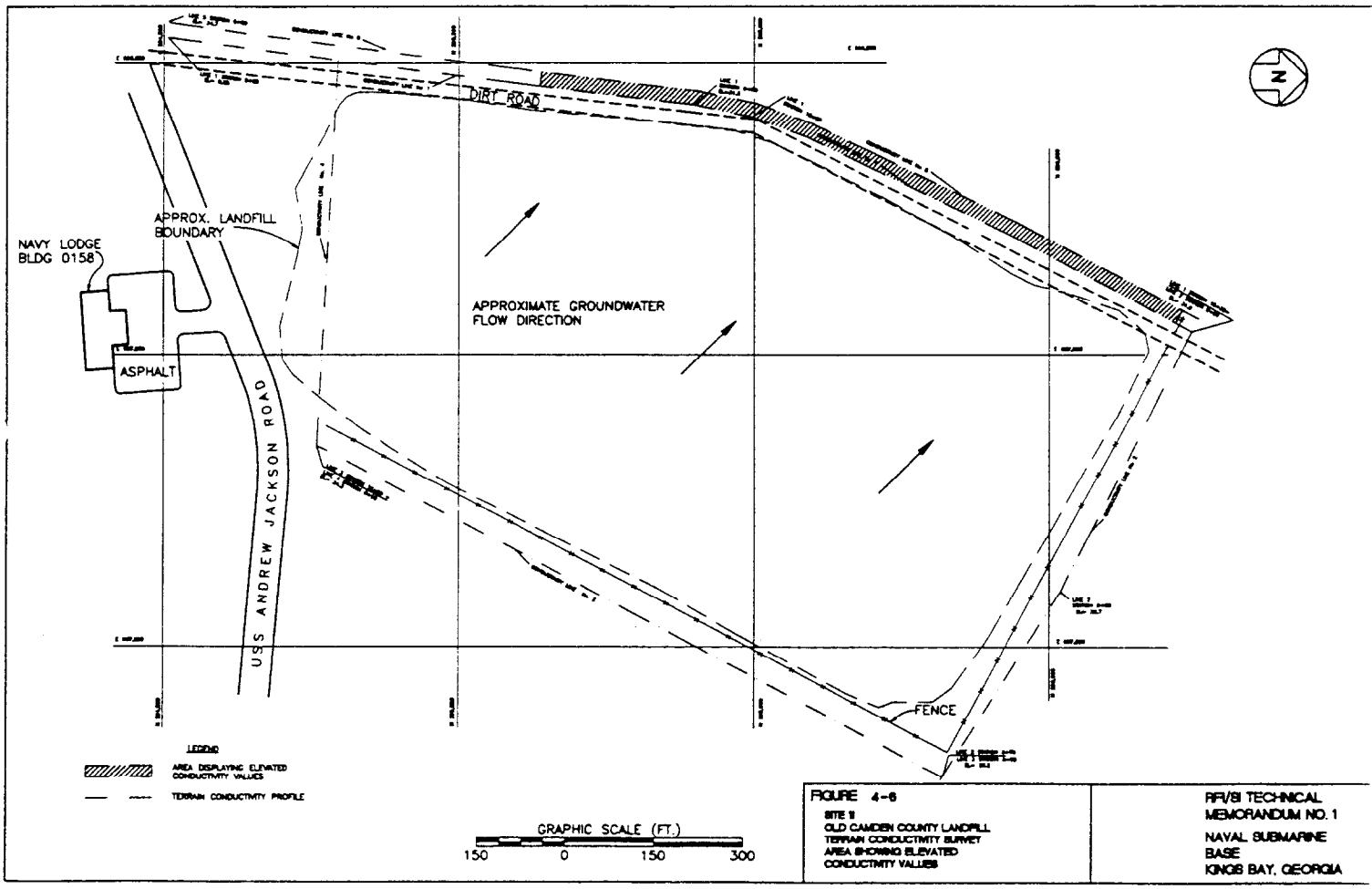

FIGURE 4-6
SITE 11
OLD CAMDEN COUNTY LANDFILL
TERRAIN CONDUCTIVITY SURVEY
AREA SHOWING ELEVATED
CONDUCTIVITY VALUES

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BASE
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Figures 4-7 through 4-11 present the data gathered from these profiles and Figure 4-6 shows the area of elevated conductivity values. Lines 2 thru 4 display some anomalies however they are due to buried utility lines and refuse. Line 1 and Line 5 were conducted along the outer western periphery of the landfill in an apparent downgradient direction (Figure 4-6). The elevated conductivity values (10 and 30 mmhos/m) may represent conductive groundwater migrating from the site.

Two monitoring wells were subsequently located along these profiles to monitor groundwater quality in areas where the highest conductivity values were measured.

4.2.2 Subsurface Soils The following subsections discuss the results of laboratory analysis of 10 subsurface soil samples, including one duplicate soil sample collected from Site 11. The subsurface soil samples were collected from borings installed for construction of groundwater monitoring wells. Figure 2-5 shows sample locations for the subsurface soil samples.

4.2.2.1 **Volatile Organic Compounds in Subsurface Soil** Subsurface soil samples were analyzed for Appendix IX VOCs by CH2M HILL Laboratories. Table 4-4 summarizes results of VOC analysis of subsurface soil samples collected from Site 11. VOCs detected in subsurface soil samples from Site 11 include acetone and xylene.

Acetone is a common laboratory solvent detected in seven subsurface soil samples. Acetone was detected in samples 11-SB-02, 11-SB-03, 11-SB-03D, 11-SB-04, 11-SB-05, 11-SB-06, and 11-SB-07 at concentrations ranging from 96 μg/kg to 470 μg/kg. Acetone was also detected in the method blank associated with these samples, but sample concentrations were unqualified because they exceed method blank concentrations by more than 10 times. Acetone in the subsurface soil samples cannot be directly attributed to laboratory contamination based on USEPA functional guidelines for assessing organic data. However, acetone was not detected in groundwater samples collected from monitoring wells associated with these soil samples which suggest it is a sampling or laboratory artifact. The subsurface soil samples were collected at the groundwater table and a water-soluble compound such as acetone should be present in groundwater if it is present in soil, especially considering concentrations reported for the soil samples. Therefore, acetone is not considered a site related VOC.

Xylene is a VOC present in fuel and is a common solvent in paints, resins, and varnish. Xylene was detected in two soil samples, 11-SB-05 and 11-SB-09, at concentrations of 2 J μg/kg and 5 μg/kg, respectively. Xylene was also detected in groundwater samples collected from monitoring wells associated with these borings. The presence of xylene in environmental media at Site 11 is considered representative of site conditions.

4.2.2.2 **Semivolatile Organic Compounds in Subsurface Soil** Subsurface soil samples were analyzed for Appendix IX SVOCs by CH2M HILL Laboratories. Table 4-4 summarizes results of SVOC analysis of subsurface soil samples collected from Site 11. SVOCs detected in subsurface soil samples from Site 11 include two phthalate compounds.

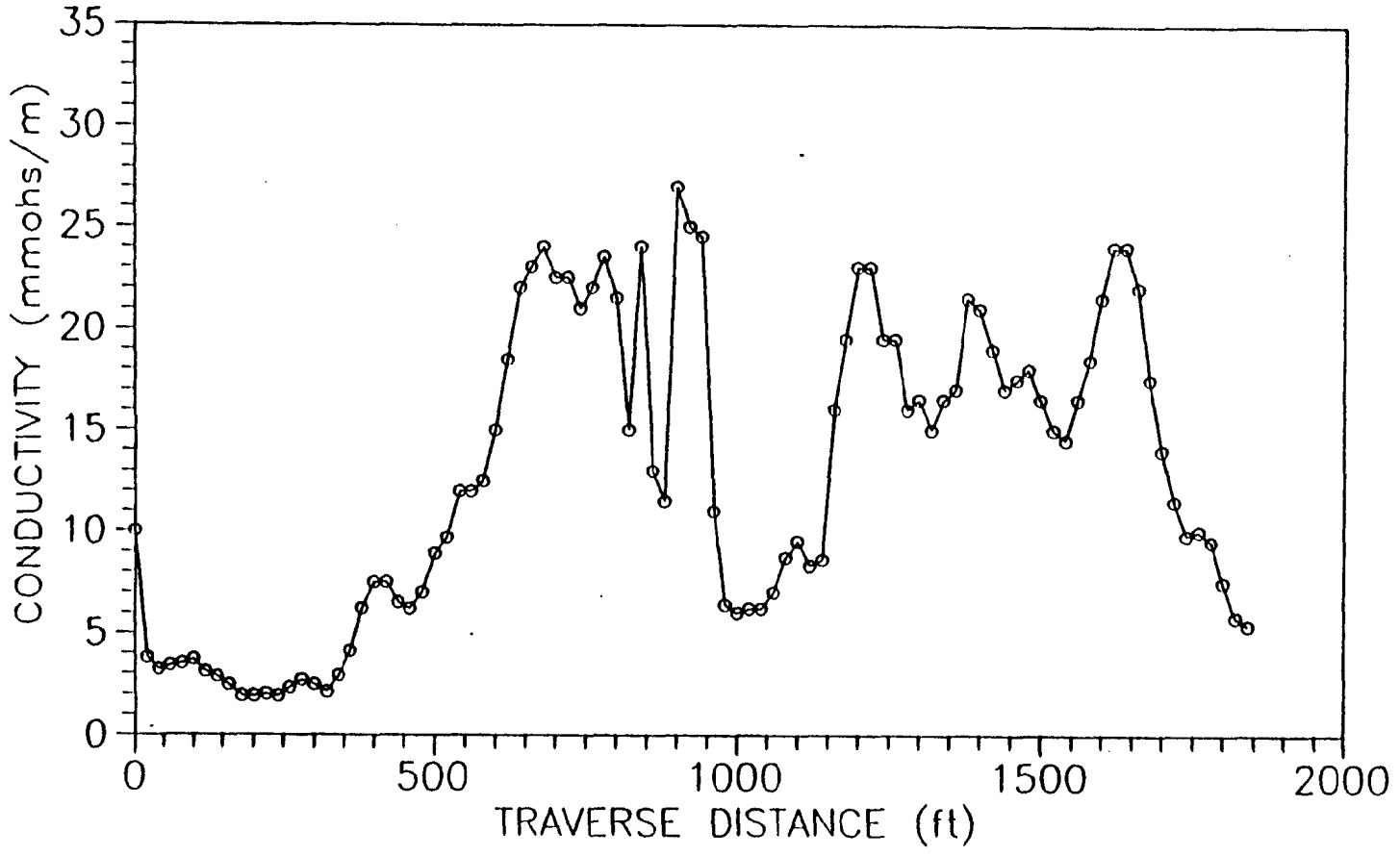

FIGURE 4-7

SITE 11
TERRAIN CONDUCTIVITY
PROFILE, LINE 1

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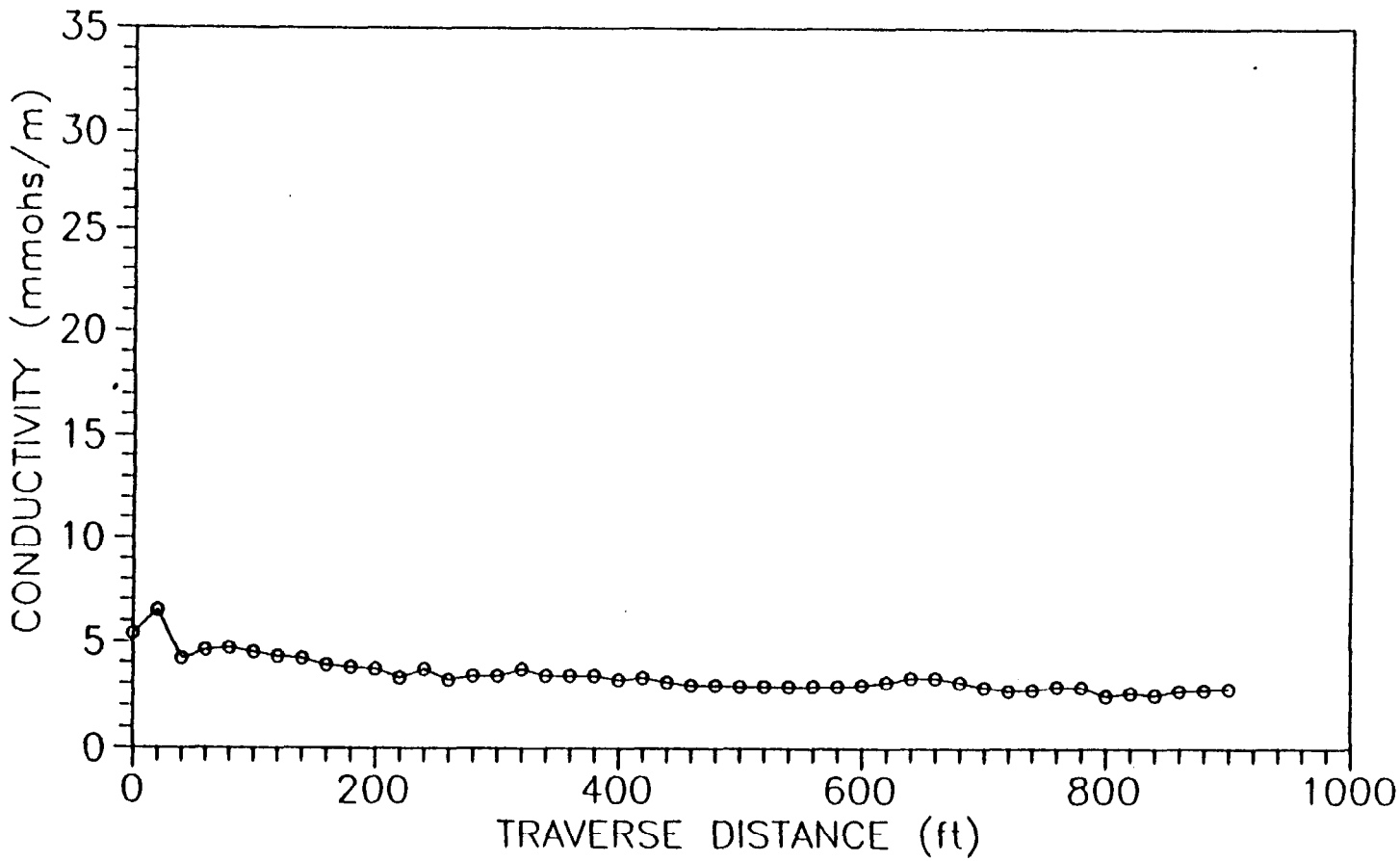

FIGURE 4-8

SITE 11
TERRAIN CONDUCTIVITY
PROFILE, LINE 2

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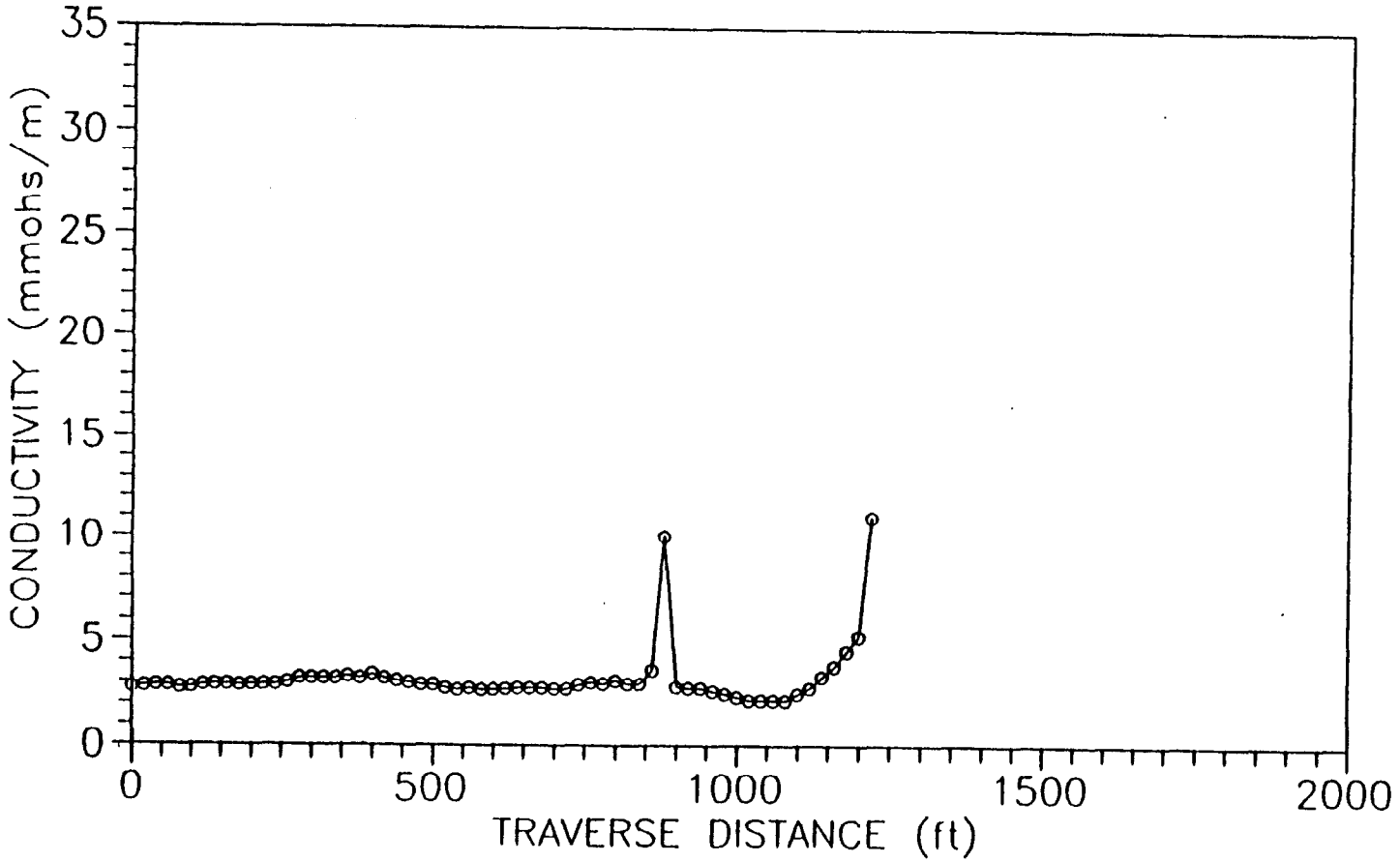

FIGURE 4-9

SITE 11
TERRAIN CONDUCTIVITY
PROFILE, LINE 3

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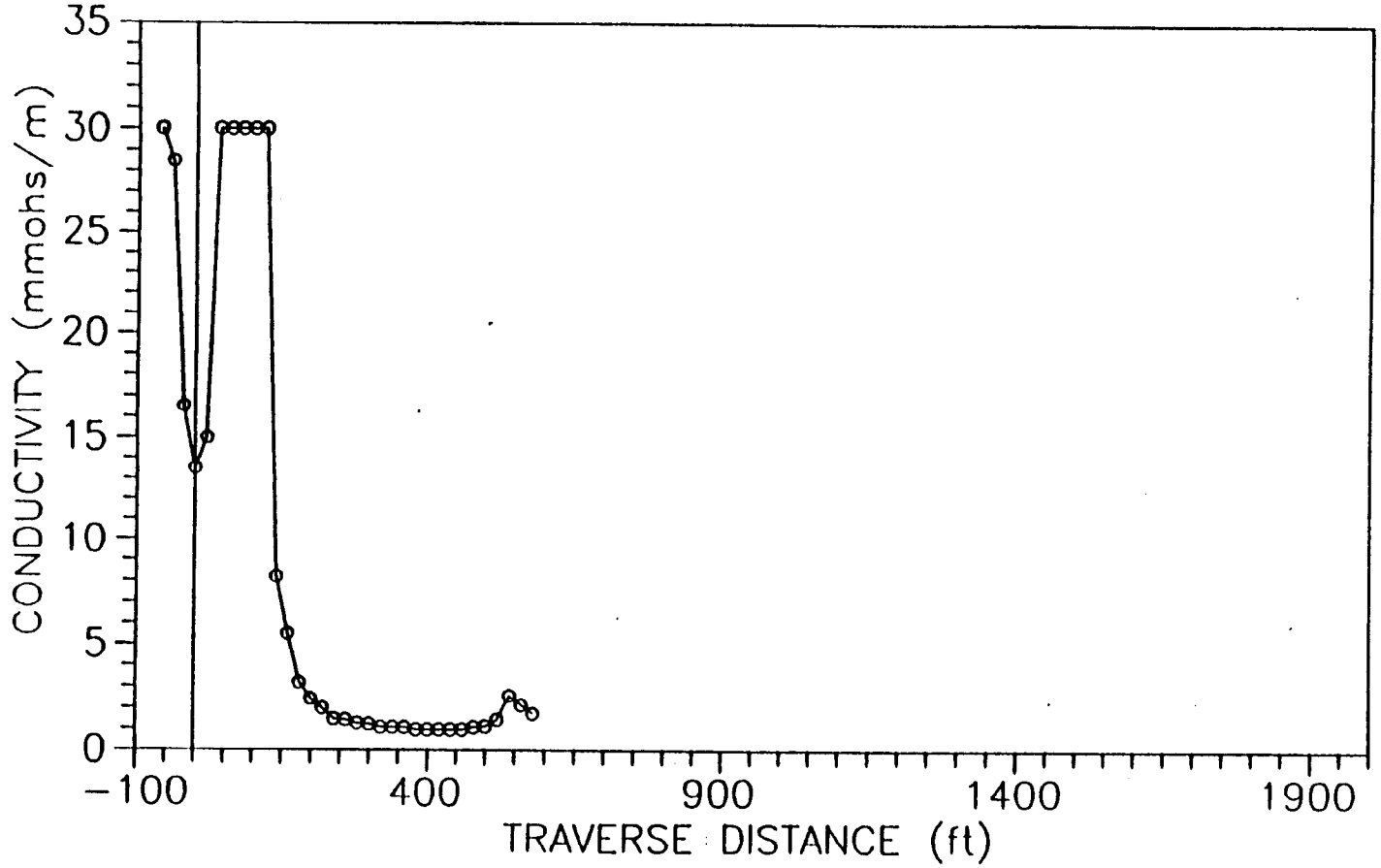

FIGURE 4-10

SITE 11
TERRAIN CONDUCTIVITY
PROFILE, LINE 4

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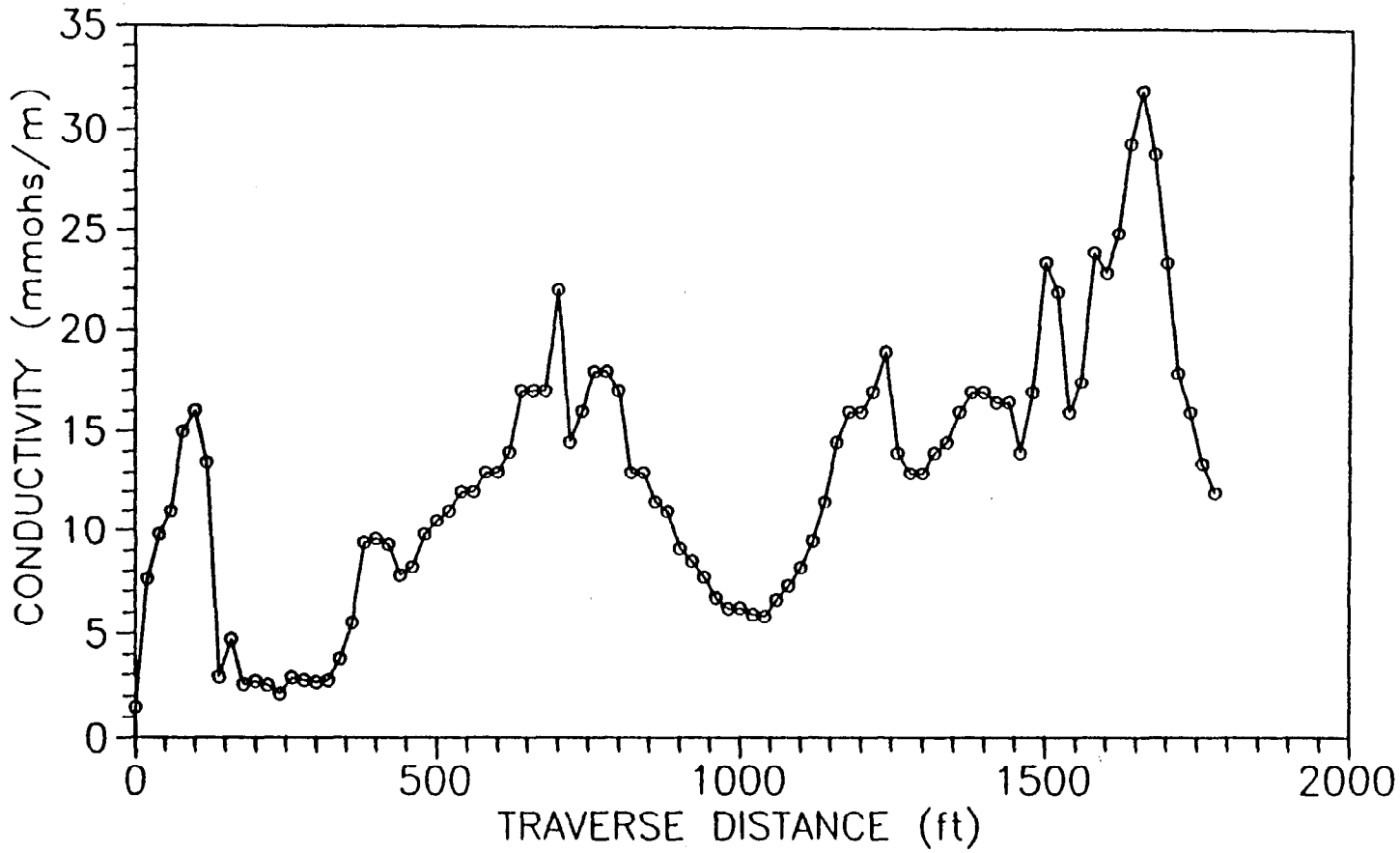

FIGURE 4-11

SITE 11
TERRAIN CONDUCTIVITY
PROFILE, LINE 5

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Table 4-4
Summary of Laboratory Analysis of Subsurface Soil Samples
Collected from Site 11[1]
RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Compounds Detected / 11-	CRQL	SB-01 4-6'	SB-02 4-6'	SB-03 4-6'	SB-03D 4-6'	SB-04 4-6'	SB-05 4-6'	SB-06 4-6'	SB-07 4-6'	SB-08 4-6'	SB-09 2-4'
APPENDIX IX VOCs (μg/kg)											
Acetone	10	48 U	470	96	210	470	190	150	100	48 U	29 U
Xylene (total)[3]	5	6 U	6 U	6 U	6 U	6 U	2 J	6 U	6 U	6 U	5
APPENDIX IX SVOCs (μg/kg)											
Di-n-Butylphthalate[2,3]	330	460 J	94 J	64 J	46 J	45 J	65 J	50 J	68 J	380 U	450 U
bis(2-Ethylhexyl)Phthalate[2]	330	200 J	400 U	420 U	420 U	410 U	410 U	410 U	400 U	340	230 J
APPENDIX IX Inorganics (mg/kg)											
Arsenic[2]	2	0.24 J	0.17 U	0.18 U	0.17 U	0.28 U	0.17 U	0.17U	0.17 U	0.23 J	0.18U
Barium[2]	40	1.1 J	4.5 J	3.0 J	2.7 J	4.7 J	1.5 J	1.8 J	2.4 J	3.1 J	0.78U
Beryllium[2]	1	0.05 U	0.05 U	0.05 U	0.05 U	0.08 U	0.05 U	0.05U	0.05 J	0.05 J	0.05U
Cadmium[2]	1	0.74 U	0.72 U	0.81 J	0.73 U	1.2 U	0.73 U	0.72U	0.72 U	0.67 U	0.76U
Chromium	2	1.4 U	3.2	2.9 U	2.6 U	4.0	2.0 U	2.5 U	4.2	2.0 U	1.9 U
Lead	0.6	1.6 U	2.3	1.8	0.88	3.6	1.1	0.46J	0.96	2.2	2.0
Nickel[2]	8	1.0 J	2.0 U	2.2 U	1.1 U	1.6 U	0.94 U	2.4 U	1.5 U	2.7 J	1.3 J
Selenium[2]	1	0.32 U	0.31 U	0.33 U	0.32 U	0.51 U	0.46 J	0.32U	0.31 U	0.39 U	0.33U
Silver[2]	2	0.43 U	0.42 U	0.44 U	0.43 U	0.69 U	0.43 U	0.42U	0.47 J	0.39 U	0.54U
Vanadium[2]	10	0.68 U	1.4 J	1.7 J	1.6 J	2.7 J	1.0 J	1.4 J	1.3 J	1.6 U	1.2 U
Zinc	4	1.8 U	1.9 U	3.8 U	1.5 U	4.0 U	0.90 U	2.4 U	2.5 U	6.8	5.3

Notes: CRQL = Contract Required Quantitation Limit U = not detected above or below CRQL
[1] No Appendix IX pesticides, PCBs, herbicides, or dioxins/furans were detected in groundwater samples.
[2] Value(s) flagged J as estimated because concentrations are less than the CRQL.
[3] Value flagged J as estimated because the continuing calibration standard exceeded QC limits.

Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in several subsurface soil samples collected from the site. Di-n-butylphthalate was detected in nine of ten samples, but was qualified as undetected in one sample because of method blank contamination. Samples 11-SB-01 through 11-SB-07 contain di-n-butylphthalate at concentrations ranging from 45 J µg/kg to 460 µg/kg. With the exception of 11-SB-01, which contained 460 µg/kg di-n-butylphthalate, all concentrations were well below the CRQL of 330 µg/kg. Di-n-butylphthalate was not detected in groundwater samples collected from Site 11.

Bis(2-ethylhexyl)phthalate was detected in three subsurface soil samples, 11-SB-01, 11-SB-08, and 11-SB-09, at concentrations ranging from 200 J µg/kg to 340 µg/kg. Bis(2-ethylhexyl)phthalate was not detected in groundwater samples associated with these soil borings, but was detected at low level in one other groundwater sample.

Phthalates are common sampling and laboratory contaminants easily introduced into sample material from plastic items such as gloves, tubing, and sample containers. The presence of phthalates in subsurface soil samples is not necessarily attributed to the site, but there is likely an ample supply of plastic debris disposed in the former county landfill that could contribute phthalates to soil and/or groundwater. Due to their pervasive presence as sampling and laboratory artifact, it is unlikely that future evaluations of phthalates in environmental media at the site would provide conclusive data regarding their source.

4.2.2.3 **Pesticides, Herbicides, and PCBs in Subsurface Soil** Ten subsurface soil samples, including one duplicate soil sample were analyzed for Appendix IX pesticides, herbicides, and PCBs. No pesticides, herbicides, or PCBs were detected in subsurface soil samples collected from Site 11.

4.2.2.4 **Dioxins and Furans in Subsurface Soil** Ten subsurface soil samples, including one duplicate soil sample were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in subsurface soil samples collected from Site 11.

4.2.2.5 **Inorganic Compounds in Subsurface Soil** Ten subsurface soil samples, including one duplicate soil sample, were analyzed for Appendix IX inorganic constituents. Inorganic compounds detected in the subsurface soil samples include arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, vanadium, and zinc (Table 4-4).

The concentrations of inorganics detected in subsurface soil samples were compared to reported naturally occurring concentrations for soils presented in Table 4-2 (Kabata-Pendias and Pendias, 1984). With the exception of cadmium, discussed below, none of the concentrations of inorganics detected in the subsurface soil samples exceeded reported natural ranges, and all were generally below the mean concentrations for corresponding compounds. Selenium concentration in one sample, 11-SB-05 (0.46 J mg/kg), is above the reported mean concentration of 0.19 mg/kg, but is within the reported natural range for selenium.

One sample, 11-SB-03, contained cadmium at a concentration of 0.81 J mg/kg, which exceeds the reported natural range of 0.41 mg/kg to 0.57 mg/kg for cadmium in soil. The duplicate sample 11-SB-03D did not contain detectable cadmium. The

concentration in the soil sample from the site does not exceed the reported natural range by a significant amount.

Based on groundwater level measurements collected on February 20, 1992, monitoring wells KBA-11-1, KBA-11-7, KBA-11-8, and KBA-11-9 are upgradient of the landfill and soil samples obtained from these borings should not contain inorganics leached from wastes in the landfill. Inorganic data for soil samples 11-SB-01, 11-SB-07, 11-SB-08, and 11-SB-09 were used to represent background conditions and were used to evaluate inorganic data for other, downgradient, soil samples. Five inorganics are present in downgradient soil samples at concentrations greater than in the background soil samples, including barium, lead, selenium, and vanadium. The majority of inorganic concentrations above background are associated with samples 11-SB-02 and 11-SB-04. Vanadium is present at concentrations above background in five of 10 samples, which includes all downgradient soil samples except 11-SB-05. Selenium was not detected in the background soil samples, and detectable concentrations in downgradient soil samples range from 0.46 J mg/kg (selenium) to 4.0 mg/kg (chromium). Concentrations of barium and lead in downgradient soil samples are less than two times the concentration in background soil samples.

Concentrations of inorganics in soil samples collected from the site do not exceed reported natural ranges or background concentrations by significant amounts. Inorganic data for the subsurface soil samples do not indicate that the landfill has caused adjacent soils to be contaminated with inorganic compounds.

<u>4.2.3 Groundwater</u> Nine groundwater monitoring wells were installed at Site 11 during February 1992. On February 19 and 20, 1992, groundwater level measurements were collected from monitoring well KBA-11-5 over a period of 24 hours to evaluate the site for tidal influence. High tides occurred at approximately 10:28 p.m. on February 19,1992, and 10:46 a.m. on February 20, 1992. Low tides occurred at approximately 4:22 p.m. on February 19, 1992, and 4:49 a.m. on February 20, 1992. This information was obtained from tide tables available at local establishments in Kingsland and St. Marys, Georgia. Times for high and low tides reported above have been corrected for delays associated with distance from the outer bar where tides are calculated to the entrance of the Crooked River, which is approximately 3.5 miles northeast of the site. Appendix D contains a graph of water levels versus time for monitoring well KBA-11-5 at Site 11. This monitoring well was selected because it is on the site boundary adjacent to the nearest surface water body influenced by tides. Variations in water levels during the 24-hour period were limited to approximately 0.45 inch. Based on these data there is no significant tidal influence on groundwater levels at Site 11.

Figure 4-12 is a groundwater potentiometric surface map prepared from water level measurements collected on February 20, 1992. The potentiometric surface map indicates that groundwater flow is to the northwest. Monitoring wells KBA-11-1, KBA-11-7, KBA-11-8, and KBA-11-9 are upgradient of the landfill, based on the February 1992 water level data, and should produce groundwater samples unaffected by waste disposal. More groundwater data will become available as a result of upcoming groundwater sample events and the status of monitoring wells KBA-11-1, KBA-1-7, KBA-11-8, and KBA-11-9 as upgradient wells will be monitored.

Slug test were performed on monitoring wells KBA-11-1, KBA-11-3, KBA-11-5, and KBA-11-7. Slug test data were analyzed using AQTESOLVESOLV™ software.

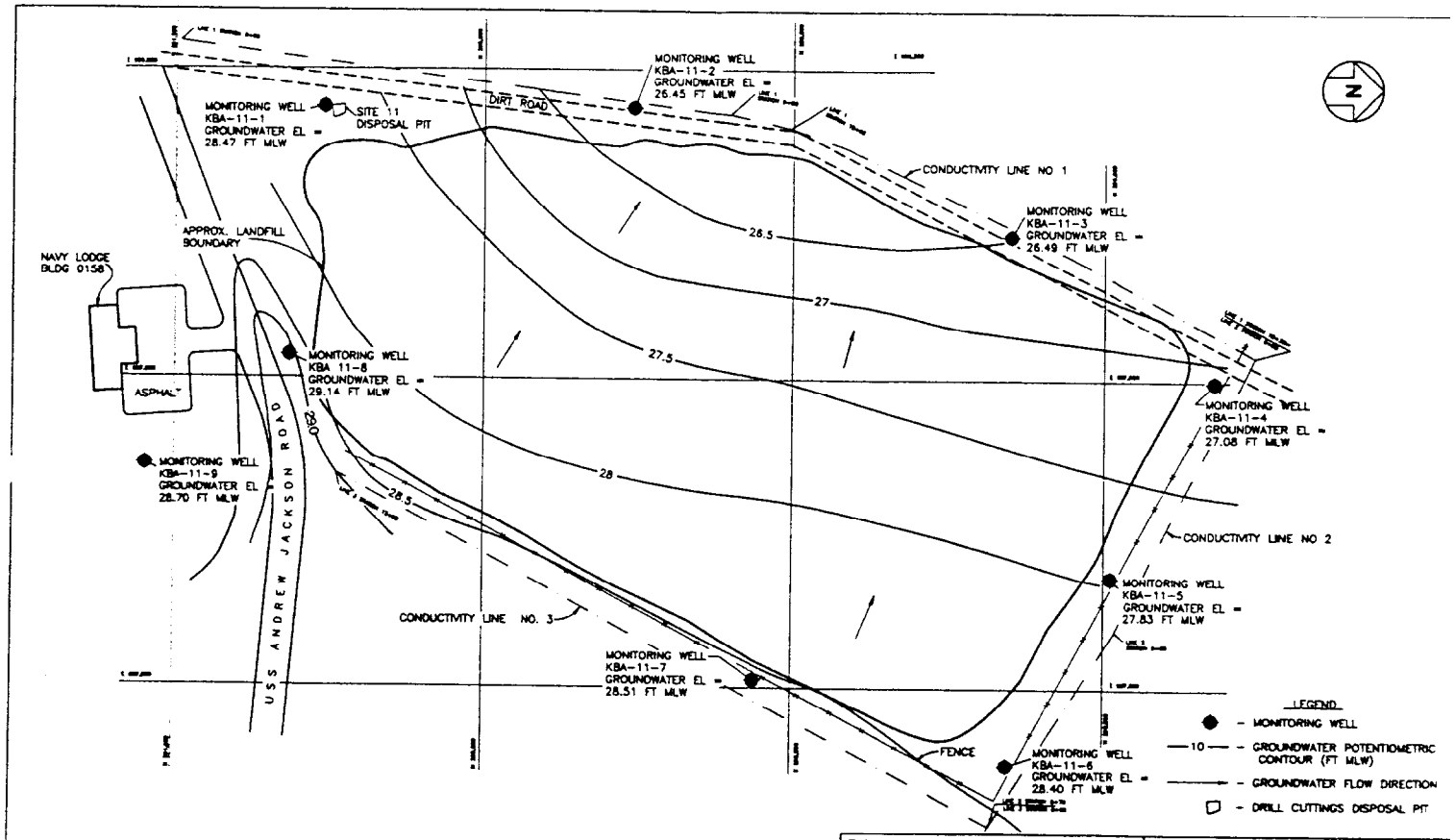

FIGURE 4-12
SITE 11
GROUNDWATER POTENTIOMETRIC SURFACE MAP

RFI/SI TECHNICAL MEMORANDUM NO. 1
NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

Hydraulic conductivity estimates were calculated according to methods presented by Bower and Rice (1976) for unconfined aquifers. Hydraulic conductivities were consistent for the wells tested, ranging from 2.9 x 10^{-3} ft/min to 3.8 x 10^{-3} ft/min.

Field parameters including pH and specific conductance were measured on February 21, 1992. Temperature measurements were not obtained because the thermometer accidentally broke. Values for pH ranged from 4.33 s.u. at monitoring well KBA-11-1 to 5.87 s.u. at monitoring well KBA-11-3. Specific conductance values ranged from 50 umhos/cm at monitoring well KBA-11-7 to 1300 umhos/cm at monitoring well KBA-11-3.

The first of six groundwater sample events took place in February 1992. Ten groundwater samples, including one duplicate sample were collected and submitted to CH2M HILL Laboratories for analysis of Appendix IX parameters. Figure 2-5 shows locations of the nine monitoring wells. The following subsections discuss the results of laboratory analysis of groundwater samples.

4.2.3.1 Volatile Organic Compounds in Groundwater Table 4-5 summarizes results of VOC analysis of groundwater samples collected from Site 11. VOCs detected include vinyl chloride, 1,2-dichloroethene, 4-methyl-2-pentanone, chlorobenzene, ethylbenzene, xylene, and 1,4-dichlorobenzene. With the exception of xylene, none of the VOCs detected in groundwater samples were found in subsurface soil samples from the site.

Vinyl chloride is present in samples from two monitoring wells, KBA-11-2 and KBA-11-8 at concentrations of 18 μg/L and 2 J μg/L, respectively. Vinyl chloride has a Primary Drinking Water Standard MCL of 2 μg/L, which is exceeded in groundwater from monitoring well KBA-11-2 and equal to the concentration of vinyl chloride in groundwater from monitoring well KBA-11-8. Vinyl chloride is a degradation product of 1,2-dichloroethene, which has also been identified in groundwater at the site, and as a commercial product vinyl chloride is used in manufacturing of PVC, adhesives, and refrigerant.

1,2-Dichloroethene is a chlorinated solvent that was detected in groundwater from one monitoring well, KBA-11-2, at a concentration of 7 μg/L. This concentration is well below the Primary Drinking Water Standard MCLs of 70 μg/L and 100 μg/L for cis-1,2-dichloroethene and trans-1,2-dichloroethene, respectively.

4-Methyl-2-pentanone is a non-chlorinated solvent used in paints and varnishes. This VOC was detected in groundwater from one monitoring well, KBA-11-6, at a concentration of 3 J μg/L. This concentration is estimated because it is below the CRQL of 10 μg/L for this VOC. No other soil or groundwater samples contained this compound.

Chlorobenzene and 1,4-dichlorobenzene are aromatic VOCs detected in groundwater samples from the site. Chlorobenzene was detected in groundwater from one monitoring well, KBA-11-3, at a concentration of 6 μg/L. A duplicate sample from monitoring well KBA-11-3 contained 7 μg/L of chlorobenzene. These concentrations are well below the Primary Drinking Water Standard MCL of 100 μg/L for chlorobenzene.

Table 4-5
Summary of Laboratory Analysis of Groundwater Samples
Collected from Site 11'

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Compounds Detected	Monitoring Well Number										
KBA-	CRQL	11-1	11-2	11-3	11-3D	11-4	11-5	11-6	11-7	11-8	11-9
APPENDIX IX VOCs (μg/L)											
Vinyl Chloride[2]	10	10 U	18	10 U	10 U	10 U	10 U	10 U	10 U	2 J	10 U
1,2-Dichloroethene	5	5 U	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	3 J	10 U	10 U	10 U
Chlorobenzene	5	5 U	5 U	6	7	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene[2]	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 J	5 U
Xylene (total)[2]	5	5 U	5 U	5 U	5 U	5 U	2 J	2 J	5 U	5	3 J
1,4-Dichlorobenzene[2]	5	5 U	5 U	13	15	5 U	5 U	1 J	5 U	5 U	5 U
APPENDIX IX SVOCs (μg/L)											
1,4-Dichlorobenzene[2,3]	10	10 U	10 U	4 J	7 J	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate[2,3]	10	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	9 J	10 U
bis(2-Ethylhexyl)-Phthalate[2]	10	10 U	10 U	31 UJ	10 U	10 U	10 U	10 U	94	10 U	10 U
APPENDIX IX Inorganics (μg/L)											
Antimony[2,4]	60	10.9 U	10.9 UJ	11.1 J	10.9 UJ	11.4 J	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U
Arsenic[2]	10	1.9 J	3.5 J	2.3 U	0.69 U	0.69 U	89.0	7.3 J	16.9	7.7 J	3.5 J
Barium[2]	200	61.6 J	228	155 J	280	192 J	617	262	285	102 J	135 J
Beryllium[2]	5	0.72 J	4.3 J	2.0 J	2.9 J	5.8	10.2	4.8 J	4.1 J	2.5 J	3.0 J
Cadmium[2]	5	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	3.5 J	2.9 U	2.9 U	2.9 U	2.9 U
Chromium[2]	10	44.4 J	247	113	177	297 J	620 J	261 J	354 J	139 J	121 J
Cobalt[2]	50	3.6 U	5.6 J	3.9 J	5.1 J	7.4 J	16.8 J	6.5 J	5.9 J	3.6 U	[illegible] 6 U
Copp[illegible]	25	26.8 U	53.5 U	41.0 U	[illegible] U	68.8	384	49.0	121	62.2	[illegible].2

Table 4-5
Summary of Laboratory Analysis of Groundwater Samples
Collected from Site 11[1]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Lead[5]	5	12.6 J	18.1 J	18.8 J	14.8 J	24.7 J	53.5 J	16.3 J	20.4 J	16.8 J	17.6 J
ercury	0.2	0.16 U	0.60	0.60	0.67	1.4	2.9	1.0	1.9	0.58	0.28
ickel[3]	40	12.8 J	32.2 J	19.6 U	42.2	41.6	107	31.2 J	44.7	18.6 J	17.0 J
elenium	5	6.9	25.6	24.5	26.0	14.6	9.4	13.8	10.4	11.4	6.4 U
anadium[2]	50	24.8 J	94.6	87.4	138	209	314	108	143	67.8	80.2
inc	20	20.1 U	53.3 U	54.8 U	102	86.1	269	211	82.1	93.6	38.1
yanide[3]	10	1.8 U	1.8 U	3.0 J	1.8 U	2.3 J	1.8 U	1.8 U	1.8 U	3.8 J	1.8 U
ulfide	100	100 U	500	600	1000	1300	700	400	3400	300	200

Notes:
CRQL = Contract Required Quantitation Limit
U = not detected above or below CRQL

[1] No Appendix IX pesticides, PCBs, herbicides, or dioxins/furans were detected in groundwater samples.

Data Qualifiers

[2] Samples results flagged J as estimated because concentrations are less than the CRQL.
[3] Samples results for KBA-11-3 flagged J/UJ as estimated because surrogate recoveries were below QC limits.
[4] Technical Memorandum No. 1ed quantitation limits flagged UJ as estimated because matrix spike recoveries were below QC limits.
[5] Sample results flagged J as estimated because duplicate analysis was outside QC limits.

1,4-Dichlorobenzene was detected in groundwater from two monitoring wells, KBA-11-3 and KBA-11-6, at concentrations of 13 μg/L and 1 J μg/L, respectively. The duplicate sample from monitoring well KBA-11-3 was reported to contain 15 μg/L of 1,4-dichlorobenzene. The reported concentration of 1 J μg/L in groundwater from monitoring well KBA-11-6 is below the CRQL of 5 μg/L and is near the instrument detection limit for this compound. There is no Primary Drinking Water Standard for 1,4-dichlorobenzene.

Ethylbenzene and xylene are fuel-related VOCs that were detected in groundwater samples from Site 11. Ethylbenzene was detected in one monitoring well, KBA-11-8, at a concentration of 1 J μg/L, which is below the CRQL of 5 μg/L and near the instrument detection limit for this compound. No other groundwater samples or soil samples from the site were found to contain ethylbenzene. The concentration of ethylbenzene in groundwater from monitoring well KBA-11-8 is well below the Primary Drinking Water Standard MCL of 700 μg/L for ethylbenzene.

Xylene was detected in groundwater from four monitoring wells, KBA-11-5, KBA-11-6, KBA-11-8, and KBA-11-9. Concentrations of xylene in groundwater samples ranged from 2 J μg/L, which is below the CRQL of 5 μg/L, to 5 μg/L. Xylene was also detected in subsurface soil samples from the site. The concentrations of xylene in groundwater samples from Site 11 are well below the Primary Drinking Water Standard MCL of 10,000 μg/L for xylene.

4.2.3.2 Semivolatile Organic Compounds in Groundwater Ten groundwater samples, including one duplicate sample were analyzed for Appendix IX SVOCs. SVOCs detected in groundwater samples from Site 11 include 1,4-dichlorobenzene and phthalate compounds.

1,4-Dichlorobenzene was reported by the laboratory as a VOC and an SVOC. SVOC data include 1,4-dichlorobenzene in groundwater samples from monitoring well KBA-11-3 at concentrations of 4 J μg/L and 7 J μg/L, which includes a duplicate sample. VOC data reported by the laboratory also include 1,4-dichlorobenzene in groundwater from KBA-11-3, but at somewhat higher concentrations of 13 μg/L and 15 μg/L. SVOC data do not confirm the presence of 1,4-dichlorobenzene in groundwater from monitoring well KBA-11-6, where VOC analysis measured 1 J μg/L of 1,4-dichlorobenzene.

Two phthalate compounds, diethylphthalate and bis(2-ethylhexyl)phthalate, were detected in groundwater samples from Site 11. Groundwater from monitoring well KBA-11-8 was found to contain 9 J μg/L of diethylphthalate, which is below the CRQL of 10 μg/L for this SVOC. No other groundwater or soil samples from Site 11 were found to contain diethylphthalate. Diethylphthalate was not detected in the method blank associated with the groundwater sample from KBA-11-8, but was detected in other method blanks associated with other RFI/SI samples. There is no Primary Drinking Water Standard for diethylphthalate.

Groundwater from monitoring well KBA-11-7 was reported to contain 94 μg/L of bis(2-ethylhexyl)phthalate. This compound was also detected in soil samples from the site, but was not detected in the soil sample collected from the boring for monitoring well KBA-11-7. There is no Primary Drinking Water Standard for bis(2-ethylhexyl)phthalate.

Phthalates are common sampling and laboratory contaminants easily introduced into sample material from plastic items such as gloves, tubing, and sample containers.

The presence of phthalates in groundwater samples is not necessarily attributed to the site, but there is likely an ample supply of plastic debris disposed in the former county landfill that could contribute phthalates to soil and/or groundwater. Due to their pervasive presence as sampling and laboratory artifact, it is unlikely that future evaluations of phthalates in environmental media at the site would provide conclusive data regarding their source.

4.2.3.3 **Pesticides, Herbicides, and PCBs in Groundwater** Ten groundwater samples, including one duplicate sample were analyzed for Appendix IX pesticides, herbicides, and PCBs. No pesticides, herbicides, or PCBs were detected in groundwater samples from Site 11.

4.2.3.4 **Dioxins and Furans in Groundwater** Ten groundwater samples, including one duplicate sample, were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in groundwater samples from Site 11.

4.2.3.5 **Inorganics in Groundwater** Ten groundwater samples, including one duplicate sample, were analyzed for Appendix IX inorganic constituents. Table 4-5 summarizes inorganic data from the analysis of groundwater samples from Site 11. Sixteen inorganic compounds were detected in groundwater samples collected from the site.

Concentrations of inorganics were compared to Federal Primary Drinking Water Standard MCLs to evaluate the site for adverse impact on groundwater quality. Monitoring wells KBA-11-1, KBA-11-7, KBA-11-8, and KBA-11-9 are upgradient of the disposal area based on groundwater level measurements collected to date. Laboratory data for these wells were used in evaluating downgradient groundwater for adverse affects attributed to waste disposal. Figure 4-13 shows analytical data for seven inorganics detected in groundwater in relation to Primary Drinking Water MCLs. Appendix E presents groundwater inorganic data in relation to Primary Drinking Water Standard MCLs in bar-chart form.

Groundwater samples from upgradient wells contained chromium at concentrations above its MCL of 100 μg/L. Chromium was detected in groundwater from upgradient monitoring wells KBA-11-7, KBA-11-8, and KBA-11-9 at concentrations ranging from 121 μg/L to 354 μg/L.

With the exception of monitoring well KBA-11-1, all monitoring wells contained concentrations of chromium above its MCL of 100 μg/L. Chromium concentrations in samples from downgradient monitoring wells were below the concentrations detected in samples from upgradient monitoring wells, the exception being chromium concentration in groundwater from monitoring well KBA-11-5. Groundwater from monitoring well KBA-11-5 was analyzed to contain 620 μg/L of chromium, which is significantly greater than that detected in samples from upgradient locations, and appears to be site-related.

Lead concentrations in samples from upgradient monitoring wells KBA-11-1, KBA-11-7, KBA-11-8, and KBA-11-9 ranged fron 12.6 μg/L to 20.4 μg/L and do not exceed the current Primary Drinking Water Standard MCL for lead of 50 μg/L. Samples from one downgradient monitoring well, KBA-11-5, contained lead at a concentration of 53.4 μg/L, which exceeds the current MCL for lead. Lead concentrations in samples from other downgradient monitoring wells were similar to lead concentrations in groundwater samples from upgradient monitoring wells.

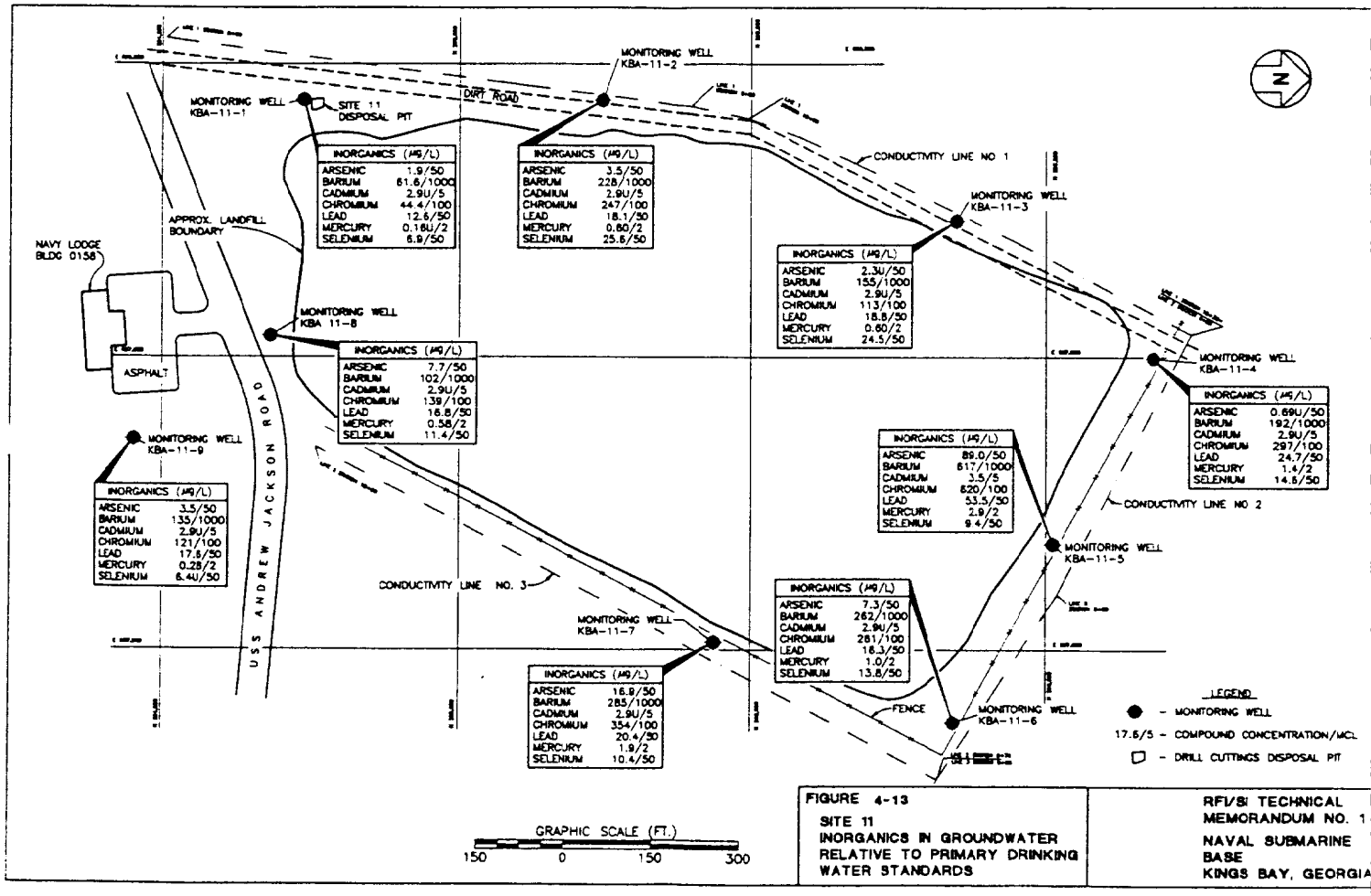

FIGURE 4-13
SITE 11
INORGANICS IN GROUNDWATER RELATIVE TO PRIMARY DRINKING WATER STANDARDS

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NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

The concentration of lead in groundwater samples from monitoring well KBA-11-5 appears to be indicative of a release from the disposal site.

On December 7, 1992, the MCL for lead will change to 15 μg/L. When lead concentrations from groundwater sample event No. 1 at Site 11 are compared to a concentration of 15 μg/L, samples from eight of nine monitoring wells exceed this value. The only groundwater sample that did not exceed 15 μg/L was collected from monitoring well KBA-11-1, which is upgradient of the disposal site.

Arsenic was reported at a concentration of 89.0 μg/L in groundwater from monitoring well KBA-11-5, which exceeds the Primary Drinking Water Standard MCL of 50 μg/L for arsenic. Concentrations of arsenic in samples from upgradient monitoring wells KBA-11-1, KBA-11-7, KBA-11-8, and KBA-11-9 ranged from 1.9 μg/L to 16.9 μg/L. Groundwater samples from downgradient monitoring wells, excluding monitoring well KBA-11-5, ranged from non-detect to 7.3 μg/L, which is below the concentration of arsenic detected in samples from upgradient locations.

Barium was detected in samples from all nine monitoring wells, but concentrations were below the Primary Drinking Water Standard MCL of 1000 μg/L for barium. Concentrations of barium in groundwater from upgradient monitoring wells ranged from 61.6 μg/L to 285 μg/L. With the exception of groundwater from monitoring well KBA-11-5, samples from downgradient monitoring wells were below the concentration detected in groundwater from the upgradient well KBA-11-7 (285 μg/L). Groundwater from monitoring well KBA-11-5 contained barium at a concentration of 617 μg/L, which is significantly greater than that detected in other monitoring wells.

Cadmium was detected in one groundwater sample from monitoring well KBA-11-5 at a concentration of 3.5 μg/L. This concentration is below the Primary Drinking Water Standard MCL of 5 μg/L. Groundwater from monitoring well KBA-11-5 consistently contains concentrations of inorganics elevated relative to samples from upgradient monitoring wells and other downgradient monitoring wells.

Mercury was detected in groundwater samples from three upgradient monitoring wells, KBA-11-7, KBA-11-8, and KBA-11-9, at concentrations ranging from 0.28 μg/L to 1.9 μg/L. The concentration of 1.9 μg/L of mercury detected in groundwater from upgradient monitoring well KBA-11-7 is very near the Primary Drinking Water Standard MCL of 2.0 μg/L for mercury. Concentrations of mercury detected in samples from downgradient monitoring wells ranged from 0.60 μg/L to 2.9 μg/L. The concentration of 2.9 μg/L of mercury is associated with groundwater from monitoring well KBA-11-5 and exceeds the Primary Drinking Water Standard MCL of 2.0 μg/L for mercury.

Selenium was detected in nine of ten groundwater samples collected from Site 11. Concentrations of selenium in samples from upgradient monitoring wells range from non-detect to 11.4 μg/L. Concentrations of selenium in samples from downgradient monitoring wells range from 9.4 μg/L to 26.0 μg/L. All concentrations of selenium are below the Primary Drinking Water Standard MCL of 50 μg/L for selenium.

Other inorganic analytes detected in groundwater from downgradient monitoring wells at concentrations above those in samples from upgradient monitoring wells include antimony, beryllium, cobalt, copper, nickel, vanadium, and zinc. These inorganics do not have Primary Drinking Water MCLs. The majority of inorganics present above concentrations in samples from upgradient monitoring wells are

associated with groundwater from monitoring wells KBA-11-4 and KBA-11-5. With few exceptions, the inorganics listed above are present at concentrations less than two times the concentration in upgradient groundwater. Exceptions include concentration of antimony in groundwater from monitoring well KBA-11-4, concentration of zinc in groundwater from monitoring well KBA-11-6, and concentrations of beryllium, cobalt, copper, nickel, vanadium, and zinc in groundwater from monitoring well KBA-11-5.

4.2.4 Summary Magnetometer survey data successfully identified the limits of the landfill and locations of fill cells at Site 11. Terrain conductivity data indicated elevated conductivity values on the western side of the landfill, which is hydraulically downgradient of the disposal area.

Subsurface soil samples collected from the site contained the VOCs acetone and xylene and two phthalate compounds, which are SVOCs. Acetone and phthalates in soil samples have been attributed to laboratory and sampling artifact. Xylene was detected in two soil samples at concentrations of 2 J μg/kg and 5 μg/kg. VOCs detected in groundwater include vinyl chloride, 1,2-dichloroethene, 4-methyl-2-pentanone, chlorobenzene, ethylbenzene, xylene, and 1,4-dichlorobenzene. Concentrations of VOCs detected in groundwater range from 1 J μg/L to 18 μg/L. Vinyl chloride concentration in one groundwater sample was 18 μg/L, which exceeds the Primary Drinking Water Standard MCL of 2 μg/L. No other organic compounds were present in groundwater samples at concentrations above applicable Primary Drinking Water Standard MCLs.

Concentrations of inorganics in soil samples collected from the site do not exceed reported natural ranges or background concentrations by significant amounts. Inorganic data for the subsurface soil samples do not indicate that the landfill has caused adjacent soils to be contaminated with inorganic compounds.

Chromium is present in groundwater upgradient of the site at concentrations above the Primary Drinking Water Standard MCL for this inorganic compound. Chromium and lead are present in groundwater downgradient of the site at concentrations above the MCL. Only one downgradient groundwater sample, from monitoring well KBA-11-5, contained chromium and lead above the concentrations detected in upgradient groundwater. Groundwater from this monitoring well also contained arsenic and mercury at concentrations above Primary Drinking Water Standard MCLs, and contained beryllium, cobalt, copper, nickel, vanadium, and zinc at concentrations greater than two times that detected in groundwater from upgradient monitoring wells. This suggests that inorganics are being contributed to groundwater from wastes disposed at the site.

4.3 SITE 16, ARMY RESERVE DISPOSAL AREA, MOTOR MISSILE MAGAZINES. RFI/SI activities at Site 16 included a terrain conductivity survey, collection of four subsurface soil samples, installation of four groundwater monitoring wells, and collection of groundwater samples from the four monitoring wells.

4.3.1 Geophysical Survey A terrain conductivity survey was conducted at Site 16 for purposes of attempting to locate a plume of conductive groundwater emanating from the alleged landfill area. A magnetometer survey was not conducted due to the nature of current site conditions. At present, the site is the location of construction of motor missile magazines. It was also reported that this area was covered with approximately 20 feet of fill prior to construction of the facility.

Two terrain conductivity profiles were conducted in a downgradient location of the alleged landfill area (Figure 2-3). Profiling was conducted north of the site in an attempt to determine if any highly conductive areas could be delineated which may suggest the presence of potentially contaminated groundwater.

Figure 4-14 and 4-15 show the results of the terrain conductivity profiles. Elevated conductivity values were measured in the first 200 feet of each traverse. Rip rap, assorted construction debris, and a culvert were observed protruding from the side of the embankment adjacent to the profile lines along the first 200 feet. Elevated conductivity values are most likely due to the presence of these materials.

4.3.2 Subsurface Soil The following subsections discuss the results of laboratory analysis of four subsurface soil samples collected from Site 16. The subsurface soil samples were collected from borings installed for construction of groundwater monitoring wells. Figure 2-6 shows location for the subsurface soil samples.

4.3.2.1 Volatile Organic Compounds in Subsurface Soil Subsurface soil samples were analyzed for Appendix IX VOCs by CH2M HILL Laboratories. Table 4-6 summarizes results of VOC analysis of subsurface soil samples collected from Site 16. VOCs detected in subsurface soil samples include acetone, carbon disulfide, 2-butanone, toluene, and xylene. Acetone is a common laboratory solvent detected in all four subsurface soil samples collected from the site. Acetone was qualified as undetected in two of the samples because of the concentration of acetone detected in an associated method blank (10 μg/L). The concentration of acetone reported for samples 16-SB-02 (51 μg/kg) and 16-SB-04 (110 μg/kg) were more than 10 times the concentration of acetone detected in associated method blanks and were not qualified. Soil sample 16-SB-04 is from a location upgradient of the site based on groundwater level measurements collected to date. The concentration of 110 μg/kg of acetone reported for sample 16-SB-04 is only slightly more than 10 times the concentration of 10 μg/L in the associated method blank. Although the reported concentrations of acetone in samples 16-SB-02 and 16-SB-04 cannot be directly attributed to laboratory contamination based on USEPA functional guidelines for assessing organic data, the absence of acetone in groundwater samples from the site suggest that detection of acetone in the soil samples is laboratory artifact. The soil samples were collected from the boring immediately above the water table. Acetone is highly water soluble and if it is present in soil at the water table it should be present in groundwater. Acetone is not considered to be a site-related VOC.

Carbon disulfide is a compound used in curing rubber that was detected in one subsurface soil sample, 16-SB-02, at a concentration of 2 J μg/kg, which is below the CRQL of 5 μg/kg for this VOC. No other soil or groundwater samples from the site were found to contain carbon disulfide. Its presence in one subsurface soil sample from the site may be related to past fill operations that involved the use of rubber-tire vehicles, or may be naturally occurring.

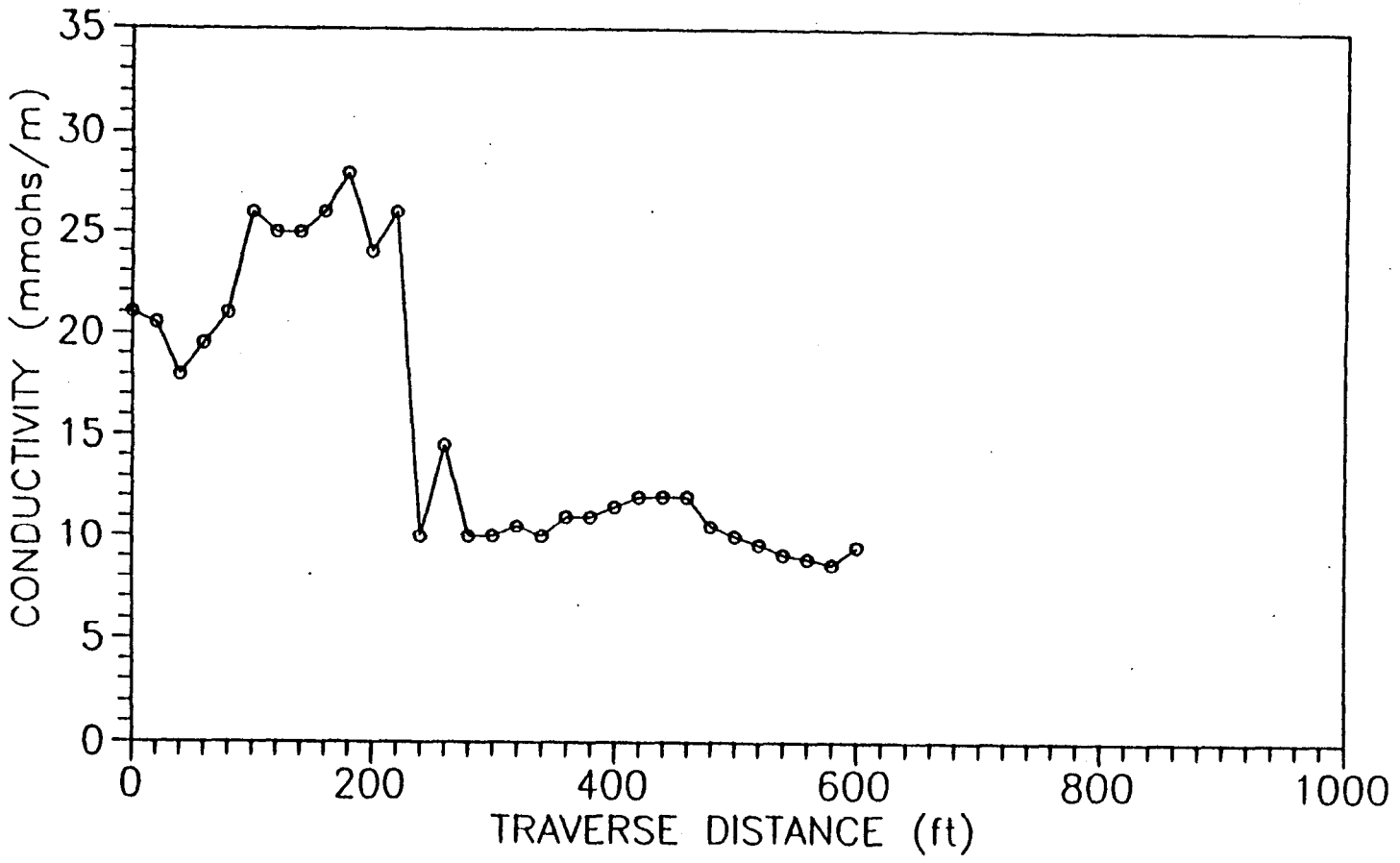

FIGURE 4-14

SITE 16
TERRAIN CONDUCTIVITY
PROFILE, LINE 1

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NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

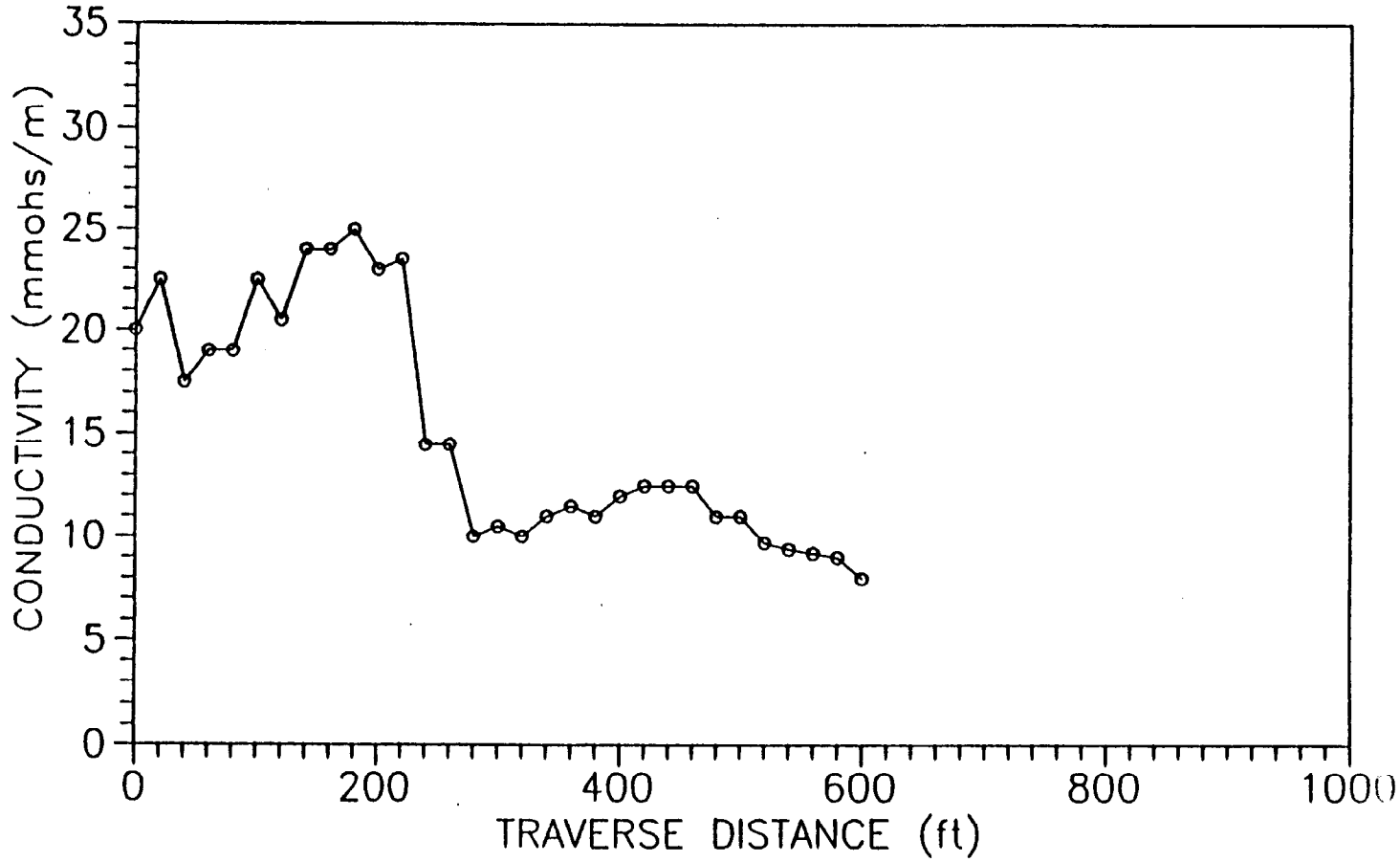


FIGURE 4-15

SITE 16
TERRAIN CONDUCTIVITY
PROFILE, LINE 2

RFI/SI TECHNICAL
MEMORANDUM NO. 1

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

Table 4-6
Summary of Laboratory Analysis of Subsurface Soil Samples Collected from Site 16[1]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Compounds Detected	16-	CRQL	SB-01 8-10'	SB-02 10-12'	SB-03 8-10'	SB-04 8-10'
APPENDIX IX VOCs (μg/kg)						
Acetone		10	63 U	51	87 U	110
Carbon Disulfide[2]		5	6 U	2 J	6 U	6 U
2-Butanone		10	11 U	11 U	12 U	10
Toluene[2]		5	6 U	6 U	6 U	1 J
Xylene (total)[2]		5	3 J	2 J	4 J	9
APPENDIX IX SVOCs (μg/kg)						
Acenaphthene[2]		330	360 U	99 J	370 U	350 U
Fluorene[2]		330	360 U	61 J	370 U	350 U
Phenanthrene[2]		330	360 U	130 J	370 U	350 U
Fluoranthene		330	360 U	1000	370 U	350 U
Pyrene		330	360 U	1700	370 U	350 U
Benzo(a)Anthracene		330	360 U	390	370 U	350 U
Chrysene		330	360 U	600	370 U	350 U
bis(2-Ethylhexyl)Phthalate		330	390	520	630 U	1100 U
Benzo(b)Fluoranthene[2]		330	360 U	310 J	370 U	350 U
Benzo(k)Fluoranthene[2]		330	360 U	280 J	370 U	350 U
Benzo(a)Pyrene[2]		330	360 U	170 J	370 U	350 U
APPENDIX IX Pesticides/PCBs (μg/kg)						
4,4'-DDD[2]		3.3	0.9 U	0.9 U	1 J	0.9 U
APPENDIX IX Inorganics (mg/kg)						
Arsenic[1]		2	0.34 J	0.28 J	0.26 J	0.16 J
Barium[2]		40	3.9 J	6.4 J	5.1 J	2.1 J
Chromium[1]		2	4.6 J	12.2	1540	4.9
Copper[1]		5	2.4 J	2.3 J	2.4 J	1.8 J
Lead		0.6	3.9	3.4	2.5	1.5

Table 4-6 Summary of Laboratory Analysis of Subsurface Soil Samples Collected from Site 16[1] RFI/SI Technical Memorandum No. 1 NSB Kings Bay					
Nickel[2]	8	1.5 U	3.0 J	1.5 U	1.5 U
Vanadium[2]	10	2.3 J	1.8 J	2.4 J	1.5 J
Zinc[2]	4	1.8 J	3.9 U	3.4 J	0.68 J
Sulfide	4000	4600 U	18300	4700 U	9200

Notes:
CRQL = Contract Required Quantitation Limit
U = not detected above or below CRQL
[1] No Appendix IX PCBs, herbicides, or dioxins/furans were detected in soil samples.

Data Qualifiers

[2] Value(s) flagged J as estimated because concentrations are less than the CRQL.
[3] Value flagged J as estimated because corresponding preparation blank exibited negative bias for chromium.

2-Butanone is a common laboratory solvent detected in one subsurface soil sample, 16-SB-04, at a concentration of 10 μg/kg. Subsurface soil sample 16-SB-04 is from a location upgradient of the suspected disposal area. This VOC was not detected in other soil samples or groundwater samples collected from the site. 2-Butanone was not detected in method blanks or other QA/QC samples associated with the RFI/SI. This VOC is highly water soluble and should be in groundwater from the monitoring well associated with the boring from which the soil sample was collected. 2-Butanone is not considered a site-related contaminant.

Toluene and xylene are fuel-related VOCs detected in subsurface soil samples from Site 16. Toluene is also a common laboratory solvent. Toluene was detected in one subsurface soil sample, 16-SB-04, at a concentration of 1 J μg/kg. This concentration is below the CRQL of 5 μg/kg and approximately equal to the instrument detection limit for toluene. The boring from which soil sample 16-SB-04 was collected is upgradient of the suspected disposal area based on groundwater level measurements obtained to date.

Xylene was detected in all four subsurface soil samples at concentrations ranging from 2 J μg/kg to 9 μg/kg. The highest concentration is associated with sample 16-SB-04, which was collected from a location upgradient of the suspected disposal area. Xylene was also detected in one groundwater sample from a downgradient monitoring well. While the detection of xylene in soil and groundwater samples is considered representative of the sample media, xylene is not considered to be solely related to disposal of material at the site because it is present in media upgradient of the suspected disposal area.

4.3.2.2 **Semivolatile Organic Compounds in Subsurface Soil** Subsurface soil samples were analyzed for Appendix IX SVOCs by CH2M HILL Laboratories. Table 4-6 summarizes results of SVOC analysis of subsurface soil samples collected from Site 16. SVOCs were detected in one subsurface soil sample from the site and include PAHs and a phthalate compound.

PAHs are produced from incomplete combustion of fossil fuels and other organic materials, including plant debris. PAHs were detected in one subsurface soil sample and include acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene. Concentrations of PAHs range from 61 J μg/kg to 1700 μg/kg. The majority of concentrations of PAHs are below their CRQL of 330 μg/kg. None of the PAHs were detected in groundwater from the site. PAHs are produced by incomplete combustion of fossil fuels and organic matter. Wood debris was reportedly burned at the site and the presence of PAHs in subsurface soil from boring 16-SB-02 is attributed to this activity.

Bis(2-ethylhexyl)phthalate was detected in two subsurface soil samples, 16-SB-02 and 16-SB-01 at concentrations of 520 μg/kg and 390 μg/kg, respectively. This SVOC was not detected in the method blank associated with the soil sample, but was detected in other method blanks associated with the RFI/SI analyses at concentrations as much as 200 μg/L. This suggest it is possible that the presence of this phthalate in environmental media could be laboratory artifact. Most likely, its presence in soil samples is caused by both laboratory and sampling contamination. Phthalates are easily introduced into sample media by plastic items such as gloves, tubing, or sample containers.

4.3.2.3 **Pesticides, Herbicides, and PCBs in Subsurface Soil** Four subsurface soil samples were analyzed for Appendix IX pesticides, herbicides, and PCBs by CH2M HILL Laboratories. One pesticide compound was detected in a subsurface soil sample from Site 16. 4,4'-DDD was detected at a concentration of 1 J µg/kg in subsurface soil sample 16-SB-03. No other soil or groundwater samples from the site were found to contain pesticides, herbicides, or PCBs. The detection of 1 J µg/kg of 4,4'-DDD in one sample does not indicate significant impact of environmental media by past activities at the site. The low level of 4,4'-DDD is likely related to the past use of DDT in controlling pests prior to its being banded. 4,4'-DDD is a transformation product of DDT.

4.3.2.4 **Dioxins and Furans in Subsurface Soil** Four subsurface soil samples were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in soil samples from Site 16.

4.3.2.5 **Inorganics in Subsurface Soil** Four subsurface soil samples from Site 16 were analyzed for Appendix IX inorganic constituents. Inorganic compounds detected in subsurface soil samples from the site include arsenic, barium, chromium, copper, lead, nickel, vanadium, zinc, and sulfide (Table 4-6).

The concentrations of inorganics detected in subsurface soil samples were compared to reported naturally occurring concentrations from soils over limestone and calcareous rocks presented in Table 4-2 (Kabata-Pendias and Pendias, 1984). With the exception of chromium, none of the concentrations of metals detected in the subsurface soil samples exceeded reported natural ranges, and all were below mean concentrations for corresponding compounds.

Chromium was detected in all four subsurface soil samples, but one soil sample was found to contain a high level of chromium relative to other on-site soil samples and relative to reported natural range of chromium in soil. Subsurface soil sample 16-SB-03 contained chromium at a concentration of 1540 mg/kg. Other soil samples collected from the site contained chromium at concentrations ranging from 4.6 J mg/kg to 12.2 mg/kg. Chromium was also detected in two groundwater samples at relatively high concentrations. The concentrations of chromium in soil and groundwater samples from the site suggest that chromium is site-related.

Sulfide data is not reported by Kabata-Pendias and Pendias. Sulfide concentrations in the four subsurface soil samples range from non-detect to 18,300 mg/kg. This level of sulfide is considered to be representative of uncontaminated marsh deposits used as fill at the site.

<u>4.3.3 Groundwater</u> Four groundwater monitoring wells were installed at Site 16 during February 1992. On February 25 and 26, 1992, groundwater level measurements were collected from monitoring well KBA-16-1 over a period of 24 hours. High tides occurred at approximately 3:43 a.m. and 3:56 p.m. on February 26,1992. Low tides occurred at approximately 9:13 p.m. on February 25, 1992, and 10:11 a.m. on February 26, 1992. Height of tides was approximately 6 feet. This information was obtained from tide tables available at local establishments in Kingsland and St. Marys, Georgia. Times for high and low tides reported above have been corrected for delays associated with distance from the outer bar where tides are calculated to the entrance of the Crooked River, which is approximately 3.5 miles northeast of the site. Appendix D contains a graph of water levels versus time for monitoring well KBA-16-1 at Site 16. This monitoring well was selected because it is on the site boundary adjacent to the nearest surface water

body influenced by tides. Variations in water levels during the 24-hour period were limited to approximately 0.086 inch. Based on these data there is no significant tidal influence on groundwater levels at Site 16. A cyclic pattern was observed over the 24-hour period, however, the magnitude of change in water levels was small relative to the height of tides.

Figure 4-16 is a groundwater potentiometric surface map prepared from water level measurements collected on February 22, 1992. The potentiometric surface map indicates that groundwater flow is towards to north-northeast. Monitoring well KBA-16-4 is upgradient of the disposal site and should produce groundwater samples unaffected by waste disposal. More groundwater data will become available as a result of upcoming sample events and the status of monitoring well KBA-16-4 as an upgradient well will be monitored.

Slug tests were performed on each of the four monitoring wells insatlled at Site 16. Slug test data were analyzed using AQTESOLV™ software. Hydraulic conductivity estimates were calculated according to methods presented by Bower and Rice (1976) for unconfined aquifers. Hydraulic conductivities were consistent for the wells, ranging from 1.1×10^{-3} ft/min to 1.8×10^{-3} ft/min.

Field parameters of pH and specific conductance were measured on February 22, 1992. Temperature measurements were not obtained because the thermometer was accidentally broken. Values for pH ranged from 4.74 s.u. at monitoring well KBA-16-1 to 5.71 s.u. at monitoring well KBA-16-2. Specific conductance values ranged from 130 umhos/cm at monitoring well KBA-16-3 to 790 umhos/cm monitoring wells KBA-16-1 and KBA-16-4.

The first of six groundwater sample events took place in February 1992. Four groundwater samples were collected and submitted to CH2M HILL Laboratories for analysis of Appendix IX parameters. Figure 2-6 shows locations of the four monitoring wells. The following subsections discuss the results of laboratory analysis of groundwater samples collected from Site 16.

4.3.3.1 **Volatile Organic Compounds in Groundwater** Table 4-7 summarizes results of VOC analysis of groundwater samples collected from the site. VOCs detected include 4-methyl-2-pentanone, ethylbenzene, and xylene.

4-Methyl-2-pentanone is a non-chlorinated solvent used in paints and varnishes. This VOC was detected in one groundwater sample collected from monitoring well KBA-16-3 at a concentration of 3 J μg/L. This concentration is below the CRQL of 10 μg/L for 4-methyl-2-pentanone. This VOC was not detected in other groundwater or soil samples collected from the site. The presence of 4-methyl-2-pentanone in groundwater may be associated with paint cans reportedly disposed at the site.

Ethylbenzene and xylene are fuel-related VOCs detected in groundwater and soil samples from the site. Xylene is also a component in paint. Ethylbenzene and xylene were detected in one groundwater sample collected from monitoring well KBA-16-2 at a concentrations of 2 J μg/L and 3 J μg/L, respectively. These concentrations are well below the Primary Drinking Water Standard MCLs of 700 μg/L for ethylbenzene and 10,000 μg/L for xylene. No other soil or groundwater samples from the site contained ethylbenzene. Xylene was detected in all subsurface soil samples collected from the site. While the detection of xylene

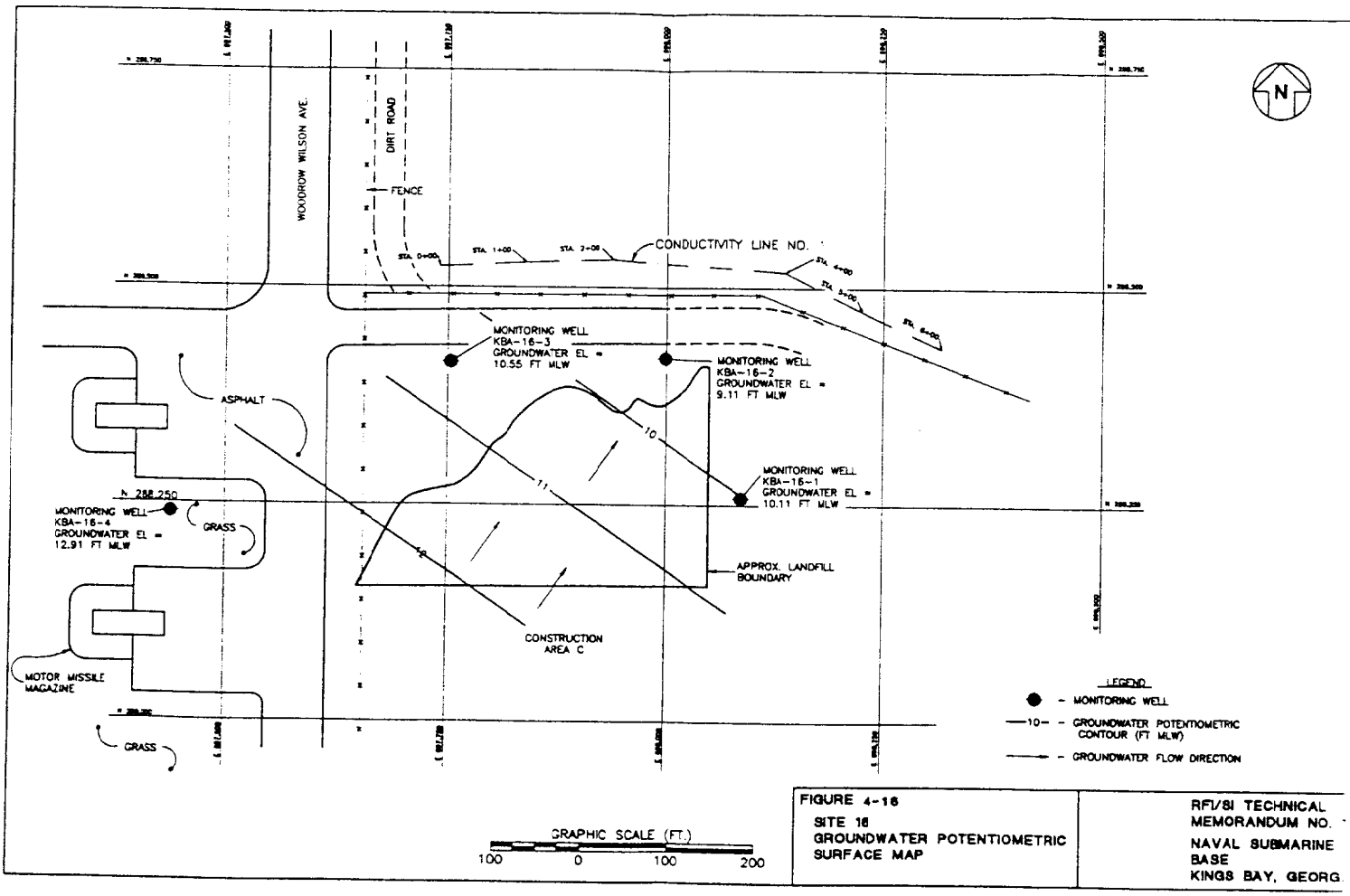


FIGURE 4-16
SITE 16
GROUNDWATER POTENTIOMETRIC
SURFACE MAP

RFI/SI TECHNICAL
MEMORANDUM NO.
NAVAL SUBMARINE
BASE
KINGS BAY, GEORG

Table 4-7
Summary of Laboratory Analysis of Groundwater Samples Collected from Site 16[1]

RFI/SI Technical Memorandum No. 1
NSB Kings Bay

Compounds Detected	Monitoring Well Number				
	CRQL	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4
APPENDIX IX VOCs (μg/L)					
4-Methyl-2-Pentanone[2]	10	10 U	3 J	10 U	10 U
Ethylbenzene[2]	5	5 U	2 J	5 U	5 U
Xylene (total)[2]	5	5 U	3 J	5 U	5 U
APPENDIX IX Inorganics (μg/L)					
Antimony[2]	60	18.5 J	13.3 J	11.4 J	10.9 U
Arsenic[2]	10	29.9	19.3	25.8	4.9 J
Barium[2]	200	171 J	478	519	386
Beryllium[2]	5	2.5 J	6.2	13.1	2.4 J
Chromium	10	84.6	256	194	34.0
Cobalt[2]	50	11.6 J	74.4	29.1 J	3.6 U
Lead	5	14.8 J	36.3 J	19.9 J	12.0 J
Mercury	0.2	0.16 U	0.60	0.82	0.16 U
Nickel	40	27.0 J	132	54.7	10.5 U
Selenium	5	3.2 J	8.0	1.3 U	2.3 J
Thallium	10	17.3 J	1.9 J	1.7 UJ	1.7 U
Vanadium	50	119	257	175	29.8 J
Zinc	20	50.0 U	297	182	43.6 U
Cyanide	10	3.4 J	2.6 J	1.9 J	1.8 U
Sulfide	100	400	1800	200	300

Notes:
CRQL = Contract Required Quantitation Limit

U = not detected above or below CRQL

[1] No Appendix IX semivolatile compounds, pesticides, PCBs, herbicides, or dioxins/furans were detected in groundwater samples.

Data Qualifiers
[2] Value(s) flagged J as estimated because concentrations are less than the CRQL.
[3] Values flagged J as estimated because matrix spike recovery for lead was below QC limits.

in soil and groundwater samples is considered representative of the sample media, xylene is not considered to be solely related to disposal of material at the site because it is present in subsurface soil upgradient of the disposal area.

4.3.3.2 **Semivolatile Organic Compounds in Groundwater** Four groundwater samples were analyzed for Appendix IX SVOCs. No SVOCs were detected in groundwater samples collected from Site 16.

4.3.3.3 **Pesticides, Herbicides, and PCBs in Groundwater** Four groundwater samples were analyzed for Appendix IX pesticides, herbicides, and PCBs. No pesticides, herbicides, or PCBs were detected in groundwater samples collected from Site 16.

4.3.3.3 **Dioxins and Furans in Groundwater** Four groundwater samples were analyzed for Appendix IX dioxins and furans. No dioxins or furans were detected in groundwater samples collected from Site 16.

4.3.3.4 **Inorganics in Groundwater** Four groundwater samples were analyzed for Appendix IX inorganic constituents. Table 4-7 summarizes inorganic data from the analysis of groundwater samples collected from Site 16. Fifteen inorganic compounds were detected in groundwater samples.

Concentrations of inorganics were compared to Federal Primary Drinking Water Standard MCLs to evaluate the site for adverse impact on groundwater quality. Monitoring well KBA-16-4 is located upgradient of the disposal site based on groundwater level measurements obtained to date. Laboratory data for this well was used in evaluating downgradient groundwater for adverse affects attributed to waste disposal. Figure 4-17 shows analytical data for six inorganics detected in groundwater in relation to Primary Drinking Water Standard MCLs. Appendix E presents groundwater inorganic data in relation to Primary Drinking Water Standard MCLs in bar-chart form.

Of the fifteen inorganics detected in groundwater from Site 16, six have Primary Drinking Water Standard MCLs, including arsenic, barium, chromium, lead, mercury, and selenium. Groundwater from the upgradient monitoring well, KBA-16-4, contained lead at a concentration of 12.0 μg/L, which exceeds the MCL of 5 μg/L for lead. No other MCLs were exceeded in groundwater from the upgradient monitoring well.

The concentrations of lead in samples from monitoring wells KBA-16-1 and KBA-16-3 were 14.8 μg/L and 19.9 μg/L, respectively, which are not significantly higher than the concentration detected in the groundwater from the upgradient monitoring well, KBA-16-4 (12.0 μg/L). Groundwater from monitoring well KBA-16-2 contained lead at a concentration of 36.3 μg/L, which is relatively high compared to the concentrations of lead detected in the other wells at the site. The current MCL for lead is 50 μg/L and was not exceeded in groundwater samples from Site 16. On December 7, 1992, the MCL for lead will change to 15 μg/L. Groundwater samples from downgradient monitoring wells KBA-11-2 and KBA-11-3 contained lead at concentrations greater than 15 μg/L. The concentration of lead of 14.8 μg/L in samples from downgradient monitoring well KBA-11-1 is very near the future MCL of 15 μg/L. Groundwater samples from the upgradient monitoring well, KBA-16-4, contained lead at 12 μg/L.

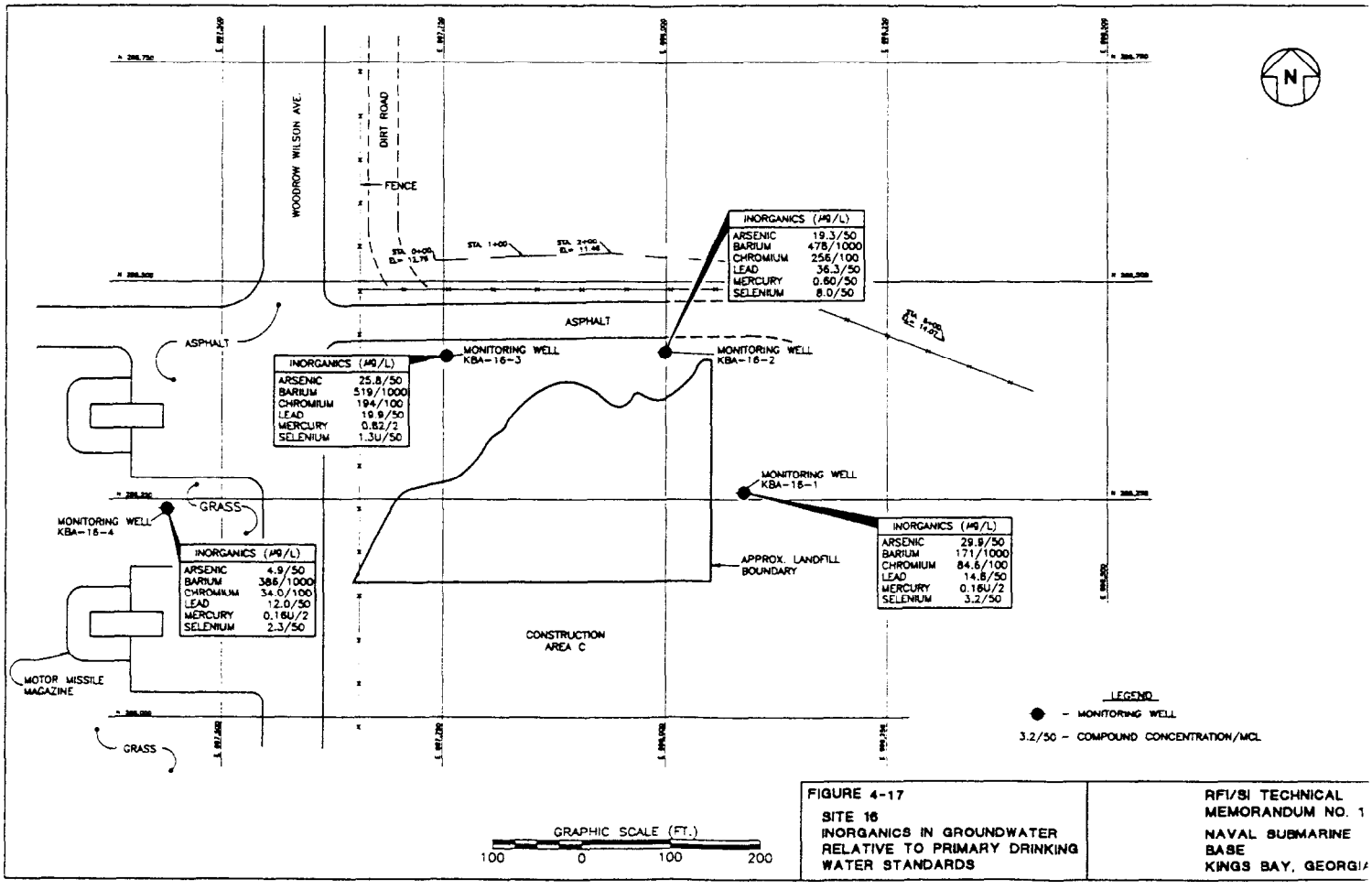


FIGURE 4-17
SITE 16
INORGANICS IN GROUNDWATER RELATIVE TO PRIMARY DRINKING WATER STANDARDS

RFI/SI TECHNICAL MEMORANDUM NO. 1
NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

The only other inorganic present at concentrations above Primary Drinking Water Standard MCLs is chromium. Groundwater samples from monitoring wells KBA-16-2 and KBA-16-3 contained chromium at concentrations of 256 μg/L and 194 μg/L, respectively. The Primary Drinking Water Standard MCL for chromium is 100 μg/L. Chromium concentration in groundwater from monitoring well KBA-16-1 was 84.6 μg/L, which is near the MCL of 100 μg/L. The lowest concentration of chromium was found in groundwater from the upgradient monitoring well, KBA-16-4. Chromium was also detected in subsurface soil samples from the site, and one subsurface soil sample contained a high level of chromium relative to other soil samples. These data suggest that waste disposed at the site are a source for chromium.

Arsenic was detected in groundwater from the site at concentrations ranging from 4.9 μg/L at monitoring well KBA-16-4 to 29.9 μg/L at monitoring well KBA-16-1. None of the groundwater samples contained arsenic above its MCL of 50 μg/L. The three downgradient wells produced groundwater samples with arsenic concentrations approximately five times or more greater than the concentration detected in groundwater from the upgradient well, which suggest the waste disposed is a source of arsenic.

Barium was detected in all four groundwater samples collected from the site at concentrations ranging from 171 μg/L at monitoring well KBA-16-1 to 519 μg/L at monitoring well KBA-16-3. None of the groundwater samples contained barium above its MCL of 1000 μg/L. Concentrations of barium detected in groundwater samples from downgradient wells are comparable to the concentration of barium detected in groundwater from the upgradient well and it does not appear that the waste disposed are a source of barium.

Mercury was detected in two groundwater samples from downgradient monitoring wells KBA-16-2 and KBA-16-3 at concentrations of 0.60 μg/L and 0.82 μg/L, respectively. These concentrations are below the Primary Drinking Water Standard MCL of 2 μg/L for mercury. Mercury was not detected in groundwater from the upgradient monitoring well, KBA-16-4, or from downgradient monitoring well KBA-16-1. These data do not readily indicate that the wastes disposed are contributing mercury. However, statistical analysis following the completion of six groundwater sample events may reveal statistically significant differences between mercury concentrations in upgradient and downgradient groundwater, if mercury continues to be present at detectable concentrations only in downgradient groundwater samples.

Selenium was detected in three groundwater samples from the site at concentrations ranging from 2.3 μg/L at monitoring well KBA-16-4 to 8.0 μg/L at monitoring well KBA-16-2. These concentrations are well below the Primary Drinking Water Standard MCL of 50 μg/L. The data do not suggest that the site is contributing selenium to groundwater.

Other inorganic analytes detected in groundwater from downgradient locations at concentrations above those in samples from the upgradient monitoring well include antimony, beryllium, cobalt, nickel, thallium, vanadium, zinc, cyanide, and sulfide. These inorganics do not have Primary Drinking Water Standard MCLs. Antimony, cobalt, nickel, thallium, zinc and cyanide were not detected in groundwater from the upgradient monitoring well. Antimony concentrations in downgradient wells ranged from 11.4 μg/L to 18.5 μg/L. These concentrations are not significantly greater than the reported instrument detection limit of 10.9 μg/L for antimony. Similarly, the concentrations of cyanide detected in samples from downgradient monitoring wells range from 1.9 μg/L to 3.4 μg/L and are near

the reported instrument detection limit of 1.8 μg/L for cyanide. If these inorganics continue to be present at detectable concentrations only in downgradient groundwater samples, statistical analysis following completion of six sample events may reveal statistically significant differences between concentrations in downgradient groundwater and samples from the upgradient monitoring well.

Beryllium, cobalt, thallium, and zinc are present in one or more downgradient groundwater samples at concentrations well above the reported instrument detection limit. Several of the inorganics listed above are present in downgradient groundwater samples at concentrations greater than two times the concentration detected in groundwater from the upgradient monitoring well, including beryllium, vanadium, zinc and sulfide.

Inorganic analytes should continue to be evaluated during upcoming groundwater sample events at Site 16.

4.3.4 Summary The terrain conductivity survey conducted at Site 16 did not reveal anomalous conductivity values attributable to possible groundwater contamination.

VOCs detected in subsurface soil samples collected from Site 16 include acetone, carbon disulfide, 2-butanone, toluene, and xylene. Concentrations of VOCs in soil samples ranged from 2 J μg/kg to 110 μg/kg (acetone). Excluding acetone, the maximum concentration of a VOC was 10 μg/kg, reported for 2-butanone in one soil sample. One of the VOCs detected in soil samples, xylene, was identified in groundwater samples from the site. VOCs in groundwater that are potentially site-related include 4-methyl-2-pentanone, ethylbenzene and xylene. Both 2-butanone and 4-methyl-2-pentanone are common laboratory chemicals. Further groundwater monitoring is necessary to evaluate any significant ketone release.

PAHs were detected in one subsurface soil sample at concentrations ranging from 61 J μg/kg to 1700 μg/kg. No PAHs were detected in groundwater from the monitoring well associated with the boring from which the aforementioned soil sample was collected.

One pesticide compound was detected in a subsurface soil sample at a concentration of 1 J μg/kg. The presence of 4,4'-DDD in one soil sample at low concentration is not considered to be related to waste disposal, but is attributed to incidental deposition due to past use of pesticides at the facility and subsequent mixing of soil during fill operations at the site. 4,4'-DDD is a degradation product of DDT. No pesticides were detected in groundwater samples from the site.

One inorganic compound, chromium, was identified as a potential site-related contaminant in subsurface soil. The level of chromium in one soil sample, 1540 mg/kg, exceeds the reported natural range of chromium in soil and is significantly higher than the level of chromium in other soil samples from the site. Chromium was also detected in groundwater samples from the site at concentrations indicative of impact from wastes. Concentrations of chromium in groundwater ranged from 34.0 μg/L to 256 μg/L.

Lead concentrations in groundwater samples range from 12.0 μg/L in groundwater from the upgradient well to 36.3 μg/L in groundwater from a downgradient well.

The present Primary Drinking Water Standard MCL for lead, 50 $\mu g/L$, was not exceeded in groundwater samples; however, the MCL for lead will change to 15 $\mu g/L$ on December 7, 1992. Lead was not identified as a site-related contaminant in soil at the site. No other Primary Drinking Water Standard MCLs were exceeded in groundwater from the site.

Other inorganic analytes detected in groundwater from downgradient locations at concentrations above those in samples from the upgradient monitoring well include antimony, beryllium, cobalt, nickel, thallium, vanadium, zinc, cyanide, and sulfide. These inorganics do not have Primary Drinking Water Standard MCLs. Several of the inorganics listed above are present in downgradient groundwater samples at concentrations greater than two times the concentration detected in groundwater from the upgradient monitoring well, including beryllium, vanadium, zinc, and sulfide. The concentrations of these inorganics may reflect release of inorganic chemicals from wastes disposed at the site.

5.0 RECOMMENDATIONS

The following recommendations are made based on evaluation of laboratory analytical data obtained from the first groundwater sample event at the three sites investigated during the RFI/SI at NSB Kings Bay. The recommendations concern deletion of parameters from the analyte list for groundwater sample events No. 3 through No. 6. Analytical results from groundwater sample event No. 2 will be used to confirm conclusions drawn from the data presented herein, thereby supporting the recommendation to delete a certain parameter, or providing cause to continue monitoring for a parameter detected in the second round of samples but not in the first.

5.1 SITE 5, ARMY RESERVE DISPOSAL AREA, TOWHEE TRAIL. VOCs should continue to be monitored in groundwater at Site 5. Several VOCs, including carbon disulfide, trichlorofluoromethane, 4-methyl-2-pentanone, ethylbenzene, and xylene have been detected in groundwater from the site.

No SVOCs were detected in groundwater from the site. The SVOCs naphthalene and methylphenol were detected in surface soil samples from the site. Bis(2-ethylhexyl)phthalate and benzoic acid were detected in both surface soil and subsurface soil samples from the site. The detection of these SVOCs in soil was limited to two surface soil samples and one subsurface soil sample, with the exception of bis(2-ethylhexyl)phthalate which was present in all soil samples. Benzoic acid is likely a naturally occurring organic acid. Naphthalene and methylphenol concentrations in the surface soil sample were 82 J ug/kg and 44 J ug/kg. These compounds are fairly insoluble in water and are unlikely to migrate in groundwater. If the SVOC results from groundwater sample event No. 2 confirm the absence of site-related SVOCs in groundwater, then SVOCs should be deleted from the monitoring list for future sample events.

No pesticides, herbicides, PCBs, dioxins or furans were detected in groundwater from the site. One pesticide compound, 4,4'-DDE, and one PCB compound, Aroclor 1260, were detected in one surface soil sample at concentrations of 0.7 J ug/kg and 53 ug/kg, respectively. These compounds were not identified in subsurface soil from the site. The presence of 4,4'-DDE in surface soil has been attributed to incidental deposition from past use of pesticides at the facility and is not considered related to disposal activities at the site. The presence of one PCB compound at a concentration of 53 μg/kg in one surface soil sample may be evidence for disposal of PCB contaminated material. PCBs are highly insoluble in water and unlikely to migrate to groundwater. It is recommended that pesticides, herbicides, dioxins and furans be deleted from the monitoring list for future sample events if results of the second sample event confirm conclusions drawn from the data presented herein. PCBs should continue to be monitored in groundwater and additional soil sampling should be considered to evaluate the site for potential higher concentrations of PCBs in soil.

Inorganic compounds should continue to be monitored during future groundwater sample events. Chromium has been identified at concentrations above its Primary Drinking Water Standard MCL in both upgradient and downgradient groundwater samples. Arsenic was detected in upgradient groundwater at a concentration above its Primary Drinking Water Standard MCL. Cadmium, in addition to chromium was found in downgradient groundwater samples at concentrations above its Primary Drinking Water Standard MCL. Several inorganics were detected in downgradient

samples above corresponding concentrations in upgradient groundwater. Additional data are needed to evaluate whether or not downgradient groundwater contains significantly higher levels of certain inorganic analytes.

Total dissolved solids (TDS) and total suspended solids (TSS) should be added to the list of monitoring parameters. Also, filtered and non-filtered groundwater samples should be collected and submitted for analysis of Appendix IX inorganics. These data will be used to evaluate whether suspended soil particles are contributing to concentrations of inorganics reported for the groundwater samples.

5.2 SITE 11, OLD CAMDEN COUNTY LANDFILL. Several VOCs were detected in groundwater samples collected from Site 11 during the first groundwater sample event, including vinyl chloride, 1,2-dichloroethene, 4-methyl-2-pentanone, chlorobenzene, ethylbenzene, xylene, and 1,4-dichlorobenzene. Xylene is the only site-related VOC detected in subsurface soil samples. VOCs should remain on the monitoring list for Site 11.

The only site-related SVOC detected in groundwater from the site is 1,4-dichlorobenzene, which was also analyzed as a VOC. Since this compound can be monitored as a VOC, and no other site-related SVOCs were detected in subsurface soil samples or groundwater samples, it is recommended that SVOCs be deleted from the monitoring list for upcoming groundwater sample events.

Chromium was identified in groundwater samples from upgradient monitoring wells at concentrations above its Primary Drinking Water Standard MCL. Samples from one downgradient well contained chromium at a concentration above that detected in upgradient groundwater. Samples from the same downgradient monitoring well contained several other inorganics at concentrations greater than two times the concentration detected in upgradient groundwater samples and contained lead at a concentration above its present MCL. All monitoring wells should continue to be monitored for inorganic analytes.

TDS and TSS should be added to the list of monitoring parameters. Also, filtered and non-filtered groundwater samples should be collected and submitted for analysis of Appendix IX inorganics. These data will be used to evaluate whether suspended soil particles are contributing to concentrations of inorganics reported for the groundwater samples.

5.3 SITE 16, ARMY RESERVE DISPOSAL AREA, MOTOR MISSILE MAGAZINES. VOCs detected in groundwater from Site 16 that are potentially site-related include 4-methyl-2-pentanone, ethylbenzene, and xylene. Other VOCs were detected in soil samples, as was xylene. VOCs should continue to be monitored during future groundwater sample events.

One soil sample contained 10 PAHs, which are included in the base/neutral fraction of SVOCs. No site-related SVOCs were detected in groundwater from the site. The occurrence of PAHs in soil is considered incidential to burning of wood and plant debris. However, it is recommended that groundwater samples from future sampling events be analyzed for the base/neutral fraction SVOCs. Analysis of the acid extractable fraction of SVOCs should be deleted from the monitoring list for upcoming sample events.

No pesticides, herbicides, PCBs, dioxins or furans were detected in groundwater samples collected from Site 16. One pesticide, 4,4'-DDD was detected in one subsurface soil sample from the site at a concentration of 1 J ug/kg. The presence of 4,4'-DDD in one subsurface soil sample at low concentration is attributed to incidental deposition from past use of pesticides at the Base, and not considered to be related to waste disposal. It is recommended that pesticides, herbicides, PCBs, dioxins and furans be deleted from the monitoring list for future sample events.

Chromium was present in groundwater at concentrations above its Primary Drinking Water Standard MCL, including that from the upgradient monitoring well. Several other inorganics are present in downgradient groundwater samples at concentrations greater that two times that detected in the upgradient groundwater sample. Inorganics should continue to be monitored during future sample events at Site 16.

TDS and TSS should be added to the list of monitoring parameters. Also, filtered and non-filtered groundwater samples should be collected and submitted for analysis of Appendix IX inorganics. These data will be used to evaluate whether suspended soil particles are contributing to concentrations of inorganics reported for the groundwater samples.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES), 1991. Naval Submarine Base, Kings Bay, Georgia, Potential Source of Contamination (PSC) Site Investigation/Solid Waste Management Unit (SI/SWMU), RCRA Facility Investigation (RFI) WorkPlan; Prepared for Southern Division Naval Facilities Engineering Command; October 1991.

Aquifer Test Solver (AQTESOLV™), Version 1.0, 1989. By G. M. Surffield and J. O. Rumbaugh; Geraghty & Miller Modeling Group, Reston, Virginia.

Bouwer, H. and R. C. Rice, 1976. A slug test method for determining hydraullic conductivity of unconfined aquifers with completely or partially penetrating wells; Water Resources Research; Vol. 12, No. 3; pp. 423-428.

C.C. Johnson & Associated, Inc., 1985. Initial Assessment Study, Naval Submarine Base, Kings Bay, Georgia; Prepared for Naval Energy and Environmental Support Activity; September 1985.

Kabata-Pendias and Pendias, 1984. *Trace Elements in Plants and Soils*, CRC Press, Inc., 1984.

Montgomery, 1991. *Groundwater Chemicals Desk Reference, Volume I*, Lewis Publishers, Inc., 1991.

Montgomery, 1991. *Groundwater Chemicals Desk Reference, Volume II*, Lewis Publishers, Inc., 1991.

NEESA, 1988. *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, Naval Energy and Environmental Support Activity: NEESA 20.2 - 047B*, Port Hueneme, California.

United Stated Environmental Protection Agency (USEPA), 1986. *Test Methods for Evaluating Solid Waste Physical/Chemical (SW846) Methods, 3rd Edition, USEPA*, 1986.

United States Environmental Protection Agency, 1988a. *Laboratory Data Validation: Functional Guidelines for Evaluation of Organic Analysis.*

United States Environmental Protection Agency, 1988b. *Laboratory Data Validation: Functional Guidelines for Evaluation of Inorganic Analysis.*

Verschueren, 1983. Handbook of Environmental Data on Organic Chemicals, 2nd Edition, van Nostrand Reinhold.

Appendix A

Boring Logs

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-1	BORING NO. 05SB01
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/8/92	COMPLTD: 2/8/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 18.08 FT.	MONITOR INST.: PID	TOT DPTH: 14.5FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil over grey medium sand, over black silty fine to medium sand		SW	
				0			SM	
				0				
5			18 in.		black silty fine to medium sand (wet on bottom)			
		03		0				
			18 in.		same with red medium sand layers			
		04		0			SW	
			18 in.		dark red-brown medium sand w/intervals that are darker and less sorted			
10		05		0				
			18 in.		same			
		06		0				
			20 in.		same, grading to red-brown well sorted medium sand			
		07		0				
					TOTAL DEPTH = 14.5 ft.			
15								
20								

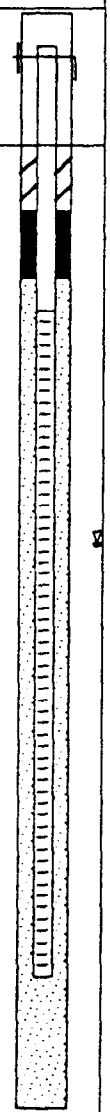


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-2	BORING NO. 05SB02
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/8/92	COMPLTD: 2/8/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 19.83 FT.	MONITOR INST.: PID	TOT DPTH: 14.5FT.	DPTH TO ∇ 4 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil over grey medium sand		SW	
				0	black silty fine to medium sand		SM	
				0	same to 4.5 ft.; then red, brown, and black mottled fine to medium sand		SW	
5			15 in.					
		03		0				
			24 in.		red, brown, and black mottled fine to medium sand			
		04		0				
			20 in.		same, but with increase in proportion of dark, carbonaceous material			
10		05		0				
			20 in.		brown and black fine to medium sand			
		06		0	red, brown, and black mottled fine to medium sand			
			20 in.					
		07		0				
					TOTAL DEPTH = 14.5 ft.			
15								
20								

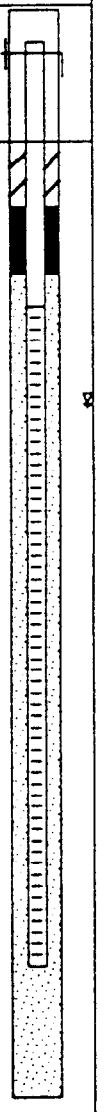


 ABB ENVIRONMENTAL SERVICES, INC.

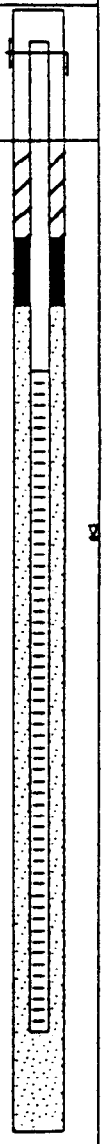
TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-3	BORING NO. 06SB03
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/8/92	COMPLETED: 2/8/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 20.99 FT.	MONITOR INST.: PID	TOT DPTH: 16FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil			
				0	red sandy clay silt mixed w/black sand, also mixed w/buff sand		SC	
					red medium sand, well sorted (moist)		SW	
5			15 in.					
		03		0				
			18 in.		same to 7', then color chang to red-brown (wet)			
		04		0				
			24 in.		red-brown, same			
10		05		0				
			22 in.		same			
		06		0	same; 13' to 14' BLS color change to green-grey; well sorted			
			24 in.					
		07		0	no change in cuttings			
15					TOTAL DEPTH = 15 ft.			
20								

 ABB ENVIRONMENTAL SERVICES, INC.

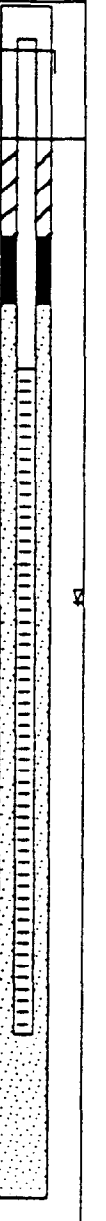
TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-4	BORING NO. 05SB04
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/8/92	COMPLTD: 2/8/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 21.72 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					black silty medium to fine sand		SM	
					some buff sand (fill material)			
				0				
5			18 in.		red medium sand at 5' to 8': (wet)		SW	
		03		0	red medium sand grading to red-brown medium sand			
			20 in.					
		04		0	red-brown medium sand layered w/red medium sand			
			24 in.					
10		05		0				
			24 in.					
		08		0	red-brown and green layered medium sand; bottom 8" green			
			24 in.					
					no change in cuttings			
15					TOTAL DEPTH = 15 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-5	BORING NO. 05SB05
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/7/92	COMPLTD: 2/7/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 21.02 FT.	MONITOR INST.: PID	TOT DPTH: 18FT.	DPTH TO ∇ 7 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil			
				0	black medium to fine sand w/silt; wet, but not saturated		SM	
5			18 in.		same; increased moisture			
		03		0				
			18 in.		same; wet (saturated)		SW	
		04		0	top 3" black medium to fine sand, remainder red medium to fine sand; well sorted			
			12 in.					
10		05		0				
			24 in.		red and green mottled medium to fine sand; well sorted			
		06		0	top 12" red and green mottled as above, then remainder green medium to fine sand ; well sorted; micaceous			
			24 in.					
		07		0			SM	
15			18 in.		green grading to blue-gray, medium to fine sand w/silt			
		08		0	TOTAL DEPTH = 18 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-6	BORING NO. 05SB06
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/7/92	COMPLTD: 2/7/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 22.85 FT.	MONITOR INST.: PID	TOT DPTH: 17FT.	DPTH TO ∇ 7.5 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					black silty sand; medium to fine grain; wet, not saturated		SM	
				0	black silty sand w/red stringers; wooded debris, (wet)			
5			14 in.		same; (wet)			
		03		0				
			18 in.		same; (wet)			
		04		0				
			18 in.		same, bottom 4" red medium to fine sand, fairly well sorted, wet			
10		05		0			SW	
			18 in.		red and black medium to fine sand, well sorted, wet; (mostly black in top 1 ft.)			
		06		0				
			18 in.		same			
		07		0	green-brown medium to fine sand, well sorted, saturated			
15			18 in.					
		08		0				
					TOTAL DEPTH = 17 ft.			
20								

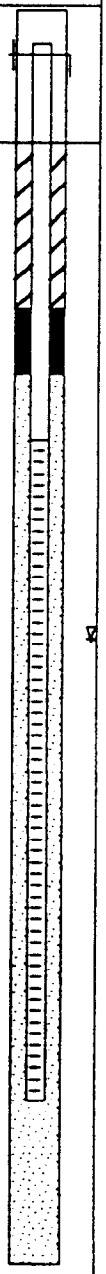


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-5-7	BORING NO. 05SB07
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/7/92	COMPLETED: 2/7/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 20.5 FT.	MONITOR INST.: PID	TOT DPTH: 14.5FT.	DPTH TO ∇ 7 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil			
				0	limestone fill cobbles, gravel buff colored with sand, black, brown, red layered medium to fine sand, silty (wet)		GP	
5			18 in.				SM	
	03			0	top 12" black, brown fine to medium sand. bottom 12" red and brown well sorted. 8'-10' spoon same grading to greenish color at 10'.		SW	
			18 in.					
	04			0				
			24 in.					
10	05			0	green and brown fine to medium sand; well sorted			
			24 in.					
	06			0	same			
			24 in.					
	07			0				
15					TOTAL DEPTH = 14.5 ft.			
20								

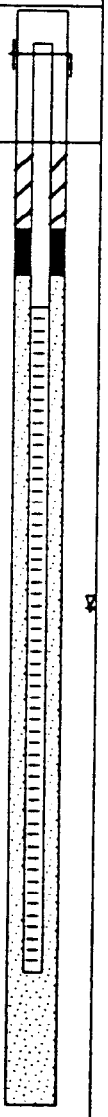


ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-1	BORING NO. 11SB01
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/9/92	COMPLTD: 2/9/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 38.80 FT.	MONITOR INST.: PID	TOT DPTH: 14.5FT.	DPTH TO ∇ 6 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					grey silty fine to medium sand over black silty fine to medium sand		SM	
				0	orange silty fine to medium sand			
							SW	
					buff medium to fine sand at 4 ft.			
5			18 in.					
		03		0	color change to grey (LEL 1%)			
			20 in.					
		04		0	same		SM	
			24 in.					
10		05		0	9.5 ft. change to black silty fine to medium sand			
			24 in.					
		06		0	black silty fine to medium sand			
			24 in.					
		07		0	same			
					TOTAL DEPTH = 14.5 ft.			
15								
20								

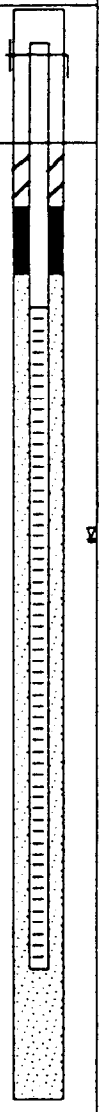
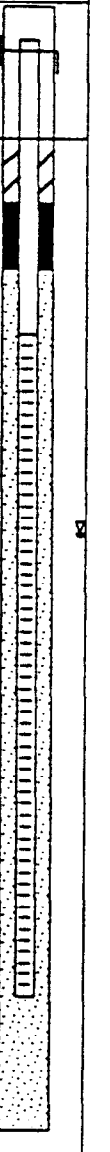


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-2	BORING NO. 11SB02
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 34.92 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 6 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					grey and black silty fine to medium sand		SM	
				0	orange and buff fine to medium sand		SW	
					moist at 4 ft. (LEL=1%)			
5			18 in.		gray fine to medium sand (wet); well sorted			
		03		0				
			24 in.		same (saturated)			
		04		0				
			24 in.		same to 9.5 ft., then black silty fine to medium sand			
10		05		0	black silty fine sand		SM	
			24 in.					
		06		0				
			24 in.		same ; color change to dark red brown at 13.5 ft.			
		07		0				
15					TOTAL DEPTH = 15 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-3	BORING NO. 11SB03
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 34.59 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					topsoil to 8" below land surface		TOPSOIL	
					grey medium to fine sand		SW	
				0	buff medium to fine sand (LEL=1%)			
					buff to 4.5 ft. ; grey medium to fine sand			
5			12 in.					
		03		0				1-2-4-8
			18 in.		grey as above to 7.5 ft. ; beyond 7.5 ft. black silty fine to medium sand			
		04		0	black silty fine to medium sand		SM	2-2-3-2
			18 in.					
10		05		0	mottled black and tan silty fine to medium sand, tan areas coarser, less fines			4-4-5-10
			18 in.					
		06		0				
			20 in.		mottled as above to 13 ft., then brown medium sand		SW	
		07		0	no change in cuttings			15-17-18-24
15					TOTAL DEPTH = 15 ft.			
20								

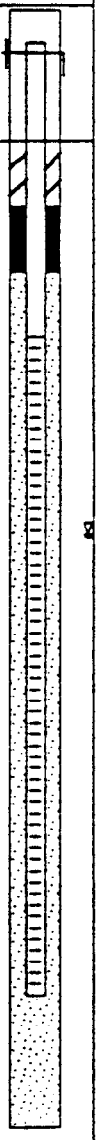


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-4	BORING NO. 11SB04
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 35.12 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 6 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	black silty medium to fine sand		SM	
					buff medium to fine sand		SW	
5			18 in.		same to 5 ft., then grey medium sand ; wet on bottom			
		03		0	grey medium sand			4-3-3-7
			24 in.					
		04		0				
			24 in.		same to 9.5 ft., then brown silty medium sand			
10		05		0	same; dark brown and black mottled		SM	
			12 in.					
		06		0	same ; dark brown and black mottled			
			24 in.					
		07		0	no change in cuttings			
15					TOTAL DEPTH = 15 ft.			
20								

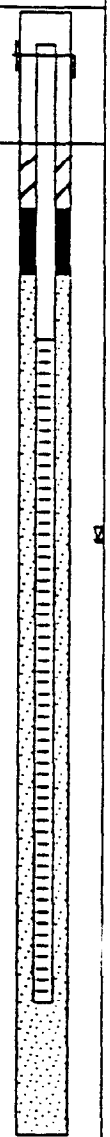
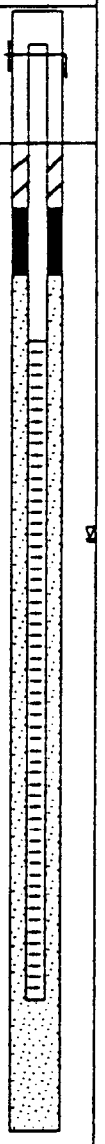


 ABB ENVIRONMENTAL SERVICES, INC.

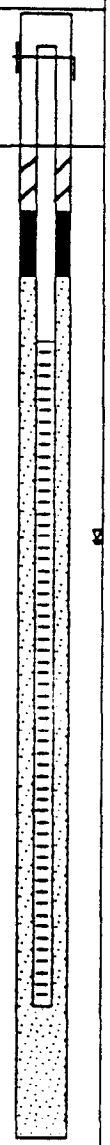
TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-5	BORING NO. 11SB05
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 38.01 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 6 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					grey fine to medium sand		SW	
				0	brown silty fine to medium sand		SM	
					buff fine to medium sand w/silt			
							SW	
5			14 in.		grey fine to medium sand			
	03			0				4-6-6-7
			18 in.		grey sand as above to 7 ft., then brown silty fine to medium sand			
	04			0	interbedded brown and grey-brown fine to medium sand			3-3-4-6
			18 in.		black and silty between 9.5-10 ft.			
10	05			0	black between 10-10.5 ft., then mottled dark brown and black silty fine to medium sand		SM	10-3-3-9
			20 in.					
	08			0	same to 13.5 ft., then red medium sand at 13.5 ft.			12-12-22-32
			24 in.					
	07			0	no change in cuttings		SW	28-45-refusl
15					TOTAL DEPTH = 15 ft.			
20								



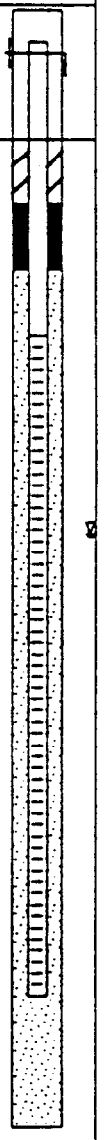
TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-6	BORING NO. 11SB06
CLIENT: NAVY			PROJECT NO. 1553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 37.39 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 6 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					grey fine to medium sand		SW	
				0	6" of black medium to fine sand			
					buff medium sand mottled with orange (LEL=1%)			
5			16 in.		same as above			
		03		0	buff as above to 6.5 ft., then grey medium sand to 7.5 ft., then black silty fine to medium sand to 8 ft.			3-3-4-6
			18 in.					
		04		0	black silty fine to medium sand		SM	6-5-4-4
			20 in.					
10		05		0	same			14-38-32-40
			18 in.					
		06		0	mottled black and brown silty fine to medium sand			30-25-32-45
			6 in.					
		07		0	no change in cuttings			35-refusal
15					TOTAL DEPTH = 15 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-7	BORING NO. 11SB07
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/10/92	COMPLTD: 2/10/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 37.25 FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/13/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					brown medium to fine sand		SW	
					6" of black silty fine sand ; 3" of gray medium sand		SM	
				0			SW	
					buff and orange mottled fine to medium sand			
5			18 in.		buff and orange as above to 4.5 ft., then gray medium sand			
		03		0				3-4-3-5
			24 in.		same to 7.5 ft., then black silty fine to medium sand			
		04		0			SM	6-4-3-5
			20 in.		same			
10		05		0	same, grading to dark red-brown fine to medium sand			8-14-17-28
			20 in.					
		06		0	dark red-brown medium to fine sand		SW	12-23-34-47
			12 in.					
		07		0	no change in cuttings			42-45-47-48
15					TOTAL DEPTH = 15 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-8	BORING NO. 11SB08
CLIENT: NAVY			PROJECT NO: 7653-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/8/92	COMPLTD: 2/8/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: PID	TOT DPTH: 15FT.	DPTH TO ∇ 8 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					gray medium to fine sand		SW	
				0	orange fine to medium sand			
					buff silty fine to medium sand (LEL 1%)		SM	
5			24 in.		mottled gray and orange fine to medium sand		SW	
		03		0				
			16 in.		same			
		04		0				
			24 in.		at 9 ft., change to black silty fine to medium sand		SM	
10		05		0				
			18 in.		same			
		06		0				
			18 in.					
		07		0	same			
15					TOTAL DEPTH = 15 ft.			
20								

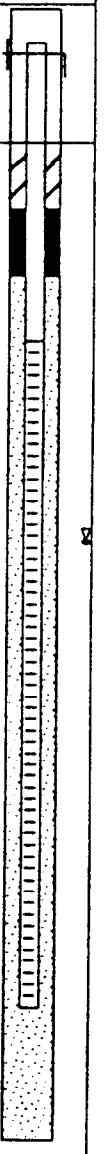


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-11-9	BORING NO. 11SB09
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 2/9/92	COMPLTD: 2/9/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 34.59 FT.	MONITOR INST.: PID	TOT DPTH: 13FT.	DPTH TO ∇ 3 FT.
LOGGED BY: LAURA HARRIS	WELL DEVELOPMENT DATE: 2/11/92		SITE: 11

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	8" of topsoil gray medium to fine sand		SW	
			12 in.		gray-brown medium sand			
5		03		0			SM	
			20 in.		same to 5'-10", then change to black silty fine to medium sand			
		04		0				
			18 in.		same grading to dark brown at 9 ft.			
10			24 in.		same to 10 ft., then change to red fine to medium sand		SW	
		05		0				
			24 in.		mottled brown and red fine to medium sand			
		06		0	TOTAL DEPTH = 13 ft.			
15								
20								

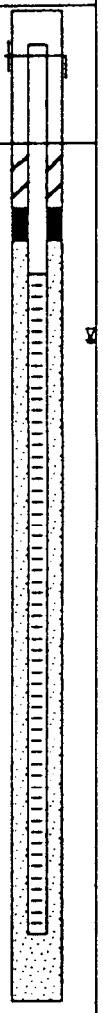
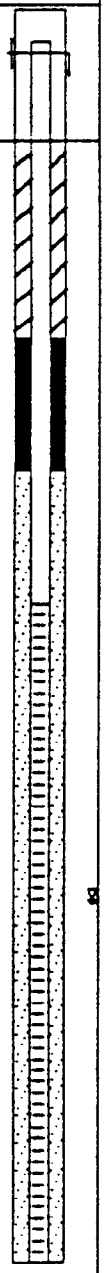


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-18-1	BORING NO. 18SB01
CLIENT: NAVY			PROJECT NO: 7563-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 02/12/92	COMPLTD: 02/12/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 23.43 FT.	MONITOR INST.: PID	TOT DPTH: 17FT.	DPTH TO ∇ 11.5 FT.
LOGGED BY: MARK STEINHAUFF	WELL DEVELOPMENT DATE: 2/14/92		SITE: 18

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	brown, black, grey sand fill		SW	
			18 in.		4' below land surface LEL 2% brown and black silty fine sand fill (limestone cobble); moist		SM	
5		03		0	similar to above, approx. 2" thick lens white fine grain sand. then 8" of fine grain to silty light brown sand. (massive)			
			18 in.					
		04		0	similar to above			
			20 in.		lower 2" light to dark brown silty fine grain sand			
10		05		0	dark brown silty fine grain sand			
			18 in.					
		06		0	lower 4" fine grained light brown to tan sand (massive)		SW	
			20 in.		similar to above at 10" to 14" texture looks bioturbated (i.e. white to tan fine grained sand mixed with light brown to dark brown silty sand) possibly vertical burrows			
		07		0				
15					no change in cuttings			
					TOTAL DEPTH = 17 ft.			
20								

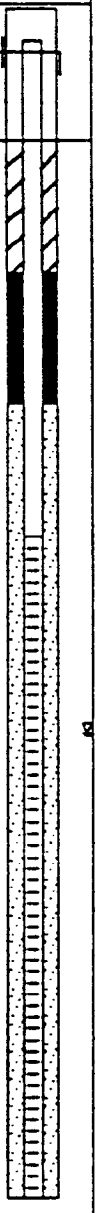


TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-16-2	BORING NO. 16SB02
CLIENT: NAVY			PROJECT NO: 7563-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 02/13/92	COMPLTD: 02/13/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 20.78 FT.	MONITOR INST.: PID	TOT DPTH: 19.5FT.	DPTH TO ∇ 12 FT.
LOGGED BY: MARK STEINHAUFF	WELL DEVELOPMENT DATE: 2/14/92		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	brown silty fine-grain sand (fill)		SM	
5			18 in.		dark to medium brown silty fine-grain sand			
	03			0	same			
			18 in.		lower 4" white to medium brown fine-grain sand			
	04			0			SW	
			20 in.		lower 8" light to dark laminated fine-grain sand			
10	05			0				
			17 in.		similar to above but not laminated			
	06			0	white to light brown silty fine-grain sand		SM	
			23 in.					
	07			0	white fine-grain sand (lower 6" ; massive)		SW	
15			23 in.					
	08			0	lower 4" laminated light to dark brown fine-grain sand			
			23 in.					
	09			0	laminated green to black silty fine-grain sand		SM	
			8 in.					
	10			0	TOTAL DEPTH = 19.5 ft.			
20								
25								

TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-18-3	BORING NO. 18SB03
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 02/12/92	COMPLTD: 02/12/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 21.87 FT.	MONITOR INST.: PID	TOT DPTH: 18FT.	DPTH TO ∇ 8 FT.
LOGGED BY: MARK STEINHAUFF	WELL DEVELOPMENT DATE: 2/14/92		SITE: 18

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	fill - black, brown, white sand ; some limestone cobbles		SW	
			10 in.		brown to dark brown, fine-grain sand to silty sand		SM	
5		03		0	oxidized fine sandy lens 2" thick; black silty fine-grain sand			
			22 in.					
		04		0	silty fine-grain sand			
			20 in.		white fine-grain sand (6" thick)		SW	
10		05		0	dark fine-grain sand to silty sand ; LEL=1% ; massive texture.		SM	
		06		0	dark fine sand to silty fine sand ; (white fine-grain sand lense approximately 4" thick) massive			
		07		0				
15					no change in cuttings			
					TOTAL DEPTH = 18 ft.			
20								



TITLE: NSB KINGS BAY, GEORGIA		LOG of WELL: KBA-16-4	BORING NO. 16SB04
CLIENT: NAVY			PROJECT NO: 7553-03
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 02/12/92	COMPLTD: 02/12/92
METHOD: HSA	CASE SIZE: 2 inch	SCREEN INT.: 10 ft.	PROTECTION LEVEL: D
TOC ELEV.: 21.58 FT.	MONITOR INST.: PID	TOT DPTH: 17FT.	DPTH TO ∇ 8 FT.
LOGGED BY: MARK STEINHAUFF	WELL DEVELOPMENT DATE: 2/24/92		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	dark brown sandy to silty loamy soil ; soil is homogeneous and probably fill material from construction of bunkers		SM	
5			20 in.		similar to above, but with 2" layers of lighter colors of sandy material (moist)			
		03		0	dark brown silty sand			
			20 in.					
		04		0	dark brown silty sand ; 2" sandy layers ; silty clay with fine sand			
			20 in.					
10		05		0				
			20 in.		same as above with 2" sandy layers			
		06		0	sandy to fine silty clay			
			20 in.					
		07		0				
15					no change in cuttings			
					TOTAL DEPTH = 17 ft.			
20								

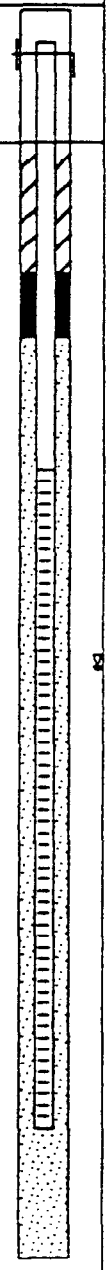


 ABB ENVIRONMENTAL SERVICES, INC.

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A Q T E S O L V R E S U L T S
Version 1.10

05/15/92 12:03:13

TEST DESCRIPTION

Data set........... A:KBA-5-1.DAT
Data set title..... MONITORING WELL KBA-5-1

Knowns and Constants:
- No. of data points.................. 48
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 7.22
- Well screen length.................. 7.22
- Static height of water in well...... 7.22
- Log(Re/Rw).......................... 2.29
- A, B, C............................. 0.000, 0.000, 1.711

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.6540E-004	+/-	5.6592E-005
y0 =	8.7336E+000	+/-	7.9832E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 46
- Number of estimated parameters.... 2
- Degrees of freedom................ 44
- Residual mean..................... 0.0002327
- Residual standard deviation....... 0.3909
- Residual variance................. 0.1528

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	9.496	8.7312	0.76483	1
0.0066	9.438	8.7288	0.70922	1
0.01	9.425	8.7263	0.69869	1
0.0133	9.338	8.7239	0.61407	1
0.0166	9.281	8.7215	0.55946	1
0.02	9.236	8.7191	0.51692	1
0.0233	9.207	8.7167	0.49031	1
0.0266	9.184	8.7143	0.46969	1
0.03	9.133	8.7118	0.42115	1
0.0333	9.097	8.7095	0.38754	1
0.05	8.927	8.6974	0.22959	1
0.0666	8.782	8.6854	0.096561	1
0.0833	8.66	8.6734	-0.013415	1
0.1	8.56	8.6614	-0.10141	1
0.1166	8.47	8.6495	-0.17949	1
0.1333	8.393	8.6375	-0.24451	1
0.15	8.329	8.6256	-0.29656	1
0.1666	8.274	8.6137	-0.33969	1
0.1833	8.233	8.6018	-0.36876	1
0.2	8.191	8.5899	-0.39885	1
0.2166	8.165	8.578	-0.41303	1
0.2333	8.136	8.5662	-0.43016	1
0.25	8.114	8.5543	-0.4403	1
0.2666	8.101	8.5425	-0.44153	1
0.2833	8.088	8.5307	-0.4427	1
0.3	8.072	8.5189	-0.44689	1
0.3166	8.062	8.5072	-0.44517	1
0.3333	8.049	8.4954	-0.44639	1
0.4166	8.011	8.4369	-0.42589	1
0.5	7.988	8.3787	-0.39072	1
0.5833	7.975	8.321	-0.34603	1
0.6666	7.959	8.2637	-0.30472	1
0.75	7.95	8.2068	-0.25675	1
0.8333	7.94	8.1502	-0.21024	1
0.9166	7.933	8.0941	-0.16111	1
1	7.93	8.0383	-0.10831	1
1.0833	7.924	7.983	-0.058953	1
1.1666	7.921	7.928	-0.0069807	1
1.25	7.914	7.8733	0.040679	1
1.3333	7.914	7.8191	0.094897	1
1.4166	7.911	7.7653	0.14574	1
1.5	7.911	7.7117	0.19928	1
1.5833	7.904	7.6586	0.24538	1
1.6666	7.904	7.6059	0.29812	1
1.75	7.901	7.5534	0.34756	1
1.8333	7.901	7.5014	0.39958	1

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.6540E-004
y0 =	8.7336E+000

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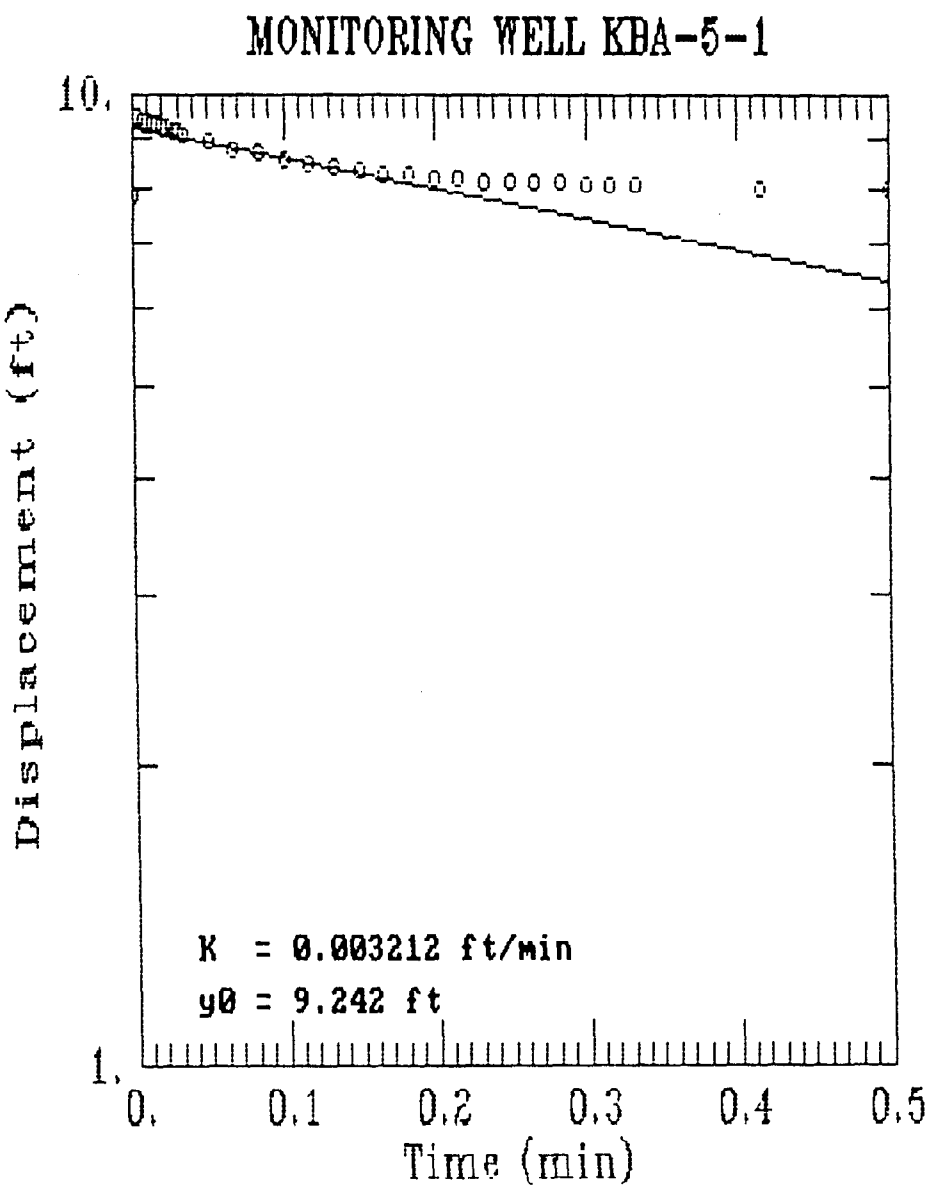
TYPE CURVE DATA

K = 3.21200E-003
y0 = 9.24200E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.242E+000	5.000E-001	6.418E+000		



AQTESOLV

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Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-5-2.DAT
Data set title..... MONITORING WELL 5-2

Knowns and Constants:

No. of data points.................. 64
Radius of well casing............... 0.1667
Radius of well...................... 0.3333
Aquifer saturated thickness......... 9.17
Well screen length.................. 9.17
Static height of water in well...... 9.17
Log(Re/Rw).......................... 2.496
A, B, C............................. 0.000, 0.000, 1.891

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	8.9535E-005	+/-	1.4530E-005
y0 =	6.2031E+000	+/-	7.2308E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals............... 64
Number of estimated parameters.... 2
Degrees of freedom................ 62
Residual mean..................... 0.0005155
Residual standard deviation....... 0.457
Residual variance................. 0.2088

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	7.097	6.2027	0.89434	1
0.0066	7.145	6.2022	0.94283	1
0.01	6.997	6.2017	0.79533	1
0.0133	7.01	6.2012	0.80881	1
0.0166	6.984	6.2007	0.7833	1
0.02	6.962	6.2002	0.7618	1
0.0233	6.939	6.1997	0.73928	1
0.0266	6.917	6.1992	0.71776	1
0.03	6.894	6.1987	0.69526	1
0.0333	6.872	6.1983	0.67375	1
0.05	6.759	6.1958	0.5632	1
0.0666	6.663	6.1934	0.46963	1
0.0833	6.573	6.1909	0.38208	1
0.1	6.496	6.1885	0.30753	1
0.1166	6.422	6.186	0.23596	1
0.1333	6.354	6.1836	0.1704	1
0.15	6.296	6.1812	0.11485	1
0.1666	6.238	6.1787	0.059274	1
0.1833	6.18	6.1763	0.0037163	1
0.2	6.132	6.1738	-0.041843	1
0.2166	6.087	6.1714	-0.084417	1
0.2333	6.045	6.169	-0.12398	1
0.25	6.01	6.1665	-0.15654	1
0.2666	5.971	6.1641	-0.19312	1
0.2833	5.939	6.1617	-0.22268	1
0.3	5.907	6.1592	-0.25225	1
0.3166	5.881	6.1568	-0.27583	1
0.3333	5.855	6.1544	-0.29939	1
0.4166	5.752	6.1423	-0.39027	1
0.5	5.695	6.1302	-0.43516	1
0.5833	5.656	6.1181	-0.46208	1
0.6666	5.627	6.106	-0.47903	1
0.75	5.604	6.094	-0.48999	1
0.8333	5.588	6.082	-0.49398	1
0.9166	5.575	6.07	-0.495	1
1	5.559	6.058	-0.49903	1
1.0833	5.553	6.0461	-0.4931	1
1.1666	5.543	6.0342	-0.49119	1
1.25	5.534	6.0223	-0.48829	1
1.3333	5.527	6.0104	-0.48342	1
4.4166	5.518	5.5874	-0.06938	1
1.5	5.511	5.9868	-0.47575	1
1.5833	5.498	5.975	-0.47696	1
1.6666	5.485	5.9632	-0.47819	1
1.75	5.479	5.9514	-0.47243	1
1.8333	5.472	5.9397	-0.46771	1
1.9166	5.463	5.928	-0.46501	1
2	5.453	5.9163	-0.46331	1
2.5	5.431	5.8467	-0.4157	1
3	5.421	5.7779	-0.35691	1
3.5	5.415	5.7099	-0.29493	1
4	5.408	5.6428	-0.23475	1
4.5	5.408	5.5764	-0.16836	1
5	5.402	5.5108	-0.10875	1
5.5	5.402	5.4459	-0.043913	1
6	5.398	5.3818	0.016162	1
6.5	5.392	5.3185	0.073484	1
7	5.392	5.2559	0.13606	1
7.5	5.389	5.1941	0.1949	1

8	5.382	5.133	0.24901	1
8.5	5.382	5.0726	0.30941	1
9	5.382	5.0129	0.36909	1
9.5	5.379	4.9539	0.42507	1
10	5.379	4.8956	0.48335	1

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	8.9535E-005
y0 =	6.2031E+000

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TYPE CURVE DATA

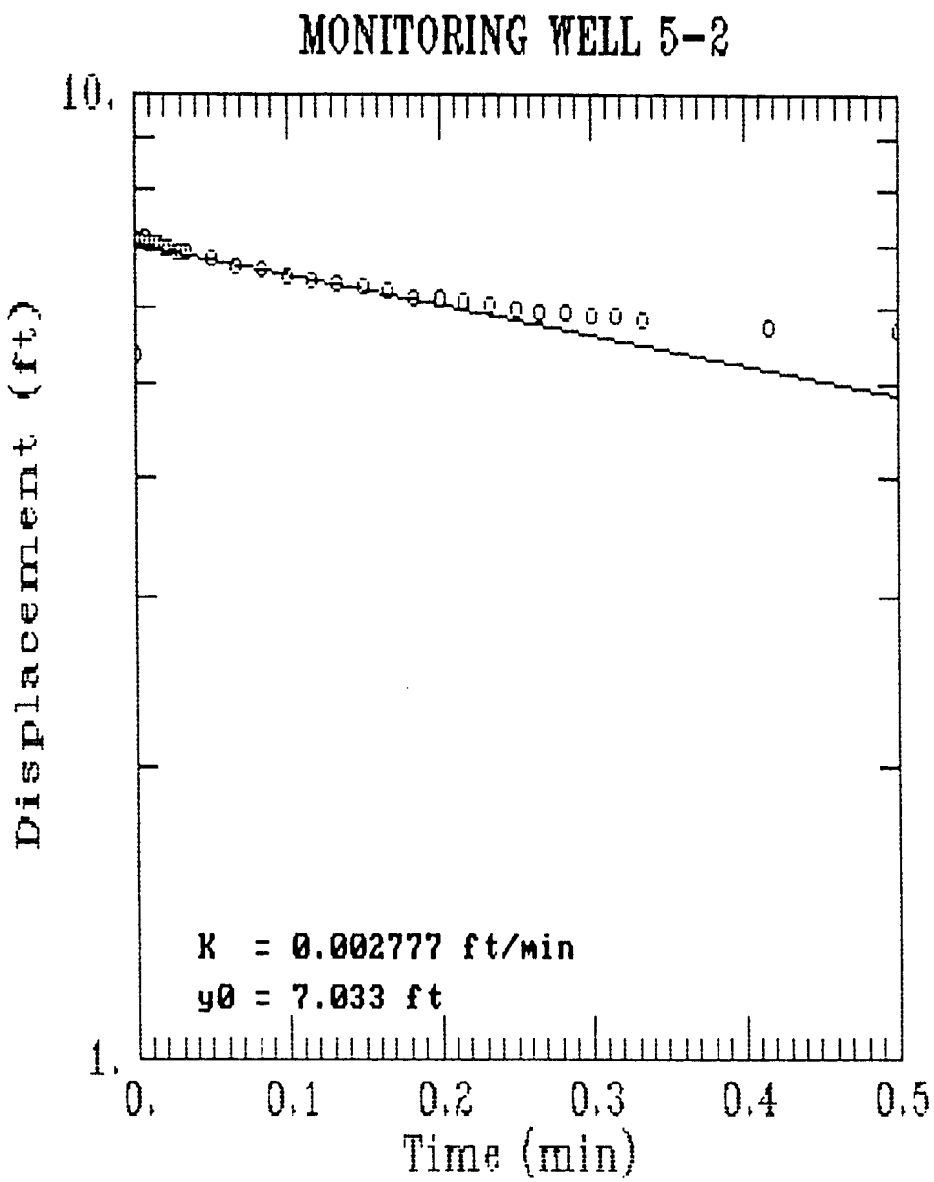
K = 2.77664E-003
y0 = 7.03313E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	7.033E+000	5.000E-001	4.872E+000		

TYPE CURVE DATA

K = 2.77664E-003
y0 = 7.03313E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	7.033E+000	5.000E-001	4.872E+000		



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Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-5-4.DAT
Data set title..... MONITORING WELL KBA-5-4

Knowns and Constants:
   No. of data points.................. 48
   Radius of well casing............... 0.1667
   Radius of well...................... 0.3333
   Aquifer saturated thickness......... 8.24
   Well screen length.................. 8.24
   Static height of water in well...... 8.24
   Log(Re/Rw).......................... 2.404
   A, B, C............................. 0.000, 0.000, 1.805

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.5124E-004	+/-	6.1062E-005
y0 =	8.5428E+000	+/-	9.1245E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
   Number of residuals............... 46
   Number of estimated parameters.... 2
   Degrees of freedom................ 44
   Residual mean..................... 0.0002756
   Residual standard deviation....... 0.4464
   Residual variance................. 0.1993

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	9.715	8.5403	1.1747	1
0.0066	9.364	8.5379	0.82609	1
0.01	9.3	8.5354	0.76461	1
0.0133	9.22	8.533	0.68705	1
0.0166	9.178	8.5305	0.64749	1
0.02	9.117	8.528	0.589	1
0.0233	8.992	8.5256	0.46644	1
0.0266	9.004	8.5231	0.48087	1
0.03	8.963	8.5206	0.44238	1
0.0333	8.911	8.5182	0.39282	1
0.05	8.705	8.5059	0.19914	1
0.0666	8.532	8.4936	0.03836	1
0.0833	8.413	8.4814	-0.068359	1
0.1	8.303	8.4691	-0.1661	1
0.1166	8.21	8.4569	-0.24693	1
0.1333	8.136	8.4447	-0.3087	1
0.15	8.075	8.4325	-0.35749	1
0.1666	8.02	8.4204	-0.40037	1
0.1833	7.982	8.4082	-0.4262	1
0.2	7.95	8.396	-0.44604	1
0.2166	7.918	8.384	-0.46597	1
0.2333	7.895	8.3719	-0.47685	1
0.25	7.879	8.3597	-0.48075	1
0.2666	7.863	8.3477	-0.48473	1
0.2833	7.847	8.3357	-0.48866	1
0.3	7.837	8.3236	-0.48661	1
0.3166	7.824	8.3117	-0.48765	1
0.3333	7.821	8.2996	-0.47863	1
0.4166	7.789	8.24	-0.45095	1
0.5	7.77	8.1806	-0.41063	1
0.5833	7.753	8.1218	-0.3688	1
0.6666	7.75	8.0634	-0.3134	1
0.75	7.741	8.0053	-0.26435	1
0.8333	7.737	7.9478	-0.21078	1
0.9166	7.734	7.8906	-0.15663	1
1	7.728	7.8338	-0.10582	1
1.0833	7.725	7.7775	-0.052487	1
1.1666	7.721	7.7216	-0.00055929	1
1.25	7.718	7.666	0.052032	1
1.3333	7.718	7.6108	0.10716	1
1.4166	7.715	7.5561	0.15889	1
1.5	7.715	7.5017	0.21329	1
1.5833	7.712	7.4478	0.26423	1
1.6666	7.712	7.3942	0.31779	1
1.75	7.712	7.341	0.37102	1
1.8333	7.712	7.2882	0.42381	1

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.5124E-004
y0 =	8.5428E+000

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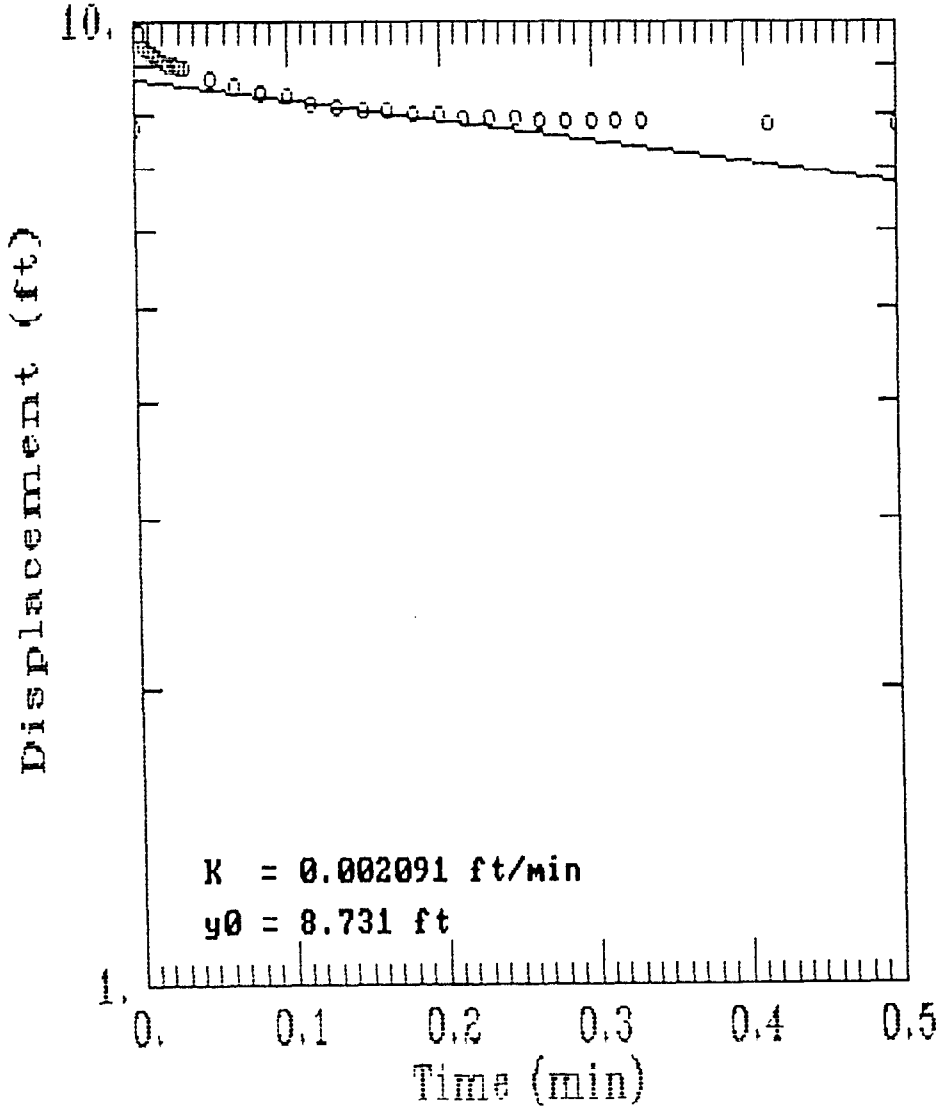
TYPE CURVE DATA

K = 2.09100E-003
y0 = 8.73100E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	8.731E+000	5.000E-001	6.746E+000		

MONITORING WELL KBA-5-4



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TEST DESCRIPTION

Data set........... A:KBA-5-5.DAT
Data set title..... MONITORING WELL 5-5

Knowns and Constants:
- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 8.84
- Well screen length.................. 8.84
- Static height of water in well...... 8.84
- Log(Re/Rw).......................... 2.465
- A, B, C............................. 0.000, 0.000, 1.860

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	7.7687E-005	+/-	1.2117E-005
y0 =	8.2550E+000	+/-	7.9906E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 64
- Number of estimated parameters.... 2
- Degrees of freedom................ 62
- Residual mean..................... 0.0004386
- Residual standard deviation....... 0.5065
- Residual variance................. 0.2565

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	8.899	8.2544	0.64458	1
0.0066	8.68	8.2539	0.42613	1
0.01	8.535	8.2533	0.28169	1
0.0133	8.78	8.2528	0.52724	1
0.0166	9.04	8.2522	0.78778	1
0.02	9.326	8.2517	1.0743	1
0.0233	9.233	8.2511	0.98189	1
0.0266	9.098	8.2506	0.84744	1
0.03	9.136	8.25	0.886	1
0.0333	9.091	8.2495	0.84155	1
0.05	9.008	8.2467	0.76131	1
0.0666	8.866	8.2439	0.62205	1
0.0833	8.776	8.2412	0.53481	1
0.1	8.696	8.2384	0.45757	1
0.1166	8.622	8.2357	0.38632	1
0.1333	8.548	8.2329	0.31507	1
0.15	8.484	8.2302	0.25383	1
0.1666	8.426	8.2274	0.19857	1
0.1833	8.365	8.2247	0.14032	1
0.2	8.313	8.2219	0.091077	1
0.2166	8.265	8.2192	0.045813	1
0.2333	8.217	8.2164	0.0005653	1
0.25	8.172	8.2137	-0.041684	1
0.2666	8.127	8.2109	-0.08395	1
0.2833	8.088	8.2082	-0.1202	1
0.3	8.053	8.2055	-0.15245	1
0.3166	8.014	8.2027	-0.18872	1
0.3333	7.979	8.2	-0.22098	1
0.4166	7.831	8.1863	-0.35529	1
0.5	7.728	8.1726	-0.44461	1
0.5833	7.648	8.159	-0.51097	1
0.6666	7.586	8.1454	-0.55935	1
0.75	7.545	8.1317	-0.58674	1
0.8333	7.513	8.1182	-0.60517	1
0.9166	7.487	8.1046	-0.61762	1
1	7.467	8.0911	-0.62408	1
1.0833	7.455	8.0776	-0.62257	1
1.1666	7.439	8.0641	-0.62509	1
1.25	7.429	8.0506	-0.62162	1
1.3333	7.419	8.0372	-0.61818	1
4.4166	7.413	7.5553	-0.14231	1
1.5	7.403	8.0104	-0.60736	1
1.5833	7.4	7.997	-0.59699	1
1.6666	7.397	7.9836	-0.58664	1
1.75	7.39	7.9703	-0.5803	1
1.8333	7.387	7.957	-0.57	1
1.9166	7.384	7.9437	-0.55972	1
2	7.384	7.9304	-0.54645	1
2.5	7.365	7.8513	-0.48633	1
3	7.355	7.773	-0.418	1
3.5	7.348	7.6955	-0.34746	1
4	7.345	7.6187	-0.27369	1
4.5	7.336	7.5427	-0.20668	1
5	7.336	7.4674	-0.13143	1
5.5	7.332	7.3929	-0.060938	1
6	7.329	7.3192	0.0098159	1
6.5	7.329	7.2462	0.082834	1
7	7.326	7.1739	0.15212	1
7.5	7.329	7.1023	0.22669	1

8	7.326	7.0315	0.29455	1
8.5	7.326	6.9613	0.36469	1
9	7.326	6.8919	0.43414	1
9.5	7.323	6.8231	0.49989	1
10	7.326	6.755	0.57096	1

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	7.7687E-005
y0 =	8.2550E+000

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TYPE CURVE DATA

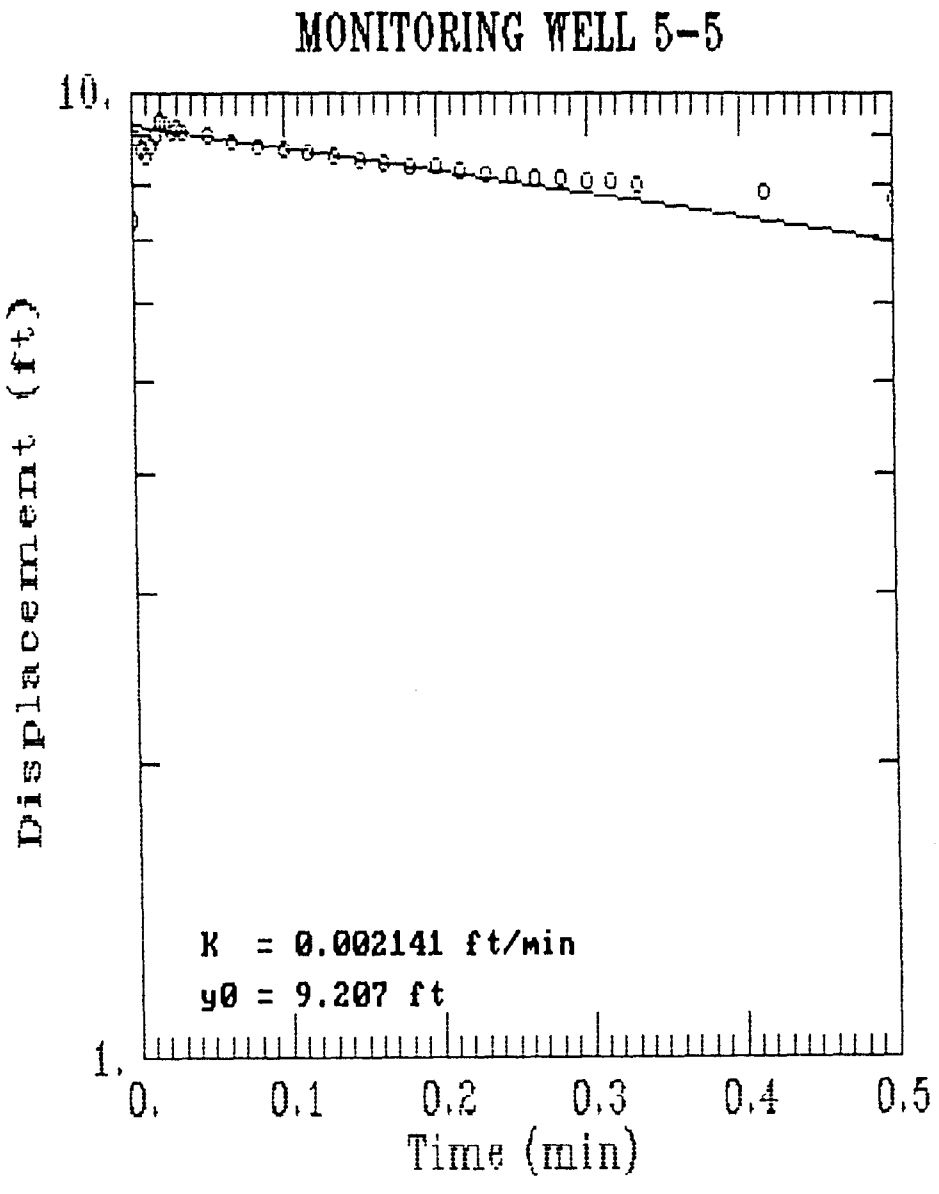
K = 2.14100E-003
y0 = 9.20700E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.207E+000	5.000E-001	6.984E+000		

TYPE CURVE DATA

K = 2.14100E-003
y0 = 9.20700E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.207E+000	5.000E-001	6.984E+000		



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A Q T E S O L V   R E S U L T S
Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-11-1.DAT
Data set title..... MONITORING WELL 11-1

Knowns and Constants:
- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 6.54
- Well screen length.................. 6.54
- Static height of water in well...... 6.54
- Log(Re/Rw).......................... 2.205
- A, B, C............................. 0.000, 0.000, 1.649

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	5.7376E-005	+/-	1.3602E-005
y0 =	8.7943E+000	+/-	8.2474E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 64
- Number of estimated parameters.... 2
- Degrees of freedom................ 62
- Residual mean..................... 0.0001278
- Residual standard deviation....... 0.5262
- Residual variance................. 0.2769

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	10.546	8.794	1.752	1
0.0066	9.527	8.7936	0.73339	1
0.01	9.852	8.7932	1.0588	1
0.0133	9.855	8.7929	1.0621	1
0.0166	9.791	8.7925	0.99847	1
0.02	9.746	8.7922	0.95384	1
0.0233	9.71	8.7918	0.91819	1
0.0266	9.64	8.7915	0.84855	1
0.03	9.572	8.7911	0.78091	1
0.0333	9.579	8.7907	0.78827	1
0.05	9.395	8.7889	0.60607	1
0.0666	9.228	8.7871	0.44085	1
0.0833	9.093	8.7853	0.30765	1
0.1	8.971	8.7836	0.18745	1
0.1166	8.871	8.7818	0.089235	1
0.1333	8.781	8.78	0.0010312	1
0.15	8.707	8.7782	-0.071173	1
0.1666	8.64	8.7764	-0.13639	1
0.1833	8.582	8.7746	-0.19259	1
0.2	8.54	8.7728	-0.2328	1
0.2166	8.498	8.771	-0.27301	1
0.2333	8.466	8.7692	-0.30322	1
0.25	8.434	8.7674	-0.33343	1
0.2666	8.412	8.7656	-0.35364	1
0.2833	8.389	8.7639	-0.37485	1
0.3	8.37	8.7621	-0.39206	1
0.3166	8.354	8.7603	-0.40628	1
0.3333	8.341	8.7585	-0.41748	1
0.4166	8.293	8.7496	-0.45655	1
0.5	8.264	8.7406	-0.47662	1
0.5833	8.248	8.7317	-0.4837	1
0.6666	8.238	8.7228	-0.4848	1
0.75	8.228	8.7139	-0.48589	1
0.8333	8.219	8.705	-0.486	1
0.9166	8.219	8.6961	-0.47713	1
1	8.209	8.6872	-0.47825	1
1.0833	8.209	8.6784	-0.46939	1
1.1666	8.206	8.6695	-0.46354	1
1.25	8.203	8.6607	-0.45768	1
1.3333	8.2	8.6519	-0.45185	1
4.4166	8.2	8.3312	-0.13117	1
1.5	8.196	8.6342	-0.4382	1
1.5833	8.2	8.6254	-0.4254	1
1.6666	8.196	8.6166	-0.4206	1
1.75	8.196	8.6078	-0.4118	1
1.8333	8.196	8.599	-0.40302	1
1.9166	8.196	8.5903	-0.39425	1
2	8.196	8.5815	-0.38548	1
2.5	8.193	8.5291	-0.33608	1
3	8.19	8.477	-0.287	1
3.5	8.187	8.4252	-0.23824	1
4	8.19	8.3738	-0.1838	1
4.5	8.19	8.3227	-0.13266	1
5	8.19	8.2718	-0.081846	1
5.5	8.19	8.2213	-0.031337	1
6	8.19	8.1711	0.018863	1
6.5	8.19	8.1212	0.068756	1
7	8.19	8.0717	0.11835	1
7.5	8.19	8.0224	0.16763	1

8	8.193	7.9734	0.21962	1
8.5	8.19	7.9247	0.2653	1
9	8.19	7.8763	0.31369	1
9.5	8.19	7.8282	0.36179	1
10	8.187	7.7804	0.40658	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.7376E-005
y0 =	8.7943E+000

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TYPE CURVE DATA

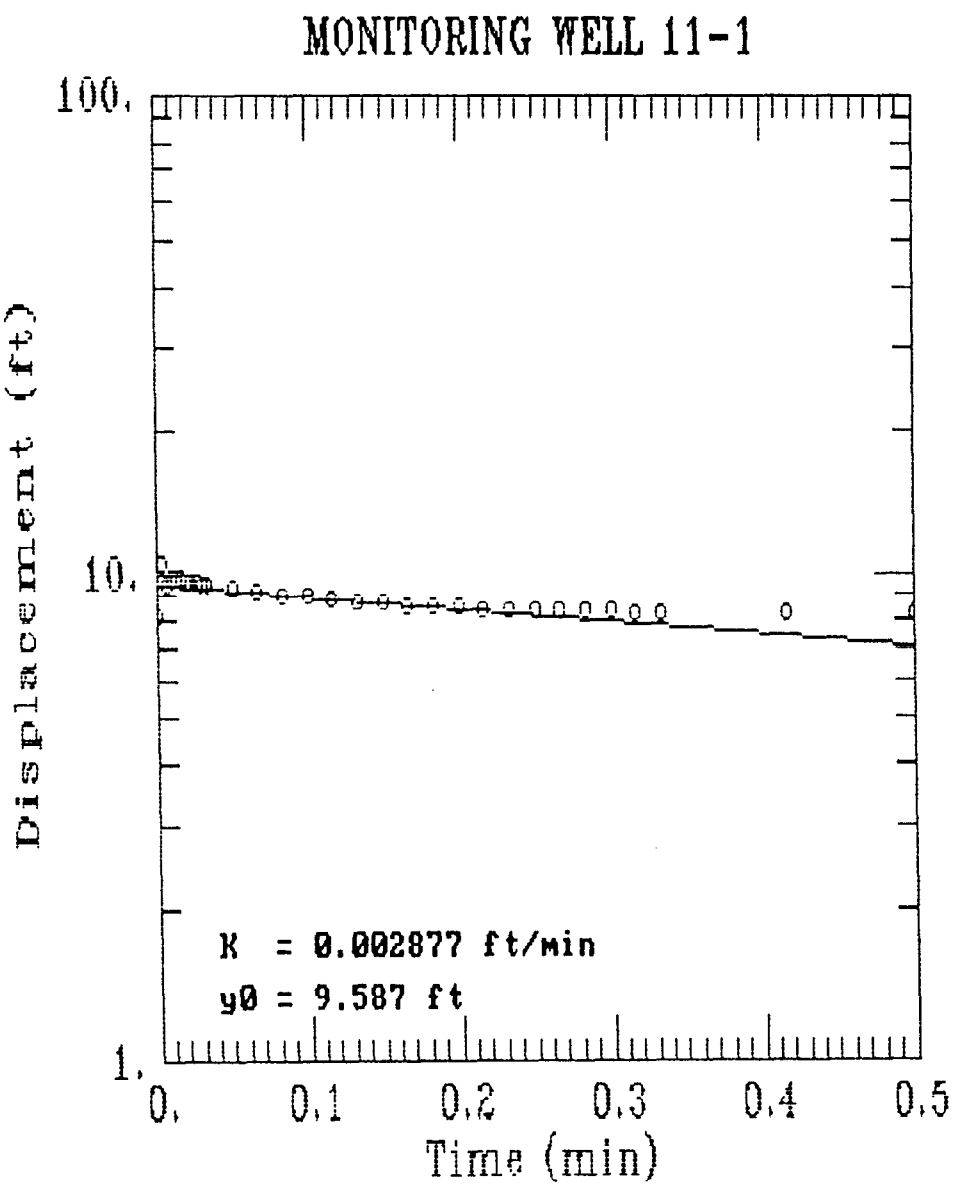
K = 2.87656E-003
y0 = 9.58665E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.587E+000	5.000E-001	7.052E+000		

TYPE CURVE DATA

K = 2.87656E-003
y0 = 9.58665E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.587E+000	5.000E-001	7.052E+000		



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Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-11-3.DAT
Data set title..... MONITORING WELL 11-3

Knowns and Constants:
No. of data points.................. 64
Radius of well casing............... 0.1667
Radius of well...................... 0.3333
Aquifer saturated thickness......... 6.94
Well screen length.................. 6.94
Static height of water in well...... 6.94
Log(Re/Rw).......................... 2.256
A, B, C............................. 0.000, 0.000, 1.686

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	6.2653E-005	+/-	1.3045E-005
y0 =	8.8503E+000	+/-	8.1821E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals................ 64
Number of estimated parameters.... 2
Degrees of freedom................ 62
Residual mean..................... 0.0001805
Residual standard deviation....... 0.5213
Residual variance................. 0.2718

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	10.281	8.8499	1.4311	1
0.0066	9.931	8.8495	1.0815	1
0.01	9.863	8.849	1.014	1
0.0133	9.831	8.8486	0.98236	1
0.0166	9.77	8.8482	0.92177	1
0.02	9.757	8.8478	0.90919	1
0.0233	9.69	8.8474	0.84259	1
0.0266	9.645	8.847	0.798	1
0.03	9.574	8.8466	0.72741	1
0.0333	9.574	8.8462	0.72782	1
0.05	9.458	8.8441	0.61387	1
0.0666	9.333	8.8421	0.4909	1
0.0833	9.224	8.84	0.38395	1
0.1	9.124	8.838	0.286	1
0.1166	9.031	8.836	0.19503	1
0.1333	8.947	8.8339	0.11308	1
0.15	8.876	8.8319	0.044128	1
0.1666	8.812	8.8298	-0.017839	1
0.1833	8.748	8.8278	-0.079794	1
0.2	8.696	8.8257	-0.12975	1
0.2166	8.642	8.8237	-0.18172	1
0.2333	8.603	8.8217	-0.21867	1
0.25	8.561	8.8196	-0.25863	1
0.2666	8.526	8.8176	-0.2916	1
0.2833	8.494	8.8156	-0.32156	1
0.3	8.465	8.8135	-0.34851	1
0.3166	8.439	8.8115	-0.37248	1
0.3333	8.417	8.8094	-0.39244	1
0.4166	8.336	8.7993	-0.46327	1
0.5	8.288	8.7891	-0.5011	1
0.5833	8.259	8.7789	-0.51995	1
0.6666	8.23	8.7688	-0.53881	1
0.75	8.221	8.7587	-0.53767	1
0.8333	8.211	8.7486	-0.53755	1
0.9166	8.205	8.7385	-0.53345	1
1	8.198	8.7283	-0.53035	1
1.0833	8.192	8.7183	-0.52627	1
1.1666	8.188	8.7082	-0.5202	1
1.25	8.185	8.6981	-0.51313	1
1.3333	8.182	8.6881	-0.50608	1
4.4166	8.179	8.3243	-0.14532	1
1.5	8.179	8.668	-0.48902	1
1.5833	8.176	8.658	-0.48201	1
1.6666	8.176	8.648	-0.47201	1
1.75	8.172	8.638	-0.46601	1
1.8333	8.169	8.628	-0.45903	1
1.9166	8.172	8.6181	-0.44607	1
2	8.166	8.6081	-0.4421	1
2.5	8.166	8.5486	-0.3826	1
3	8.166	8.4895	-0.32352	1
3.5	8.16	8.4308	-0.27084	1
4	8.163	8.3726	-0.20956	1
4.5	8.16	8.3147	-0.15469	1
5	8.16	8.2572	-0.097222	1
5.5	8.16	8.2001	-0.040149	1
6	8.163	8.1435	0.01953	1
6.5	8.163	8.0872	0.075818	1
7	8.163	8.0313	0.13172	1
7.5	8.163	7.9758	0.18723	1

8	8.163	7.9206	0.24236	1
8.5	8.163	7.8659	0.2971	1
9	8.163	7.8115	0.35147	1
9.5	8.163	7.7575	0.40546	1
10	8.163	7.7039	0.45908	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	6.2653E-005
y0 =	8.8503E+000

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TYPE CURVE DATA

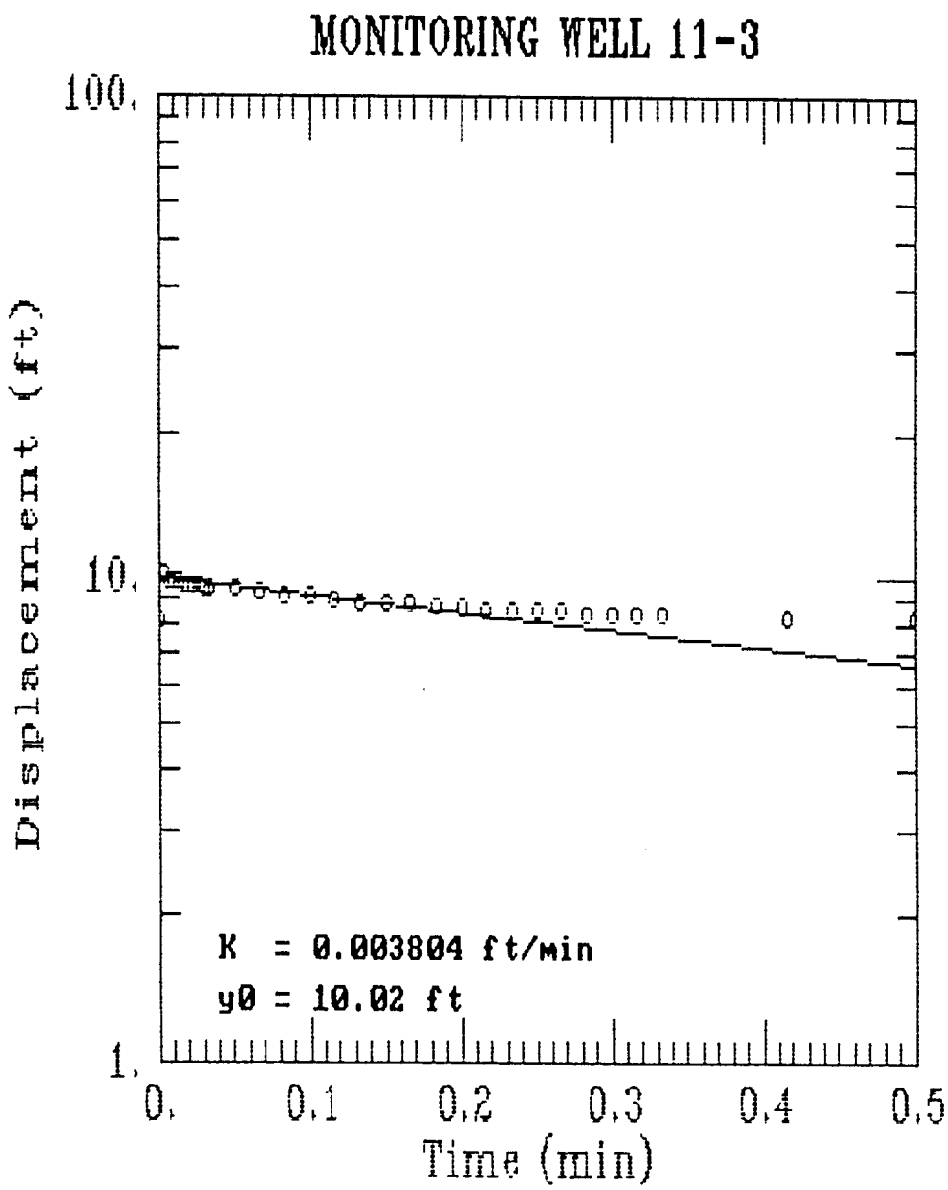
K = 3.80399E-003
y0 = 1.00181E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.002E+001	5.000E-001	6.575E+000		

TYPE CURVE DATA

K = 3.80399E-003
y0 = 1.00181E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.002E+001	5.000E-001	6.575E+000		



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Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-11-5.DAT
Data set title..... MONITORING WELL 11-5

Knowns and Constants:
- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 6.91
- Well screen length.................. 6.91
- Static height of water in well...... 6.91
- Log(Re/Rw).......................... 2.252
- A, B, C............................. 0.000, 0.000, 1.683

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	5.5578E-005	+/-	1.2569E-005
y0 =	8.7675E+000	+/-	7.8572E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 64
- Number of estimated parameters.... 2
- Degrees of freedom................ 62
- Residual mean..................... 0.000128
- Residual standard deviation....... 0.5013
- Residual variance................. 0.2513

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	9.881	8.7671	1.1139	1
0.0066	9.791	8.7667	1.0243	1
0.01	9.794	8.7664	1.0276	1
0.0133	9.723	8.766	0.95697	1
0.0166	9.71	8.7657	0.94433	1
0.02	9.637	8.7653	0.87169	1
0.0233	9.64	8.765	0.87505	1
0.0266	9.643	8.7646	0.8784	1
0.03	9.566	8.7642	0.80177	1
0.0333	9.608	8.7639	0.84412	1
0.05	9.383	8.7621	0.62092	1
0.0666	9.248	8.7603	0.4877	1
0.0833	9.125	8.7585	0.3665	1
0.1	9.016	8.7567	0.25929	1
0.1166	8.92	8.7549	0.16508	1
0.1333	8.83	8.7531	0.076872	1
0.15	8.749	8.7513	-0.0023345	1
0.1666	8.682	8.7496	-0.067552	1
0.1833	8.618	8.7478	-0.12976	1
0.2	8.56	8.746	-0.18597	1
0.2166	8.511	8.7442	-0.23318	1
0.2333	8.466	8.7424	-0.27639	1
0.25	8.431	8.7406	-0.3096	1
0.2666	8.392	8.7388	-0.34682	1
0.2833	8.363	8.737	-0.37403	1
0.3	8.341	8.7352	-0.39424	1
0.3166	8.322	8.7335	-0.41146	1
0.3333	8.299	8.7317	-0.43267	1
0.4166	8.245	8.7227	-0.47775	1
0.5	8.219	8.7138	-0.49482	1
0.5833	8.203	8.7049	-0.50192	1
0.6666	8.196	8.696	-0.50003	1
0.75	8.19	8.6871	-0.49713	1
0.8333	8.187	8.6783	-0.49125	1
0.9166	8.18	8.6694	-0.48939	1
1	8.177	8.6605	-0.48352	1
1.0833	8.177	8.6517	-0.47467	1
1.1666	8.177	8.6428	-0.46583	1
1.25	8.174	8.634	-0.45999	1
1.3333	8.174	8.6252	-0.45116	1
4.4166	8.174	8.3049	-0.13088	1
1.5	8.174	8.6075	-0.43354	1
1.5833	8.171	8.5987	-0.42774	1
1.6666	8.171	8.59	-0.41895	1
1.75	8.171	8.5812	-0.41017	1
1.8333	8.171	8.5724	-0.4014	1
1.9166	8.171	8.5636	-0.39264	1
2	8.171	8.5549	-0.38388	1
2.5	8.164	8.5025	-0.33854	1
3	8.164	8.4505	-0.28653	1
3.5	8.164	8.3988	-0.23483	1
4	8.164	8.3475	-0.18345	1
4.5	8.164	8.2964	-0.13239	1
5	8.161	8.2456	-0.084632	1
5.5	8.164	8.1952	-0.031188	1
6	8.164	8.1451	0.018946	1
6.5	8.161	8.0952	0.065774	1
7	8.164	8.0457	0.1183	1
7.5	8.164	7.9965	0.16752	1

8	8.164	7.9476	0.21644	1
8.5	8.164	7.8989	0.26506	1
9	8.164	7.8506	0.31338	1
9.5	8.164	7.8026	0.3614	1
10	8.164	7.7549	0.40914	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.5578E-005
y0 =	8.7675E+000

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TYPE CURVE DATA

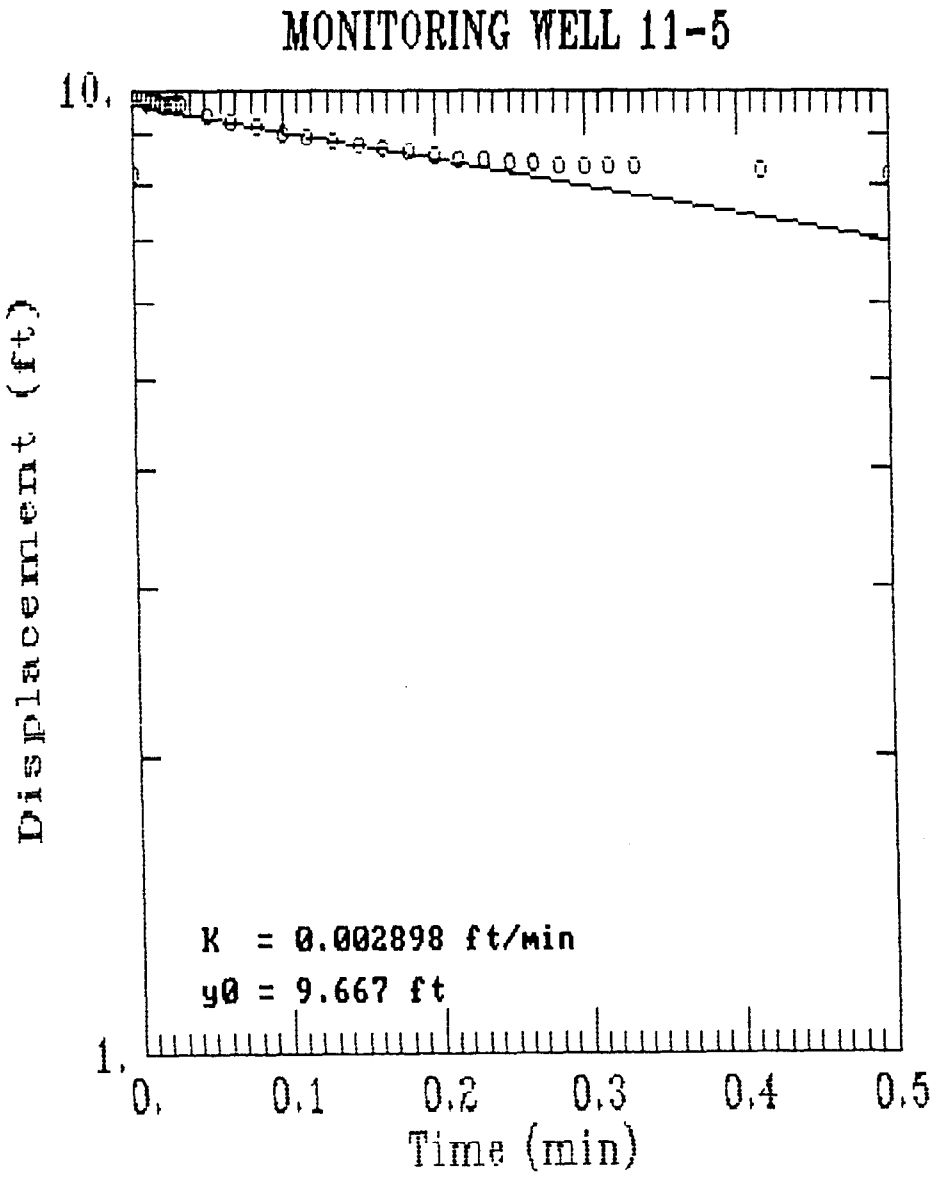
K = 2.89826E-003
y0 = 9.66724E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.667E+000	5.000E-001	7.020E+000		

TYPE CURVE DATA

K = 2.89826E-003
y0 = 9.66724E+000

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	9.667E+000	5.000E-001	7.020E+000		



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Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-11-7.DAT
Data set title..... MONITORING WELL 11-7

Knowns and Constants:
No. of data points.................. 64
Radius of well casing............... 0.1667
Radius of well...................... 0.3333
Aquifer saturated thickness......... 6.53
Well screen length.................. 6.53
Static height of water in well...... 6.53
Log(Re/Rw).......................... 2.203
A, B, C............................. 0.000, 0.000, 1.648

==

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	5.3717E-005	+/-	1.2044E-005
y0 =	9.7796E+000	+/-	8.1484E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals................ 64
Number of estimated parameters.... 2
Degrees of freedom................ 62
Residual mean..................... 0.0001162
Residual standard deviation....... 0.5202
Residual variance................. 0.2706

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	10.997	9.7793	1.2177	1
0.0066	10.913	9.7789	1.1341	1
0.01	10.804	9.7785	1.0255	1
0.0133	10.788	9.7782	1.0098	1
0.0166	10.737	9.7778	0.95922	1
0.02	10.724	9.7774	0.9466	1
0.0233	10.676	9.777	0.89897	1
0.0266	10.586	9.7767	0.80934	1
0.03	10.656	9.7763	0.87972	1
0.0333	10.602	9.7759	0.82609	1
0.05	10.409	9.774	0.63496	1
0.0666	10.267	9.7722	0.49482	1
0.0833	10.145	9.7703	0.37469	1
0.1	10.03	9.7684	0.26156	1
0.1166	9.927	9.7666	0.16041	1
0.1333	9.837	9.7647	0.072282	1
0.15	9.753	9.7628	-0.0098495	1
0.1666	9.682	9.761	-0.078993	1
0.1833	9.618	9.7591	-0.14113	1
0.2	9.563	9.7573	-0.19426	1
0.2166	9.512	9.7554	-0.2434	1
0.2333	9.47	9.7535	-0.28354	1
0.25	9.432	9.7517	-0.31967	1
0.2666	9.403	9.7498	-0.34682	1
0.2833	9.37	9.7479	-0.37795	1
0.3	9.351	9.7461	-0.39508	1
0.3166	9.329	9.7442	-0.41523	1
0.3333	9.313	9.7424	-0.42937	1
0.4166	9.251	9.7331	-0.48207	1
0.5	9.219	9.7238	-0.50478	1
0.5833	9.203	9.7145	-0.5115	1
0.6666	9.187	9.7052	-0.51823	1
0.75	9.181	9.696	-0.51496	1
0.8333	9.174	9.6867	-0.51271	1
0.9166	9.171	9.6775	-0.50647	1
1	9.168	9.6682	-0.50023	1
1.0833	9.165	9.659	-0.49401	1
1.1666	9.165	9.6498	-0.48479	1
1.25	9.161	9.6406	-0.47958	1
1.3333	9.161	9.6314	-0.47038	1
4.4166	9.158	9.2971	-0.13906	1
1.5	9.161	9.613	-0.452	1
1.5833	9.155	9.6038	-0.44883	1
1.6666	9.158	9.5947	-0.43667	1
1.75	9.158	9.5855	-0.4275	1
1.8333	9.155	9.5764	-0.42136	1
1.9166	9.155	9.5672	-0.41222	1
2	9.155	9.5581	-0.40309	1
2.5	9.152	9.5035	-0.35149	1
3	9.152	9.4492	-0.2972	1
3.5	9.152	9.3952	-0.24322	1
4	9.149	9.3415	-0.19255	1
4.5	9.149	9.2882	-0.13918	1
5	9.145	9.2351	-0.090126	1
5.5	9.145	9.1824	-0.03737	1
6	9.145	9.1299	0.015084	1
6.5	9.149	9.0778	0.071239	1
7	9.149	9.0259	0.1231	1
7.5	9.145	8.9743	0.17066	1

8	9.149	8.9231	0.22592	1
8.5	9.149	8.8721	0.27689	1
9	9.149	8.8214	0.32758	1
9.5	9.145	8.771	0.37397	1
10	9.145	8.7209	0.42407	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.3717E-005
y0 =	9.7796E+000

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TYPE CURVE DATA

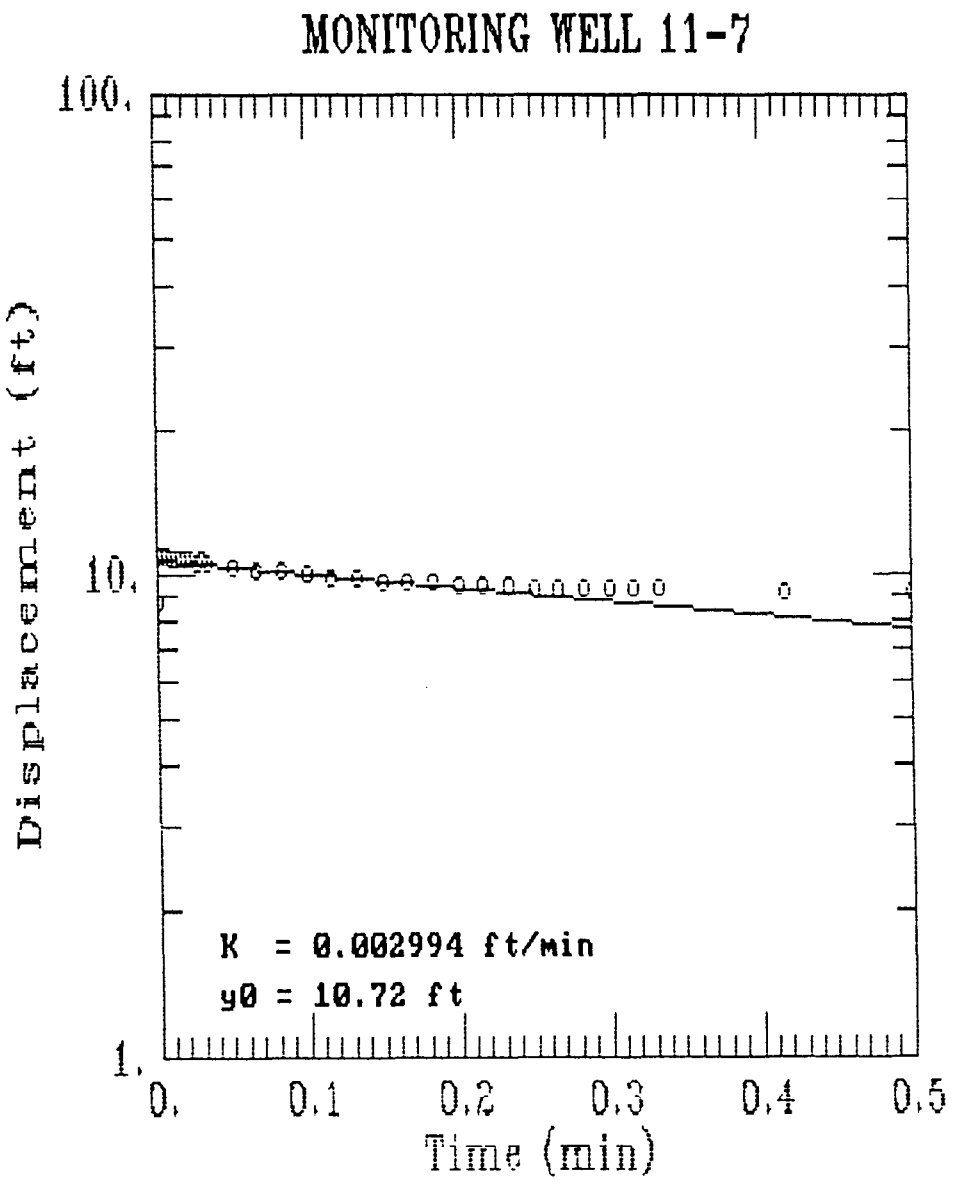
K = 2.99441E-003
y0 = 1.07218E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.072E+001	5.000E-001	7.791E+000		

TYPE CURVE DATA

K = 2.99441E-003
y0 = 1.07218E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.072E+001	5.000E-001	7.791E+000		



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A Q T E S O L V   R E S U L T S
Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-16-1.DAT
Data set title..... MONITORING WELL 16-1

Knowns and Constants:
- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 6.68
- Well screen length.................. 6.68
- Static height of water in well...... 6.68
- Log(Re/Rw).......................... 2.223
- A, B, C............................. 0.000, 0.000, 1.662

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	2.5380E-005	+/-	5.7531E-006
y0 =	1.3707E+001	+/-	5.7134E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 64
- Number of estimated parameters.... 2
- Degrees of freedom................ 62
- Residual mean..................... 1.835E-005
- Residual standard deviation....... 0.3666
- Residual variance................. 0.1344

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	14.564	13.707	0.85738	1
0.0066	14.516	13.706	0.80963	1
0.01	14.484	13.706	0.77788	1
0.0133	14.458	13.706	0.75213	1
0.0166	14.429	13.706	0.72338	1
0.02	14.394	13.705	0.68864	1
0.0233	14.371	13.705	0.66588	1
0.0266	14.33	13.705	0.62513	1
0.03	14.31	13.705	0.60539	1
0.0333	14.282	13.704	0.57764	1
0.05	14.124	13.703	0.42089	1
0.0666	14.021	13.702	0.31914	1
0.0833	13.915	13.701	0.2144	1
0.1	13.825	13.699	0.12565	1
0.1166	13.745	13.698	0.0469	1
0.1333	13.677	13.697	-0.019844	1
0.15	13.626	13.696	-0.069588	1
0.1666	13.581	13.694	-0.11334	1
0.1833	13.546	13.693	-0.14709	1
0.2	13.517	13.692	-0.17483	1
0.2166	13.491	13.691	-0.19958	1
0.2333	13.472	13.689	-0.21733	1
0.25	13.456	13.688	-0.23207	1
0.2666	13.44	13.687	-0.24683	1
0.2833	13.423	13.686	-0.26257	1
0.3	13.417	13.684	-0.26732	1
0.3166	13.404	13.683	-0.27907	1
0.3333	13.398	13.682	-0.28382	1
0.4166	13.366	13.676	-0.30956	1
0.5	13.346	13.669	-0.3233	1
0.5833	13.334	13.663	-0.32905	1
0.6666	13.327	13.657	-0.32981	1
0.75	13.317	13.651	-0.33356	1
0.8333	13.314	13.644	-0.33032	1
0.9166	13.308	13.638	-0.33008	1
1	13.305	13.632	-0.32684	1
1.0833	13.301	13.626	-0.32461	1
1.1666	13.295	13.619	-0.32438	1
1.25	13.295	13.613	-0.31814	1
1.3333	13.295	13.607	-0.31192	1
4.4166	13.288	13.379	-0.090566	1
1.5	13.288	13.594	-0.30647	1
1.5833	13.285	13.588	-0.30326	1
1.6666	13.285	13.582	-0.29705	1
1.75	13.282	13.576	-0.29383	1
1.8333	13.282	13.57	-0.28763	1
1.9166	13.279	13.563	-0.28442	1
2	13.279	13.557	-0.27822	1
2.5	13.272	13.52	-0.24806	1
3	13.269	13.483	-0.214	1
3.5	13.269	13.446	-0.17705	1
4	13.266	13.409	-0.14319	1
4.5	13.266	13.372	-0.10644	1
5	13.266	13.336	-0.069792	1
5.5	13.266	13.299	-0.033241	1
6	13.263	13.263	0.0002095	1
6.5	13.266	13.226	0.03956	1
7	13.266	13.19	0.075811	1
7.5	13.266	13.154	0.11196	1

8	13.266	13.118	0.14802	1
8.5	13.266	13.082	0.18397	1
9	13.266	13.046	0.21982	1
9.5	13.269	13.01	0.25858	1
10	13.266	12.975	0.29124	1

===

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	2.5380E-005
y0 =	1.3707E+001

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TYPE CURVE DATA

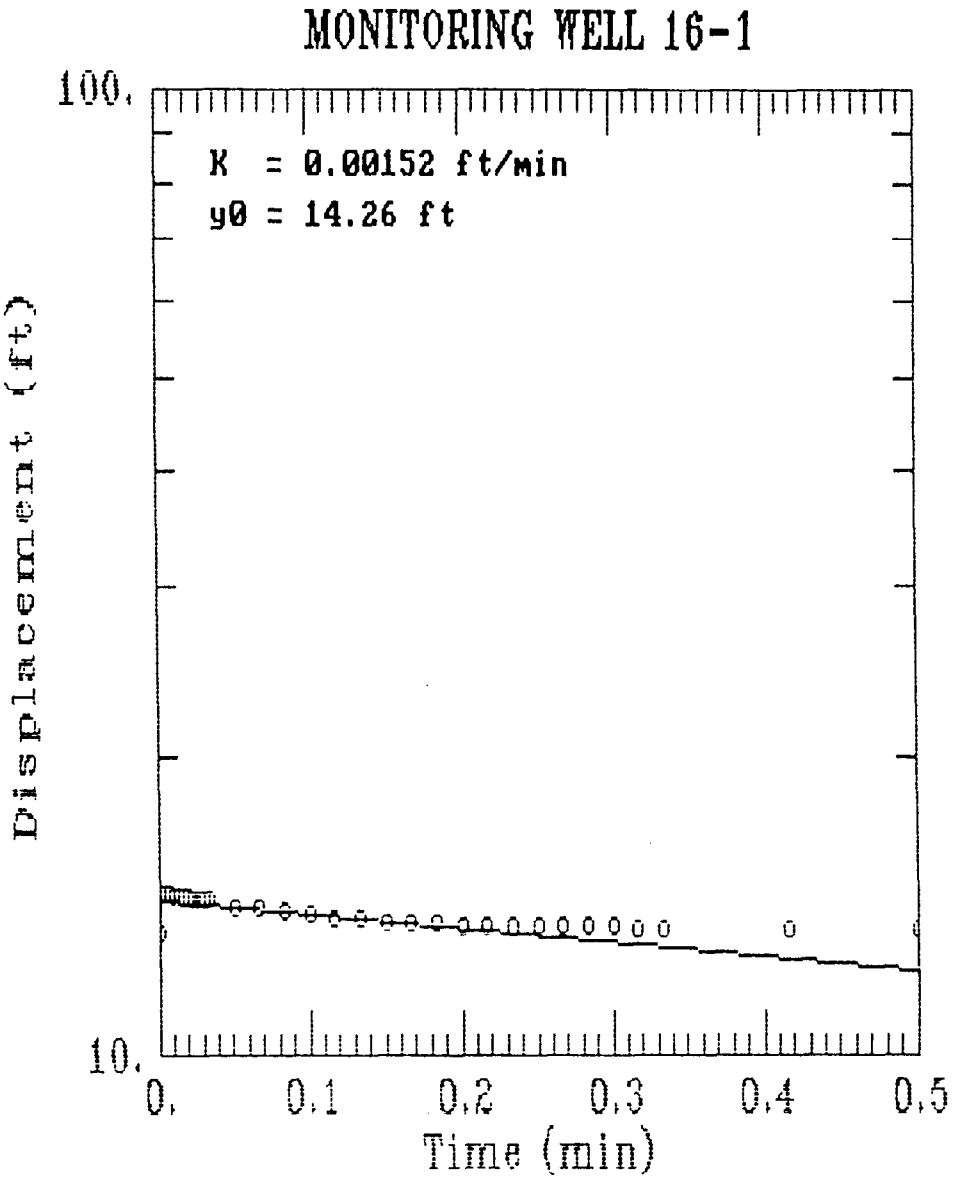
K = 1.51957E-003
y0 = 1.42579E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.426E+001	5.000E-001	1.210E+001		

TYPE CURVE DATA

K = 1.51957E-003
y0 = 1.42579E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.426E+001	5.000E-001	1.210E+001		



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A Q T E S O L V   R E S U L T S

Version 1.10

05/15/92 15:10:42

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TEST DESCRIPTION

Data set........... A:KBA-16-2.DAT
Data set title..... MONITORING WELL 16-2

Knowns and Constants:
- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 8.27
- Well screen length.................. 8.27
- Static height of water in well...... 8.27
- Log(Re/Rw).......................... 2.407
- A, B, C............................. 0.000, 0.000, 1.808

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	5.0463E-005	+/-	7.6150E-006
y0 =	1.2556E+001	+/-	7.6243E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 64
- Number of estimated parameters.... 2
- Degrees of freedom................ 62
- Residual mean..................... 0.0001663
- Residual standard deviation....... 0.4863
- Residual variance................. 0.2365

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	13.215	12.555	0.65999	1
0.0066	13.357	12.554	0.8025	1
0.01	13.524	12.554	0.97003	1
0.0133	13.312	12.553	0.75855	1
0.0166	13.331	12.553	0.77807	1
0.02	13.366	12.552	0.8136	1
0.0233	13.286	12.552	0.73412	1
0.0266	13.279	12.551	0.72763	1
0.03	13.283	12.551	0.73217	1
0.0333	13.231	12.55	0.68068	1
0.05	13.157	12.548	0.6093	1
0.0666	13.064	12.545	0.5189	1
0.0833	12.99	12.542	0.44751	1
0.1	12.923	12.54	0.38312	1
0.1166	12.855	12.537	0.31772	1
0.1333	12.794	12.535	0.25933	1
0.15	12.736	12.532	0.20394	1
0.1666	12.681	12.529	0.15154	1
0.1833	12.636	12.527	0.10915	1
0.2	12.591	12.524	0.066759	1
0.2166	12.55	12.522	0.028352	1
0.2333	12.505	12.519	-0.014039	1
0.25	12.466	12.516	-0.050431	1
0.2666	12.431	12.514	-0.082839	1
0.2833	12.395	12.511	-0.11623	1
0.3	12.366	12.509	-0.14263	1
0.3166	12.334	12.506	-0.17204	1
0.3333	12.305	12.503	-0.19843	1
0.4166	12.18	12.49	-0.31044	1
0.5	12.077	12.477	-0.40045	1
0.5833	12.003	12.464	-0.46149	1
0.6666	11.945	12.452	-0.50654	1
0.75	11.897	12.439	-0.54159	1
0.8333	11.861	12.426	-0.56467	1
0.9166	11.829	12.413	-0.58377	1
1	11.804	12.4	-0.59586	1
1.0833	11.787	12.387	-0.59998	1
1.1666	11.771	12.374	-0.60311	1
1.25	11.759	12.361	-0.60224	1
1.3333	11.749	12.348	-0.5994	1
4.4166	11.739	11.882	-0.1434	1
1.5	11.733	12.323	-0.58975	1
1.5833	11.726	12.31	-0.58395	1
1.6666	11.72	12.297	-0.57716	1
1.75	11.717	12.284	-0.56737	1
1.8333	11.714	12.272	-0.55761	1
1.9166	11.71	12.259	-0.54886	1
2	11.704	12.246	-0.54212	1
2.5	11.691	12.17	-0.47896	1
3	11.678	12.094	-0.41628	1
3.5	11.672	12.019	-0.34707	1
4	11.665	11.944	-0.27933	1
4.5	11.659	11.87	-0.21105	1
5	11.656	11.796	-0.14023	1
5.5	11.649	11.723	-0.073873	1
6	11.646	11.65	-0.0039723	1
6.5	11.643	11.578	0.065475	1
7	11.64	11.506	0.13447	1
7.5	11.64	11.434	0.20602	1

8	11.636	11.363	0.27313	1
8.5	11.633	11.292	0.34079	1
9	11.633	11.222	0.41101	1
9.5	11.633	11.152	0.4808	1
10	11.636	11.083	0.55315	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.0463E-005
y0 =	1.2556E+001

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TYPE CURVE DATA

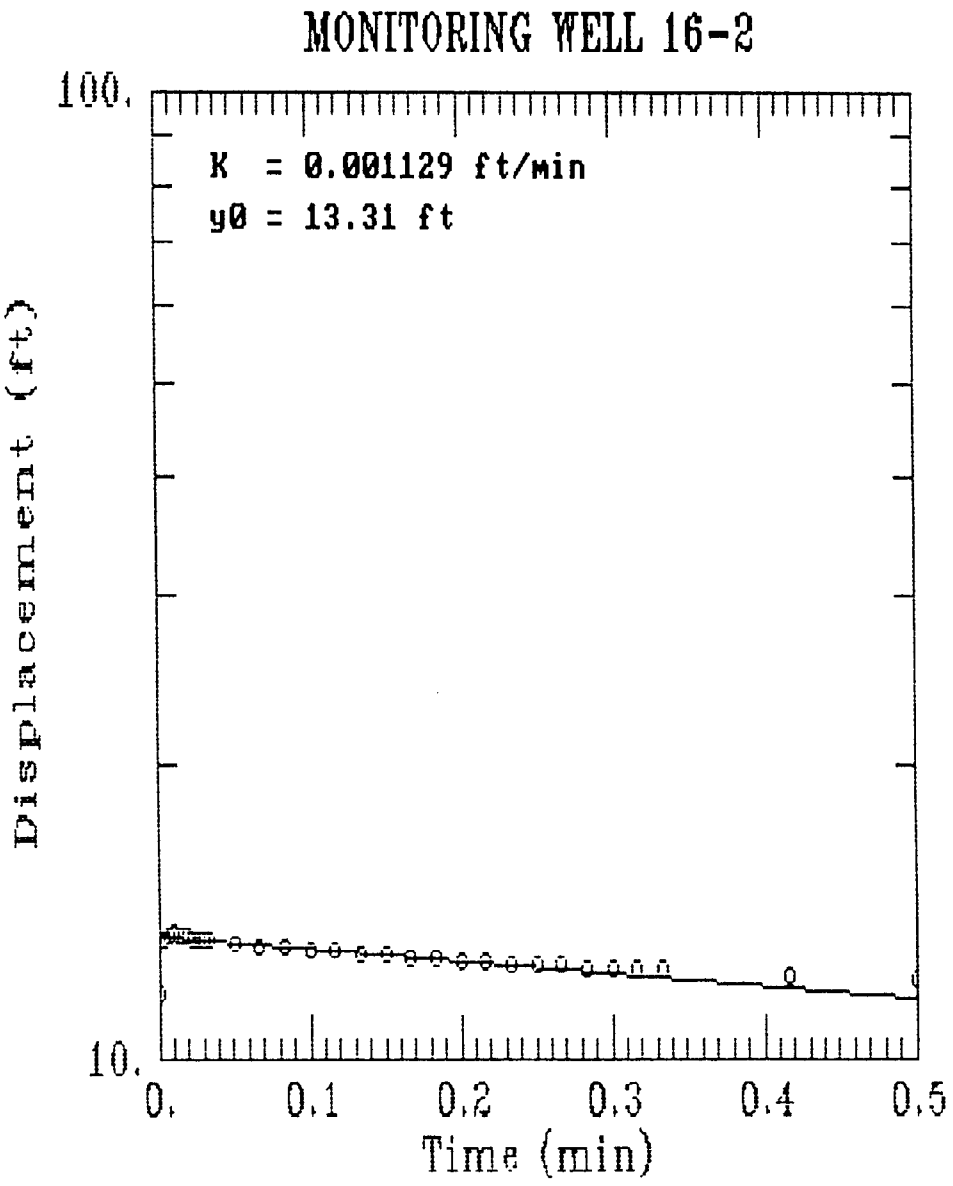
K = 1.12908E-003
y0 = 1.33050E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.331E+001	5.000E-001	1.157E+001		

TYPE CURVE DATA

K = 1.12908E-003
y0 = 1.33050E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.331E+001	5.000E-001	1.157E+001		



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A Q T E S O L V   R E S U L T S
Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-16-3.DAT
Data set title..... MONITORING WELL 16-3

Knowns and Constants:
No. of data points.................. 64
Radius of well casing............... 0.1667
Radius of well...................... 0.3333
Aquifer saturated thickness......... 7.66
Well screen length.................. 7.66
Static height of water in well...... 7.66
Log(Re/Rw).......................... 2.341
A, B, C............................. 0.000, 0.000, 1.752

==

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.7634E-005	+/-	7.7777E-006
y0 =	1.2800E+001	+/-	7.7113E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals............... 64
Number of estimated parameters.... 2
Degrees of freedom................ 62
Residual mean..................... 6.649E-005
Residual standard deviation....... 0.4934
Residual variance................. 0.2434

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	14.15	12.8	1.35	1
0.0066	13.733	12.8	0.93342	1
0.01	13.697	12.799	0.89781	1
0.0133	13.79	12.799	0.99118	1
0.0166	13.739	12.798	0.94056	1
0.02	13.694	12.798	0.89594	1
0.0233	13.655	12.798	0.85732	1
0.0266	13.633	12.797	0.83569	1
0.03	13.601	12.797	0.80408	1
0.0333	13.553	12.797	0.75645	1
0.05	13.395	12.795	0.60034	1
0.0666	13.254	12.793	0.46123	1
0.0833	13.128	12.791	0.33712	1
0.1	13.016	12.789	0.22701	1
0.1166	12.919	12.787	0.13189	1
0.1333	12.829	12.785	0.043785	1
0.15	12.752	12.783	-0.031323	1
0.1666	12.681	12.781	-0.10044	1
0.1833	12.624	12.78	-0.15555	1
0.2	12.569	12.778	-0.20866	1
0.2166	12.527	12.776	-0.24878	1
0.2333	12.492	12.774	-0.28189	1
0.25	12.46	12.772	-0.312	1
0.2666	12.434	12.77	-0.33612	1
0.2833	12.411	12.768	-0.35723	1
0.3	12.398	12.766	-0.36834	1
0.3166	12.386	12.764	-0.37846	1
0.3333	12.37	12.763	-0.39257	1
0.4166	12.328	12.753	-0.42516	1
0.5	12.299	12.744	-0.44474	1
0.5833	12.279	12.734	-0.45533	1
0.6666	12.263	12.725	-0.46193	1
0.75	12.257	12.716	-0.45853	1
0.8333	12.244	12.706	-0.46215	1
0.9166	12.238	12.697	-0.45877	1
1	12.231	12.687	-0.45639	1
1.0833	12.225	12.678	-0.45303	1
1.1666	12.218	12.669	-0.45068	1
1.25	12.215	12.659	-0.44432	1
1.3333	12.212	12.65	-0.43797	1
4.4166	12.209	12.309	-0.10001	1
1.5	12.202	12.631	-0.4293	1
1.5833	12.199	12.622	-0.42298	1
1.6666	12.196	12.613	-0.41667	1
1.75	12.196	12.603	-0.40735	1
1.8333	12.193	12.594	-0.40105	1
1.9166	12.189	12.585	-0.39575	1
2	12.186	12.575	-0.38946	1
2.5	12.177	12.52	-0.34286	1
3	12.167	12.465	-0.29751	1
3.5	12.157	12.409	-0.2524	1
4	12.154	12.355	-0.20054	1
4.5	12.148	12.3	-0.15192	1
5	12.144	12.246	-0.10154	1
5.5	12.144	12.191	-0.0474	1
6	12.141	12.138	0.0034999	1
6.5	12.135	12.084	0.051161	1
7	12.135	12.03	0.10458	1
7.5	12.132	11.977	0.15477	1

8	12.132	11.924	0.20773	1
8.5	12.132	11.872	0.26044	1
9	12.132	11.819	0.31293	1
9.5	12.132	11.767	0.36518	1
10	12.132	11.715	0.4172	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.7634E-005
y0 =	1.2800E+001

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TYPE CURVE DATA

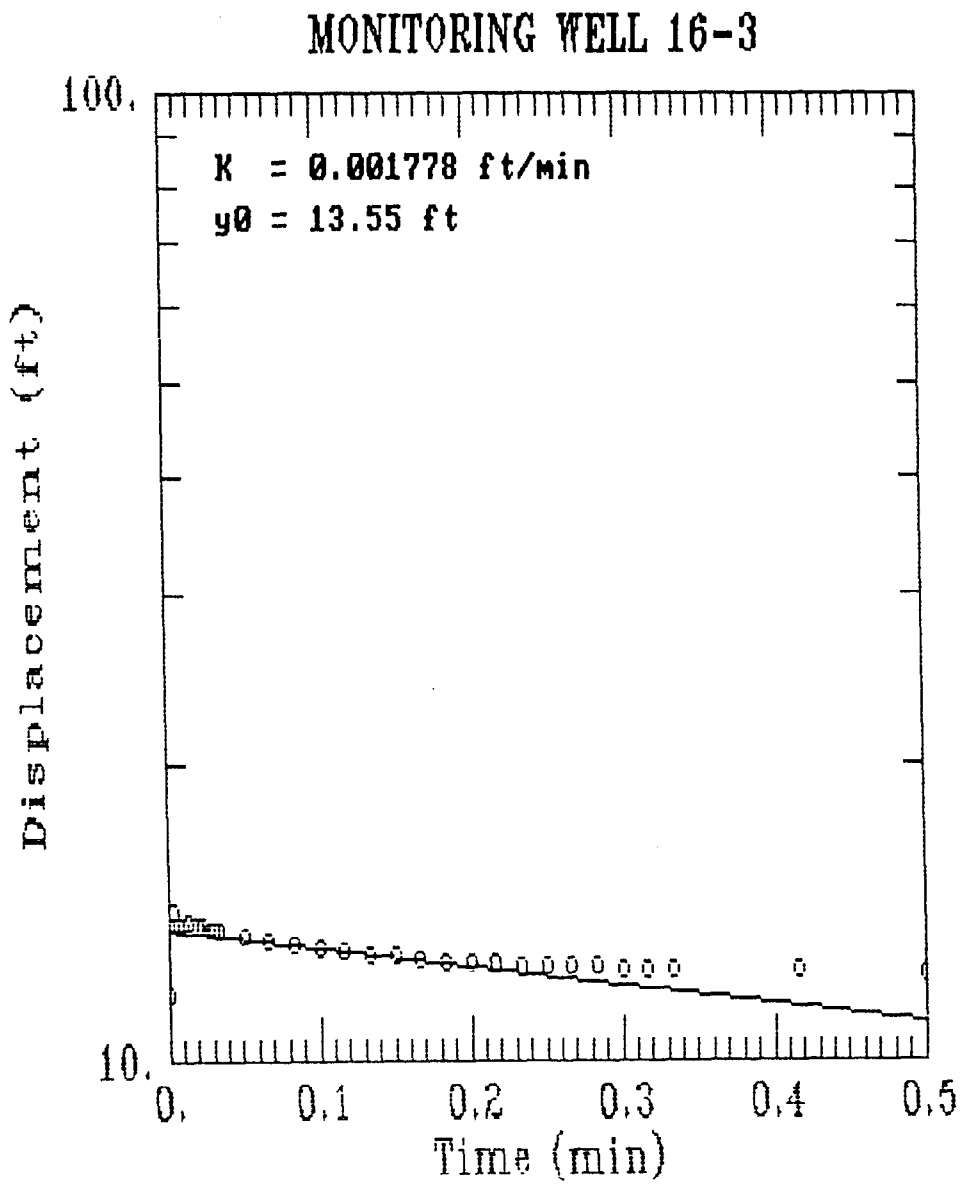
K = 1.77823E-003
y0 = 1.35498E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.355E+001	5.000E-001	1.099E+001		

TYPE CURVE DATA

K = 1.77823E-003
y0 = 1.35498E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.355E+001	5.000E-001	1.099E+001		



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A Q T E S O L V   R E S U L T S
Version 1.10

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TEST DESCRIPTION

Data set........... A:KBA-16-4.DAT
Data set title..... MONITORING WELL 16-4

Knowns and Constants:

- No. of data points.................. 64
- Radius of well casing............... 0.1667
- Radius of well...................... 0.3333
- Aquifer saturated thickness......... 9.17
- Well screen length.................. 9.17
- Static height of water in well...... 9.17
- Log(Re/Rw).......................... 2.496
- A, B, C............................. 0.000, 0.000, 1.891

==

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.6898E-005	+/-	5.0418E-006
y0 =	9.6623E+000	+/-	4.2159E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

- Number of residuals................ 64
- Number of estimated parameters.... 2
- Degrees of freedom................. 62
- Residual mean...................... 5.3E-005
- Residual standard deviation....... 0.2695
- Residual variance.................. 0.07265

Model Residuals:

Time	Observed	Calculated	Residual	Weight

0.0033	10.162	9.662	0.50004	1
0.0066	10.12	9.6616	0.45836	1
0.01	10.126	9.6613	0.46468	1
0.0133	10.142	9.661	0.48099	1
0.0166	10.133	9.6607	0.4723	1
0.02	10.107	9.6604	0.44662	1
0.0233	10.088	9.6601	0.42793	1
0.0266	10.084	9.6598	0.42424	1
0.03	10.078	9.6594	0.41856	1
0.0333	10.068	9.6591	0.40887	1
0.05	10.007	9.6576	0.34944	1
0.0666	9.956	9.656	0.30001	1
0.0833	9.904	9.6544	0.24958	1
0.1	9.859	9.6528	0.20615	1
0.1166	9.817	9.6513	0.16572	1
0.1333	9.779	9.6497	0.12929	1
0.15	9.74	9.6481	0.091861	1
0.1666	9.705	9.6466	0.058423	1
0.1833	9.676	9.645	0.030995	1
0.2	9.641	9.6434	-0.002434	1
0.2166	9.612	9.6419	-0.029873	1
0.2333	9.583	9.6403	-0.057302	1
0.25	9.56	9.6387	-0.078732	1
0.2666	9.534	9.6372	-0.10317	1
0.2833	9.522	9.6356	-0.1136	1
0.3	9.496	9.634	-0.13803	1
0.3166	9.48	9.6325	-0.15247	1
0.3333	9.46	9.6309	-0.1709	1
0.4166	9.399	9.6231	-0.22408	1
0.5	9.358	9.6153	-0.25725	1
0.5833	9.335	9.6074	-0.27244	1
0.6666	9.316	9.5996	-0.28364	1
0.75	9.296	9.5918	-0.29583	1
0.8333	9.287	9.584	-0.29704	1
0.9166	9.28	9.5763	-0.29626	1
1	9.267	9.5685	-0.30147	1
1.0833	9.261	9.5607	-0.2997	1
1.1666	9.255	9.5529	-0.29793	1
1.25	9.248	9.5452	-0.29716	1
1.3333	9.238	9.5374	-0.29941	1
4.4166	9.232	9.2548	-0.022814	1
1.5	9.229	9.5219	-0.29291	1
1.5833	9.222	9.5142	-0.29218	1
1.6666	9.216	9.5064	-0.29045	1
1.75	9.213	9.4987	-0.28572	1
1.8333	9.213	9.491	-0.278	1
1.9166	9.206	9.4833	-0.27729	1
2	9.203	9.4756	-0.27258	1
2.5	9.184	9.4295	-0.24548	1
3	9.168	9.3836	-0.2156	1
3.5	9.152	9.3379	-0.18594	1
4	9.142	9.2925	-0.1505	1
4.5	9.129	9.2473	-0.11829	1
5	9.119	9.2023	-0.083294	1
5.5	9.113	9.1575	-0.044518	1
6	9.103	9.113	-0.0099607	1
6.5	9.097	9.0686	0.02838	1
7	9.087	9.0245	0.062505	1
7.5	9.081	8.9806	0.10042	1

8	9.074	8.9369	0.13711	1
8.5	9.071	8.8934	0.1776	1
9	9.062	8.8501	0.21187	1
9.5	9.055	8.8071	0.24793	1
10	9.052	8.7642	0.28778	1

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.6898E-005
y0 =	9.6623E+000

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TYPE CURVE DATA

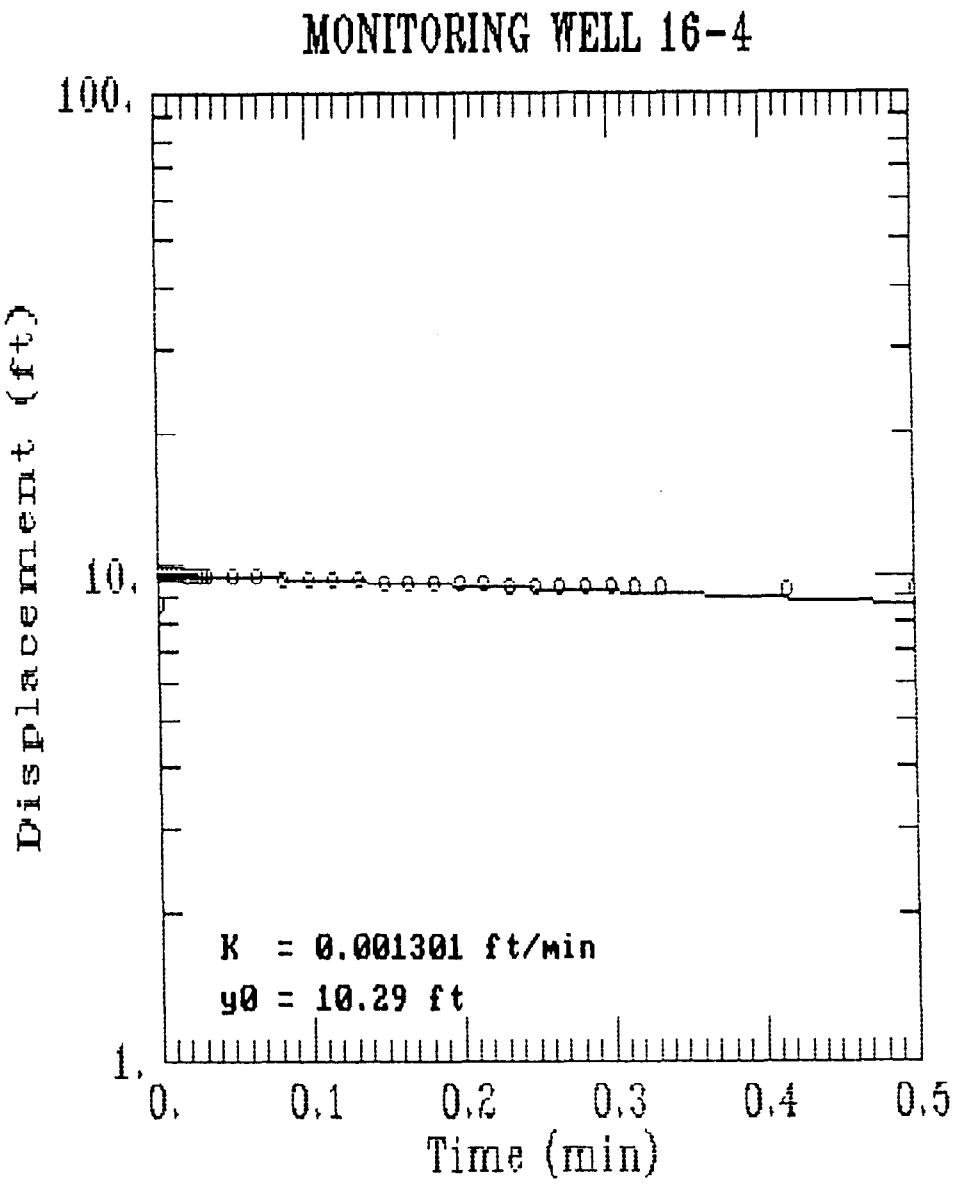
K = 1.30085E-003
y0 = 1.02857E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.029E+001	5.000E-001	8.661E+000		

TYPE CURVE DATA

K = 1.30085E-003
y0 = 1.02857E+001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	1.029E+001	5.000E-001	8.661E+000		



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DEFINITION OF DATA QUALIFIERS

Organic Data Qualifiers

J - Indicates an estimated concentration because results are either below the concentration required detection level (CRQL) or quality control criteria were not met.

U - Indicates that compound was analyzed but not detected.

UJ - Indicates that quantitation level was estimated because QC criteria were not met.

NJ - Presumptive evidence for the presence of a compound at an estimated value.

E - Indicates that the analyte concentration exceeded the calibration range of the GC/MS and re-analysis of diluted sample within calibration range.

D - Indicates that sample concentration was obtained by dilution to bring result within calibration range.

X - Total concentration of two indistinguishable isomers (i.e., 3-Methylphenol and 4-Methylphenol).

UR - Indicates that the reported detection limit is unusuable because QA criteria were not met.

Inorganic Data Qualifiers

J - Indicates an estimated concentration because results are either below the concentration required detection level (CRQL) or quality control criteria were not met.

U - Indicates that compound was analyzed but not detected.

UJ - Indicates that quantitation level was estimated because QC criteria were not met.

E - The reported concentration is estimated because of the presence of an interference.

UR - Indicates that the reported detection limit is unusable because QC criteria were not met.

SOIL
SAMPLE EVENT NO. 1
FEBRUARY 1992

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

	SAMPLE LOCATION:	5-SB-01	5-SB-02	5-SB-02D	5-SB-03	5-SB-04	5-SB-05	5-SB-06
	LAB NUMBER:	S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
	DATE SAMPLED:	02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
	DATE ANALYZED:	02/14/92	02/13/92	02/17/92	02/14/92	02/14/92	02/17/92	02/17/92
	% SOLIDS:	80.0	80.0	90.0	80.0	74.0	76.0	85.0
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	2.0
ANALYTE	CRQL							
Chloromethane	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Bromomethane	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Vinyl Chloride	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Chloroethane	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Methylene Chloride	5	20 U	43 U	16 U	27 U	37 U	36 U	90
Acetone	10	100	95 U	35 U	22 U	180	170	460
Carbon Disulfide	5	6 U	6 U	6 U	6 U	7 U	7 U	7
Trichlorofluoromethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,1-Dichloroethene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,1-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Chloroform	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,2-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
2-Butanone	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Carbon Tetrachloride	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Vinyl Acetate	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Bromodichloromethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,2-Dichloropropane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
cis-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Trichloroethene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Dibromochloromethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Benzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
trans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
2-Chloroethylvinylether	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Bromoform	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
2-Hexanone	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
4-Methyl-2-Pentanone	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Tetrachloroethene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Toluene	5	6 U	6 U	6 U	6 U	7 U	7 U	4 J
Chlorobenzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Ethylbenzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Styrene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Xylene (total)	5	3 J	3 J	6 U	3 J	3 J	9	15
1,3-Dichlorobenzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,4-Dichlorobenzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,2-Dichlorobenzene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Acrolein	100	120 U	120 U	110 U	120 U	140 U	130 U	240 U
Iodomethane	10	12 U	12 U	11 U	12 U	14 U	13 U	24 U
Acrylonitrile	100	120 U	120 U	110 U	120 U	140 U	130 U	240 U
Dibromomethane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Ethyl Methacrylate	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
1,2,3-Trichloropropane	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		5-SB-01	5-SB-02	5-SB-02D	5-SB-03	5-SB-04	5-SB-05	5-SB-06
LAB NUMBER:		S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
DATE SAMPLED:		02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
DATE ANALYZED:		02/14/92	02/13/92	02/17/92	02/14/92	02/14/92	02/17/92	02/17/92
% SOLIDS:		80.0	80.0	90.0	80.0	74.0	76.0	85.0
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	2.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	6 U	6 U	6 U	6 U	7 U	7 U	12 U
Acetonitrile	100	120 UJ	120 UJ	110 UJ	120 UJ	140 UJ	130 UJ	240 UJ
3-Chloropropene	5	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ	7 UJ	12 UJ
Propionitrile	100	120 UJ	120 UJ	110 UJ	120 UJ	140 UJ	130 UJ	240 UJ
Methacrylonitrile	5	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ	7 UJ	12 UJ
1,4-Dioxane	200	250 UJ	250 UJ	220 UJ	250 UJ	270 UJ	260 U	470 U
Methyl Methacrylate	10	12 UJ	12 UJ	11 UJ	12 UJ	14 UJ	13 UJ	24 UJ
1,2-Dibromoethane	5	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ	7 UJ	12 UJ
1,1,1,2-Tetrachloroethane	5	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ	7 UJ	12 UJ
1,2-Dibromo-3-Chloropropane	10	12 UJ	12 UJ	11 UJ	12 UJ	14 UJ	13 UJ	24 UJ
Pentachloroethane	10	12 UJ	12 UJ	11 UJ	12 UJ	14 UJ	13 UJ	24 UJ
Isobutyl alcohol	200	250 UJ	250 UJ	220 UJ	250 UJ	270 UJ	260 UJ	470 UJ
Chloroprene	200	250 UJ	250 UJ	220 UJ	250 UJ	270 UJ	260 UJ	470 UJ

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

SAMPLE LOCATION:		5-SB-07	5-SS-01	5-SS-02	5-SS-03	5-SS-03D	5-SS-04	5-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
DATE ANALYZED:		02/17/92	02/28/92	02/28/92	02/27/92	02/27/92	02/28/92	02/28/92
% SOLIDS:		78.0	85.0	86.0	79.0	78.0	85.0	85.0
DILUTION FACTOR:		5.0	1.0	1.0	120	120	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Bromomethane	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Vinyl Chloride	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Chloroethane	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Methylene Chloride	5	74	31 U	110 J	1100 U	1300 U	35 U	100 J
Acetone	10	7900	28 U	41 U	12000	17000	71 U	10 UJ
Carbon Disulfide	5	32 U	6 U	21 J	790 U	800 U	6 U	24 J
Trichlorofluoromethane	5	32 U	6 U	3 J	790 U	800 U	6 U	6 UJ
1,1-Dichloroethene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,1-Dichloroethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,2-Dichloroethene (total)	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Chloroform	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,2-Dichloroethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
2-Butanone	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
1,1,1-Trichloroethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Carbon Tetrachloride	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Vinyl Acetate	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Bromodichloromethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,2-Dichloropropane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
cis-1,3-Dichloropropene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Trichloroethene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Dibromochloromethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,1,2-Trichloroethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Benzene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
trans-1,3-Dichloropropene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
2-Chloroethylvinylether	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Bromoform	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
2-Hexanone	10	64 U	12 U	12 UJ	1600 U	1600 U	12 U	12 UJ
4-Methyl-2-Pentanone	10	64 U	12 U	12 UJ	1600 U	1600 U	12 U	12 UJ
Tetrachloroethene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
1,1,2,2-Tetrachloroethane	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
Toluene	5	32 U	6 U	5 J	790 U	800 U	6 U	4 J
Chlorobenzene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
Ethylbenzene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
Styrene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
Xylene (total)	5	20	6	11 J	790 U	800 U	10	21 J
1,3-Dichlorobenzene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
1,4-Dichlorobenzene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
1,2-Dichlorobenzene	5	32 U	6 U	6 UJ	790 U	800 U	6 U	6 UJ
Acrolein	100	640 U	120 U	120 U	16000 U	16000 U	120 U	120 UJ
Iodomethane	10	64 U	12 U	12 U	1600 U	1600 U	12 U	12 UJ
Acrylonitrile	100	640 U	120 U	120 U	16000 U	16000 U	120 U	120 UJ
Dibromomethane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Ethyl Methacrylate	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
1,2,3-Trichloropropane	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		5-SB-07	5-SS-01	5-SS-02	5-SS-03	5-SS-03D	5-SS-04	5-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
DATE ANALYZED:		02/17/92	02/28/92	02/28/92	02/27/92	02/27/92	02/28/92	02/28/92
% SOLIDS:		78.0	85.0	86.0	79.0	78.0	85.0	85.0
DILUTION FACTOR:		5.0	1.0	1.0	120	120	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	32 U	6 U	6 U	790 U	800 U	6 U	6 UJ
Acetonitrile	100	640 UJ	120 UJ	120 UJ	16000 UJ	16000 UJ	120 UJ	120 UJ
3-Chloropropene	5	32 UJ	6 UJ	6 UJ	790 UJ	800 UJ	6 UJ	6 UJ
Propionitrile	100	640 UJ	120 UJ	120 UJ	790 UJ	800 UJ	120 UJ	120 UJ
Methacrylonitrile	5	32 UJ	6 UJ	6 UJ	790 UJ	800 UJ	6 UJ	6 UJ
1,4-Dioxane	200	1300 U	240 UJ	230 UJ	32000 U	32000 U	240 UJ	240 UJ
Methyl Methacrylate	10	64 UJ	12 UJ	12 UJ	1600 UJ	1600 UJ	12 UJ	12 UJ
1,2-Dibromoethane	5	32 UJ	6 UJ	6 UJ	790 UJ	800 UJ	6 UJ	6 UJ
1,1,1,2-Tetrachloroethane	5	32 UJ	6 UJ	6 UJ	790 UJ	800 UJ	6 UJ	6 UJ
1,2-Dibromo-3-Chloropropane	10	64 UJ	12 UJ	12 UJ	1600 UJ	1600 UJ	12 UJ	12 UJ
Pentachloroethane	10	64 UJ	12 UJ	12 UJ	1600 UJ	1600 UJ	12 UJ	12 UJ
Isobutyl alcohol	200	1300 UJ	240 UJ	230 UJ	32000 UJ	32000 UJ	240 UJ	240 UJ
Chloroprene	200	1300 UJ	240 UJ	230 UJ	32000 UJ	32000 UJ	240 UJ	240 UJ

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

SAMPLE LOCATION:		5-SS-06	5-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
LAB NUMBER:		S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
DATE SAMPLED:		02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
DATE ANALYZED:		02/28/92	02/28/92	02/13/92	02/18/92	02/18/92	02/18/92	02/18/92
% SOLIDS:		96.0	89.0	80.0	80.0	79.0	80.0	78.0
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Bromomethane	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Vinyl Chloride	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Chloroethane	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Methylene Chloride	5	41 U	72 U	36 U	43 U	39 U	41 U	39 U
Acetone	10	10 U	160 J	48 U	470	96	210	470
Carbon Disulfide	5	6	14 J	6 U	6 U	6 U	6 U	6 U
Trichlorofluoromethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
1,1,1-Trichloroethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Bromodichloromethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Chloroethylvinylether	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Bromoform	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Hexanone	10	10 U	11 UJ	12 U	12 U	13 U	12 U	13 U
4-Methyl-2-Pentanone	10	10 U	11 UJ	12 U	12 U	13 U	12 U	13 U
Tetrachloroethene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Toluene	5	1 J	6 J	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Styrene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Xylene (total)	5	10	11 J	6 U	6 U	6 U	6 U	6 U
1,3-Dichlorobenzene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
1,4-Dichlorobenzene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
1,2-Dichlorobenzene	5	5 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Acrolein	100	100 U	110 U	120 U	120 U	130 U	120 U	130 U
Iodomethane	10	10 U	11 U	12 U	12 U	13 U	12 U	13 U
Acrylonitrile	100	100 U	110 U	120 U	120 U	130 U	120 U	130 U
Dibromomethane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethyl Methacrylate	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		5-SS-06	5-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
LAB NUMBER:		S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
DATE SAMPLED:		02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
DATE ANALYZED:		02/28/92	02/28/92	02/13/92	02/18/92	02/18/92	02/18/92	02/18/92
% SOLIDS:		96.0	89.0	80.0	80.0	79.0	80.0	78.0
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Acetonitrile	100	100 UJ	110 UJ	120 UJ	120 UJ	130 UJ	120 UJ	130 UJ
3-Chloropropene	5	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Propionitrile	100	100 UJ	110 UJ	120 UJ	120 UJ	130 UJ	120 UJ	130 UJ
Methacrylonitrile	5	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,4-Dioxane	200	210 UJ	220 UJ	250 UJ	250 U	250 U	250 U	260 U
Methyl Methacrylate	10	10 UJ	11 UJ	12 UJ	12 UJ	13 UJ	12 UJ	13 UJ
1,2-Dibromoethane	5	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	11 UJ	12 UJ	12 UJ	13 UJ	12 UJ	13 UJ
Pentachloroethane	10	10 UJ	11 UJ	12 UJ	12 UJ	13 UJ	12 UJ	13 UJ
Isobutyl alcohol	200	210 UJ	220 UJ	250 UJ	250 UJ	250 UJ	250 UJ	260 UJ
Chloroprene	200	210 UJ	220 UJ	250 UJ	250 UJ	250 UJ	250 UJ	260 UJ

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

	SAMPLE LOCATION:	11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
	LAB NUMBER:	S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
	DATE SAMPLED:	02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
	DATE ANALYZED:	02/18/92	02/18/92	02/18/92	02/13/92	02/13/92	02/22/92	02/27/92
	% SOLIDS:	82.0	79.0	79.0	90.0	78.0	90.0	87.0
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Bromomethane	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Vinyl Chloride	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Chloroethane	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Methylene Chloride	5	28 U	37 U	32 U	24 U	50 U	32 U	37 U
Acetone	10	190	150	100	48 U	29 U	63 U	51
Carbon Disulfide	5	6 U	2 J	6 U	6 U	6 U	6 U	2 J
Trichlorofluoromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ
2-Butanone	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ
Carbon Tetrachloride	5	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ
Vinyl Acetate	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Bromodichloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Chloroethylvinylether	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Bromoform	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Hexanone	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
4-Methyl-2-Pentanone	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Tetrachloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Xylene (total)	5	2 J	6 U	6 U	6 U	5	3 J	2 J
1,3-Dichlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,4-Dichlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Acrolein	100	120 U	130 U	130 U	110 U	130 U	110 U	110 U
Iodomethane	10	12 U	13 U	13 U	11 U	13 U	11 U	11 U
Acrylonitrile	100	120 U	130 U	130 U	110 U	130 U	110 U	110 U
Dibromomethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethyl Methacrylate	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
DATE ANALYZED:		02/18/92	02/18/92	02/18/92	02/13/92	02/13/92	02/22/92	02/27/92
% SOLIDS:		82.0	79.0	79.0	90.0	78.0	90.0	87.0
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Acetonitrile	100	120 UJ	130 UJ	130 UJ	110 UJ	130 UJ	110 UJ	110 UJ
3-Chloropropene	5	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Propionitrile	100	120 UJ	130 UJ	130 UJ	110 UJ	130 UJ	110 UJ	110 UJ
Methacrylonitrile	5	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,4-Dioxane	200	240 U	250 U	250 U	220 UJ	260 UJ	220 U	230 U
Methyl Methacrylate	10	12 UJ	13 UJ	13 UJ	11 UJ	13 UJ	11 UJ	11 UJ
1,2-Dibromoethane	5	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,1,1,2-Tetrachloroethane	5	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
1,2-Dibromo-3-Chloropropane	10	12 UJ	13 UJ	13 UJ	11 UJ	13 UJ	11 UJ	11 UJ
Pentachloroethane	10	12 UJ	13 UJ	13 UJ	11 UJ	13 UJ	11 UJ	11 UJ
Isobutyl alcohol	200	240 UJ	250 UJ	250 UJ	220 UJ	260 UJ	220 UJ	230 UJ
Chloroprene	200	240 UJ	250 UJ	250 UJ	220 UJ	260 UJ	220 UJ	230 UJ

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
DATE ANALYZED:		02/22/92	02/22/92					
% SOLIDS:		84.0	87.0					
DILUTION FACTOR:		1.0	1.0					
ANALYTE	CRQL							
Chloromethane	10	12 U	11 U					
Bromomethane	10	12 U	11 U					
Vinyl Chloride	10	12 U	11 U					
Chloroethane	10	12 U	11 U					
Methylene Chloride	5	33 U	46 U					
Acetone	10	87 U	110					
Carbon Disulfide	5	6 U	6 U					
Trichlorofluoromethane	5	6 U	6 U					
1,1-Dichloroethene	5	6 U	6 U					
1,1-Dichloroethane	5	6 U	6 U					
1,2-Dichloroethene (total)	5	6 U	6 U					
Chloroform	5	6 U	6 U					
1,2-Dichloroethane	5	6 U	6 U					
2-Butanone	10	12 U	10					
1,1,1-Trichloroethane	5	6 U	6 U					
Carbon Tetrachloride	5	6 U	6 U					
Vinyl Acetate	10	12 U	11 U					
Bromodichloromethane	5	6 U	6 U					
1,2-Dichloropropane	5	6 U	6 U					
cis-1,3-Dichloropropene	5	6 U	6 U					
Trichloroethene	5	6 U	6 U					
Dibromochloromethane	5	6 U	6 U					
1,1,2-Trichloroethane	5	6 U	6 U					
Benzene	5	6 U	6 U					
trans-1,3-Dichloropropene	5	6 U	6 U					
2-Chloroethylvinylether	10	12 U	11 U					
Bromoform	5	6 U	6 U					
2-Hexanone	10	12 U	11 U					
4-Methyl-2-Pentanone	10	12 U	11 U					
Tetrachloroethene	5	6 U	6 U					
1,1,2,2-Tetrachloroethane	5	6 U	6 U					
Toluene	5	6 U	1 J					
Chlorobenzene	5	6 U	6 U					
Ethylbenzene	5	6 U	6 U					
Styrene	5	6 U	6 U					
Xylene (total)	5	4 J	9					
1,3-Dichlorobenzene	5	6 U	6 U					
1,4-Dichlorobenzene	5	6 U	6 U					
1,2-Dichlorobenzene	5	6 U	6 U					
Acrolein	100	120 U	110 U					
Iodomethane	10	12 U	11 U					
Acrylonitrile	100	120 U	110 U					
Dibromomethane	5	6 U	6 U					
Ethyl Methacrylate	5	6 U	6 U					
1,2,3-Trichloropropane	5	6 U	6 U					

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
DATE ANALYZED:		02/22/92	02/22/92					
% SOLIDS:		84.0	87.0					
DILUTION FACTOR:		1.0	1.0					
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	6 U	6 U					
Acetonitrile	100	120 UJ	110 UJ					
3-Chloropropene	5	6 UJ	6 UJ					
Propionitrile	100	120 UJ	110 UJ					
Methacrylonitrile	5	6 UJ	6 UJ					
1,4-Dioxane	200	240 U	230 U					
Methyl Methacrylate	10	12 UJ	11 UJ					
1,2-Dibromoethane	5	6 UJ	6 UJ					
1,1,1,2-Tetrachloroethane	5	6 UJ	6 UJ					
1,2-Dibromo-3-Chloropropane	10	12 UJ	11 UJ					
Pentachloroethane	10	12 UJ	11 UJ					
Isobutyl alcohol	200	240 UJ	230 UJ					
Chloroprene	200	240 UJ	230 UJ					

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SB-01	05-SB-02	05-SB-02D	05-SB-03	05-SB-04	05-SB-05	05-SB-06
LAB NUMBER:		S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
DATE SAMPLED:		02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
DATE ANALYZED:		02/24/92	02/24/92	03/02/92	02/24/92	02/24/92	02/24/92	02/24/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		80.0	81.0	81.0	80.0	77.0	75.0	84.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Phenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Aniline	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
bis (2-Chloroethyl) Ether	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2- Chlorophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
1,3- Dichlorobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
1,4- Dichlorobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzyl Alcohol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
1,2- Dichlorobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2- Methylphenol	330	410 U	410 U	410 U	410 U	440 U	440 U	390 U
bis (2- Chloroisopropyl) Ether	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Methylphenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
N-Nitroso-Di-n-Propylamine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Hexachloroethane	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Nitrobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Isophorone	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2-Nitrophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4-Dimethylphenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzoic Acid	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	210 J
bis (2-Chloroethoxy) Methane	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4-Dichlorophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
1,2,4-Trichlorobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Naphthalene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Chloroaniline	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Hexachlorobutadiene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Chloro-3-Methylphenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2-Methylnaphthalene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Hexachlorocyclopentadiene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4,6-Trichlorophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4,5-Trichlorophenol	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
2-Chloronaphthalene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2-Nitroaniline	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Dimethylphthalate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Acenaphthylene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,6-Dinitrotoluene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
3-Nitroaniline	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Acenaphthene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4-Dinitrophenol	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
4-Nitrophenol	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Dibenzofuran	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2,4-Dinitrotoluene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Diethylphthalate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Chlorophenyl-phenylether	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Fluorene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Nitroaniline	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SB-01	05-SB-02	05-SB-02D	05-SB-03	05-SB-04	05-SB-05	05-SB-06
LAB NUMBER:		S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
DATE SAMPLED:		02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
DATE ANALYZED:		02/24/92	02/24/92	03/02/92	02/24/92	02/24/92	02/24/92	02/24/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		80.0	81.0	81.0	80.0	77.0	75.0	84.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
4,6-Dinitro-2-Methylphenol	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
N-Nitrosodiphenylamine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
1,2-Diphenylhydrazine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Bromophenyl-phenylether	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Hexachlorobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Pentachlorophenol	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Phenanthrene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Anthracene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Di-n-Butylphthalate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Fluoranthene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Pyrene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Butylbenzylphthalate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
3,3'-Dichlorobenzidine	660	820 U	820 U	820 U	820 U	860 U	880 U	790 U
Benzo (a) Anthracene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Chrysene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
bis (2-Ethylhexyl) Phthalate	330	410	590	360	450	270 J	300 J	360
Di-n-Octyl Phthalate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzo (b) Fluoranthene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzo (k) Fluoranthene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzo (a) Pyrene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Indeno (1,2,3-cd) Pyrene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Dibenz (a,h) Anthracene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Benzo (g,h,i) Perylene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
2-Picoline	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Methyl methanesulfonate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Ethyl methanesulfonate	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Acetophenone	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
N-Nitrosopiperidine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Phenyl-tert-butylamine	1600	2000 UR	2000 UR	2000 UR	2000 UR	2100 UR	2100 UR	1900 UR
2,6-Dichlorophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
N-Nitroso-di-n-butylamine	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
N-Nitrosodiethylamine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
N-Nitrosopyrrolidine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
Benzidine	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
1,2,4,5-Tetrachlorobenzene	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Pentachlorobenzene	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
1-Naphthylamine	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
2-Naphthylamine	1600	2000 U	2000 U	2000 UJ	2000 U	2100 U	2100 U	1900 U
2,3,4,6-Tetrachlorophenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Diphenylamine	330	410 UR	410 UR	410 UR	410 UR	430 UR	440 UR	390 UR
Phenacetin	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
4-Aminobiphenyl	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Pentachloronitrobenzene	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
Pronamide	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
p-Dimethylaminoazobenzene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

SAMPLE LOCATION:		05-SB-01	05-SB-02	05-SB-02D	05-SB-03	05-SB-04	05-SB-05	05-SB-06
LAB NUMBER:		S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
DATE SAMPLED:		02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
DATE ANALYZED:		02/24/92	02/24/92	03/02/92	02/24/92	02/24/92	02/24/92	02/24/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		80.0	81.0	81.0	80.0	77.0	75.0	84.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
7,12-Dimethylbenz (a) Anthracene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
3-Methylcholanthrene	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Pyridine	1600	2000 U	2000 U	2000 U	2000 U	2100 U	2100 U	1900 U
N-Nitrosomethylethylamine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
N-Nitrosomorpholine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
o-Toluidine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
3-Methylphenol	330	410 U	410 U	410 U	410 U	430 U	440 U	390 U
Hexachloropropene	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
p-Phenylenediamine	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
Safrole	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
Isosafrole	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
1,4-Naphthoquinone	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
1,3-Dinitrobenzene	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
5-Nitro-o-toluidine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
1,3,5-Trinitrobenzene	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
4-Nitroquinoline-1-oxide	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
Methapyrilene	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
3,3'-Dimethylbenzidine	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
2-Acetamidofluorene	330	410 UJ	410 UJ	410 UJ	410 UJ	430 UJ	440 UJ	390 UJ
Hexachlorophene	1600	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2100 UJ	2100 UJ	1900 UJ
POLYCHLORONATED DIBENZO- FURANS/DIOXINS -- METHOD 8280								
DATE ANALYZED:		02/13/92	02/13/92	02/13/92	02/13/92	02/13/92	02/13/92	02/13/[illegible]
ANALYTE	CRQL							
PCDFs (total)	------	0.016 U	0.0064 U	0.011 U	0.011 U	0.0088 U	0.014 U	0.0099 U
2,3,7,8- TCDD	------	0.010 U	0.0052 U	0.0089 U	0.0067 U	0.0040 U	0.0070 U	0.012 U
PCDDs (total)	------	0.065 U	0.023 U	0.045 U	0.039 U	0.034 U	0.048 U	0.038 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SB-07	05-SS-01	05-SS-02	05-SS-03	05-SS-03D	05-SS-04	05-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
DATE ANALYZED:		02/24/92	03/06/92	03/10/92	03/10/92	03/10/92	03/06/92	03/11/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		74.0	86.0	87.0	77.0	77.0	86.0	86.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Phenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Aniline	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
bis (2-Chloroethyl) Ether	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2- Chlorophenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
1,3- Dichlorobenzene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
1,4- Dichlorobenzene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzyl Alcohol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
1,2- Dichlorobenzene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2- Methylphenol	330	450 U	380 U	380 U	440 U	440 U	380 U	380 U
bis (2- Chloroisopropyl) Ether	330	450 U	380 U	380 U	430 U	430 U	380 U	380 UJ
4-Methylphenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
N-Nitroso-Di-n-Propylamine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 UJ
Hexachloroethane	330	450 U	380 U	380 U	430 U	430 U	380 U	380 UJ
Nitrobenzene	330	450 U	380 UJ	380 U	430 U	430 U	380 UJ	380 U
Isophorone	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2-Nitrophenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4-Dimethylphenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzoic Acid	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	660 J
bis (2-Chloroethoxy) Methane	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4-Dichlorophenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
1,2,4-Trichlorobenzene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Naphthalene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
4-Chloroaniline	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Hexachlorobutadiene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
4-Chloro-3-Methylphenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2-Methylnaphthalene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Hexachlorocyclopentadiene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4,6-Trichlorophenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4,5-Trichlorophenol	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
2-Chloronaphthalene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2-Nitroaniline	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Dimethylphthalate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Acenaphthylene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,6-Dinitrotoluene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
3-Nitroaniline	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Acenaphthene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4-Dinitrophenol	1600	2200 U	1900 UJ	1800 U	2100 U	2100 U	1900 UJ	1900 U
4-Nitrophenol	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Dibenzofuran	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2,4-Dinitrotoluene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Diethylphthalate	330	450 U	69 J	380 U	430 U	430 U	380 U	380 U
4-Chlorophenyl-phenylether	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Fluorene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
4-Nitroaniline	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 UJ

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SB-07	05-SS-01	05-SS-02	05-SS-03	05-SS-03D	05-SS-04	05-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
DATE ANALYZED:		02/24/92	03/06/92	03/10/92	03/10/92	03/10/92	03/06/92	03/11/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		74.0	86.0	87.0	77.0	77.0	86.0	86.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
4,6-Dinitro-2-Methylphenol	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
N-Nitrosodiphenylamine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
1,2-Diphenylhydrazine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
4-Bromophenyl-phenylether	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Hexachlorobenzene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Pentachlorophenol	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Phenanthrene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Anthracene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Di-n-Butylphthalate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Fluoranthene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Pyrene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Butylbenzylphthalate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
3,3'-Dichlorobenzidine	660	890 U	770 U	760 U	860 U	860 U	770 U	770 U
Benzo (a) Anthracene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Chrysene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
bis (2-Ethylhexyl) Phthalate	330	720	53 J	260 J	790	710 J	280 J	210 J
Di-n-Octyl Phthalate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzo (b) Fluoranthene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzo (k) Fluoranthene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzo (a) Pyrene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Indeno (1,2,3-cd) Pyrene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Dibenz (a,h) Anthracene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Benzo (g,h,i) Perylene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
2-Picoline	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Methyl methanesulfonate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Ethyl methanesulfonate	330	450 U	380 U	380 U	430 U	430 U	380 U	380 UJ
Acetophenone	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
N-Nitrosopiperidine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Phenyl-tert-butylamine	1600	2200 UR	1900 UR	1800 UR	2100 UR	2100 UR	1900 UR	1900 UR
2,6-Dichlorophenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
N-Nitroso-di-n-butylamine	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
N-Nitrosodiethylamine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
N-Nitrosopyrrolidine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
Benzidine	1600	2200 U	1900 U	1800 UJ	2100 UJ	2100 UJ	1900 U	1900 U
1,2,4,5-Tetrachlorobenzene	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Pentachlorobenzene	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
1-Naphthylamine	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
2-Naphthylamine	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
2,3,4,6-Tetrachlorophenol	330	450 U	380 UJ	380 U	430 U	430 U	380 UJ	380 U
Diphenylamine	330	450 UR	380 UR	380 UR	430 UR	430 UR	380 UR	380 UR
Phenacetin	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
4-Aminobiphenyl	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Pentachloronitrobenzene	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
Pronamide	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
p-Dimethylaminoazobenzene	330	450 U	380 UJ	380 U	430 U	430 U	380 UJ	380 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SB-07	05-SS-01	05-SS-02	05-SS-03	05-SS-03D	05-SS-04	05-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
DATE ANALYZED:		02/24/92	03/06/92	03/10/92	03/10/92	03/10/92	03/06/92	03/11/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		74.0	86.0	87.0	77.0	77.0	86.0	86.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
7,12-Dimethylbenz (a) Anthracene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
3-Methylcholanthrene	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Pyridine	1600	2200 U	1900 U	1800 U	2100 U	2100 U	1900 U	1900 U
N-Nitrosomethylethylamine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
N-Nitrosomorpholine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
o-Toluidine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
3-Methylphenol	330	450 U	380 U	380 U	430 U	430 U	380 U	380 U
Hexachloropropene	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
p-Phenylenediamine	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
Safrole	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
Isosafrole	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
1,4-Naphthoquinone	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
1,3-Dinitrobenzene	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
5-Nitro-o-toluidine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
1,3,5-Trinitrobenzene	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
4-Nitroquinoline-1-oxide	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
Methapyrilene	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
3,3'-Dimethylbenzidine	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
2-Acetamidofluorene	330	450 UJ	380 UJ	380 UJ	430 UJ	430 UJ	380 UJ	380 UJ
Hexachlorophene	1600	2200 UJ	1900 UJ	1800 UJ	2100 UJ	2100 UJ	1900 UJ	1900 UJ
POLYCHLORINATED DIBENZO-- FURANS/DIOXINS -- METHOD 8280								
	DATE ANALYZED:	02/13/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92
ANALYTE	CRQL							
PCDFs (total)	------	0.0081 U	0.0044 U	0.0034 U	0.0073 U	0.0055 U	0.0035 U	0.0064 U
2,3,7,8- TCDD	------	0.017 U	0.0051 U	0.0053 U	0.0059 U	0.0045 U	0.0044 U	0.0057 U
PCDDs (total)	------	0.028 U	0.010 U	0.0093 U	0.011 U	0.0089 U	0.010 U	0.011 U

PROJECT: NSB KINGS BAY, GEORGIA — SEMIVOLATILE SOIL ANALYSES (ug/kg) — Validation/Summary Table

	SAMPLE LOCATION:	05-SS-06	05-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
	LAB NUMBER:	S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
	DATE SAMPLED:	02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
	DATE ANALYZED:	03/10/92	03/11/92	03/02/92	02/24/92	02/24/92	02/24/92	02/25/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% SOLIDS:	90.0	88.0	80.0	82.0	79.0	79.0	80.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Phenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Aniline	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
bis (2-Chloroethyl) Ether	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Chlorophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
1,3-Dichlorobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
1,4-Dichlorobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzyl Alcohol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
1,2-Dichlorobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Methylphenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
bis (2-Chloroisopropyl) Ether	330	370 U	370 UJ	410 U	400 U	420 U	420 U	410 U
4-Methylphenol	330	370 U	82 JX	410 U	400 U	420 U	420 U	410 U
N-Nitroso-Di-n-Propylamine	330	370 U	370 UJ	410 U	400 U	420 U	420 U	410 U
Hexachloroethane	330	370 U	370 UJ	410 U	400 U	420 U	420 U	410 U
Nitrobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Isophorone	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Nitrophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4-Dimethylphenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzoic Acid	1600	1800 U	460 J	2000 U	2000 U	2000 U	2000 U	2000 U
bis (2-Chloroethoxy) Methane	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4-Dichlorophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
1,2,4-Trichlorobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Naphthalene	330	370 U	44 J	410 U	400 U	420 U	420 U	410 U
4-Chloroaniline	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Hexachlorobutadiene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
4-Chloro-3-Methylphenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Methylnaphthalene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Hexachlorocyclopentadiene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4,6-Trichlorophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4,5-Trichlorophenol	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-Chloronaphthalene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Nitroaniline	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Dimethylphthalate	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Acenaphthylene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,6-Dinitrotoluene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
3-Nitroaniline	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Acenaphthene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4-Dinitrophenol	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 UJ
4-Nitrophenol	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Dibenzofuran	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2,4-Dinitrotoluene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Diethylphthalate	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
4-Chlorophenyl-phenylether	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Fluorene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
4-Nitroaniline	1600	1800 U	1800 UJ	2000 U	2000 U	2000 U	2000 U	2000 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SS-06	05-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
LAB NUMBER:		S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
DATE SAMPLED:		02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
DATE ANALYZED:		03/10/92	03/11/92	03/02/92	02/24/92	02/24/92	02/24/92	02/25/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		90.0	88.0	80.0	82.0	79.0	79.0	80.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
4,6-Dinitro-2-Methylphenol	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
N-Nitrosodiphenylamine	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
1,2-Diphenylhydrazine	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
4-Bromophenyl-phenylether	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Hexachlorobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Pentachlorophenol	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Phenanthrene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Anthracene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Di-n-Butylphthalate	330	370 U	370 U	460 J	94 J	64 J	46 J	45 J
Fluoranthene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Pyrene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Butylbenzylphthalate	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
3,3'-Dichlorobenzidine	660	730 U	730 U	820 U	800 U	840 U	840 U	820 U
Benzo (a) Anthracene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Chrysene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
bis (2-Ethylhexyl) Phthalate	330	100 J	160 J	200 J	400 U	420 U	420 U	410 U
Di-n-Octyl Phthalate	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzo (b) Fluoranthene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzo (k) Fluoranthene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzo (a) Pyrene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Indeno (1,2,3-cd) Pyrene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Dibenz (a,h) Anthracene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Benzo (g,h,i) Perylene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
2-Picoline	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Methyl methanesulfonate	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Ethyl methanesulfonate	330	370 U	370 UJ	410 U	400 U	420 U	420 U	410 U
Acetophenone	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
N-Nitrosopiperidine	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Phenyl-tert-butylamine	1600	1800 UR	1800 UR	2000 UR	2000 UR	2000 UR	2000 UR	2000 UR
2,6-Dichlorophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
N-Nitroso-di-n-butylamine	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
N-Nitrosodiethylamine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
N-Nitrosopyrrolidine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
Benzidine	1600	1800 UJ	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
1,2,4,5-Tetrachlorobenzene	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentachlorobenzene	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
1-Naphthylamine	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-Naphthylamine	1600	1800 U	1800 U	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 U
2,3,4,6-Tetrachlorophenol	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Diphenylamine	330	370 UR	370 UR	410 UR	400 UR	420 UR	420 UR	410 UR
Phenacetin	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
4-Aminobiphenyl	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentachloronitrobenzene	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pronamide	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
p-Dimethylaminoazobenzene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE SOIL ANALYSES (ug/kg)

Validation/Summery Table

	SAMPLE LOCATION:	05-SS-06	05-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
	LAB NUMBER:	S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
	DATE SAMPLED:	02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
	DATE ANALYZED:	03/10/92	03/11/92	03/02/92	02/24/92	02/24/92	02/24/92	02/25/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% SOLIDS:	90.0	88.0	80.0	82.0	79.0	79.0	80.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
7,12-Dimethylbenz (a) Anthracene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
3-Methylcholanthrene	330	370 U	370 U	410 U	400 U	420 U	420 U	410 U
Pyridine	1600	1800 U	1800 U	2000 U	2000 U	2000 U	2000 U	2000 U
N-Nitrosomethylethylamine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
N-Nitrosomorpholine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
o-Toluidine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
3-Methylphenol	330	370 U	82 JX	410 U	400 U	420 U	420 U	410 U
Hexachloropropene	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
p-Phenylenediamine	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
Safrole	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
Isosafrole	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
1,4-Naphthoquinone	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
1,3-Dinitrobenzene	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
5-Nitro-o-toluidine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
1,3,5-Trinitrobenzene	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
4-Nitroquinoline-1-oxide	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
Methapyrilene	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
3,3'-Dimethylbenzidine	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
2-Acetamidofluorene	330	370 UJ	370 UJ	410 UJ	400 UJ	420 UJ	420 UJ	410 UJ
Hexachlorophene	1600	1800 UJ	1800 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ
POLYCHLOROINATED DIBENZO-- FURANS/DIOXINS -- METHOD 8280								
	DATE ANALYZED:	02/21/92	02/21/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
ANALYTE	CRQL							
PCDFs (total)	------	0.0035 U	0.0043 U	0.073 U	0.016 U	0.020 U	0.014 U	0.0096 U
2,3,7,8-TCDD	------	0.0042 U	0.0040 U	0.054 U	0.0062 U	0.0086 U	0.0071 U	0.0040 U
PCDDs (total)	------	0.0091 U	0.0096 U	0.22 U	0.053 U	0.083 U	0.045 U	0.034 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
DATE ANALYZED:		02/25/92	02/25/92	02/25/92	02/25/92	02/25/92	03/02/92	03/02/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		81.0	80.0	82.0	87.0	74.0	92.0	90.0
SEMIVOLATILES - - METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Phenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Aniline	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
bis (2-Chloroethyl) Ether	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2- Chlorophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
1,3- Dichlorobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
1,4- Dichlorobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Benzyl Alcohol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
1,2- Dichlorobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2- Methylphenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
bis (2- Chloroisopropyl) Ether	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4- Methylphenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
N-Nitroso-Di-n-Propylamine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Hexachloroethane	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Nitrobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Isophorone	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2-Nitrophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,4-Dimethylphenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Benzoic Acid	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
bis (2-Chloroethoxy) Methane	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,4-Dichlorophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
1,2,4-Trichlorobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Naphthalene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4-Chloroaniline	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Hexachlorobutadiene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4-Chloro-3-Methylphenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2-Methylnaphthalene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Hexachlorocyclopentadiene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,4,6-Trichlorophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,4,5-Trichlorophenol	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
2-Chloronaphthalene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2-Nitroaniline	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Dimethylphthalate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Acenaphthylene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,6-Dinitrotoluene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
3-Nitroaniline	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Acenaphthene	330	410 U	410 U	400 U	380 U	450 U	360 U	99 J
2,4-Dinitrophenol	1600	2000 UJ	2000 UJ	2000 UJ	1800 U	2200 U	1700 U	1800 U
4-Nitrophenol	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Dibenzofuran	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2,4-Dinitrotoluene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Diethylphthalate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4-Chlorophenyl-phenylether	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Fluorene	330	410 U	410 U	400 U	380 U	450 U	360 U	61 J
4-Nitroaniline	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE SOIL ANALYSES (ug/kg)

Validation/Summary Table

SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
DATE ANALYZED:		02/25/92	02/25/92	02/25/92	02/25/92	02/25/92	03/02/92	03/02/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		81.0	80.0	82.0	87.0	74.0	92.0	90.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
4,6-Dinitro-2-Methylphenol	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
N-Nitrosodiphenylamine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
1,2-Diphenylhydrazine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4-Bromophenyl-phenylether	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Hexachlorobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Pentachlorophenol	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Phenanthrene	330	410 U	410 U	400 U	380 U	450 U	360 U	130 J
Anthracene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Di-n-Butylphthalate	330	65 J	50 J	68 J	380 U	450 U	360 U	370 U
Fluoranthene	330	410 U	410 U	400 U	380 U	450 U	360 U	1000
Pyrene	330	410 U	410 U	400 U	380 U	450 U	360 U	1700
Butylbenzylphthalate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
3,3'-Dichlorobenzidine	660	820 U	820 U	800 U	760 U	890 U	720 U	730 U
Benzo (a) Anthracene	330	410 U	410 U	400 U	380 U	450 U	360 U	390
Chrysene	330	410 U	410 U	400 U	380 U	450 U	360 U	600
bis (2-Ethylhexyl) Phthalate	330	410 U	410 U	400 U	340	230 J	390	520
Di-n-Octyl Phthalate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Benzo (b) Fluoranthene	330	410 U	410 U	400 U	380 U	450 U	360 U	310 J
Benzo (k) Fluoranthene	330	410 U	410 U	400 U	380 U	450 U	360 U	280 J
Benzo (a) Pyrene	330	410 U	410 U	400 U	380 U	450 U	360 U	170 J
Indeno (1,2,3-cd) Pyrene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Dibenz (a,h) Anthracene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Benzo (g,h,i) Perylene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
2-Picoline	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Methyl methanesulfonate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Ethyl methanesulfonate	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Acetophenone	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
N-Nitrosopiperidine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Phenyl-tert-butylamine	1600	2000 UR	2000 UR	2000 UR	1800 UR	2200 UR	1700 UR	1800 UR
2,6-Dichlorophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
N-Nitroso-di-n-butylamine	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
N-Nitrosodiethylamine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
N-Nitrosopyrrolidine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
Benzidine	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 UJ	1800 UJ
1,2,4,5-Tetrachlorobenzene	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Pentachlorobenzene	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
1-Naphthylamine	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
2-Naphthylamine	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
2,3,4,6-Tetrachlorophenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Diphenylamine	330	410 UR	410 UR	400 UR	380 UR	450 UR	360 UR	370 UR
Phenacetin	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
4-Aminobiphenyl	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Pentachloronitrobenzene	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
Pronamide	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
p-Dimethylaminoazobenzene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
DATE ANALYZED:		02/25/92	02/25/92	02/25/92	02/25/92	02/25/92	03/02/92	03/02/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
% SOLIDS:		81.0	80.0	82.0	87.0	74.0	92.0	90.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
7,12-Dimethylbenz (a) Anthracene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
3-Methylcholanthrene	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Pyridine	1600	2000 U	2000 U	2000 U	1800 U	2200 U	1700 U	1800 U
N-Nitrosomethylethylamine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
N-Nitrosomorpholine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
o-Toluidine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
3-Methylphenol	330	410 U	410 U	400 U	380 U	450 U	360 U	370 U
Hexachloropropene	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
p-Phenylenediamine	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
Safrole	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
Isosafrole	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
1,4-Naphthoquinone	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
1,3-Dinitrobenzene	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
5-Nitro-o-toluidine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
1,3,5-Trinitrobenzene	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
4-Nitroquinoline-1-oxide	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
Methapyrilene	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
3,3'-Dimethylbenzidine	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
2-Acetamidofluorene	330	410 UJ	410 UJ	400 UJ	380 UJ	450 UJ	360 UJ	370 UJ
Hexachlorophene	1600	2000 UJ	2000 UJ	2000 UJ	1800 UJ	2200 UJ	1700 UJ	1800 UJ
POLYCHLORINATED DIBENZO- FURANS/DIOXINS -- METHOD 8280								
	DATE ANALYZED:	02/17/92	02/17/92	02/17/92	02/13/92	02/13/92	02/21/92	02/20/92
ANALYTE	CRQL							
PCDFs (total)	------	0.0084 U	0.0071 U	0.0096 U	0.0096 U	0.021 U	0.0024 U	0.0057 U
2,3,7,8- TCDD	------	0.0047 U	0.0054 U	0.0066 U	0.0084 U	0.012 U	0.0038 U	0.0050 U
PCDDs (total)	------	0.029 U	0.020 U	0.033 U	0.042 U	0.072 U	0.0075 U	0.017 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
DATE ANALYZED:		03/02/92	03/02/92					
DILUTION FACTOR:		1.0	1.0					
% SOLIDS:		90.0	93.0					
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	330	370 U	350 U					
Phenol	330	370 U	350 U					
Aniline	330	370 U	350 U					
bis (2-Chloroethyl) Ether	330	370 U	350 U					
2- Chlorophenol	330	370 U	350 U					
1,3- Dichlorobenzene	330	370 U	350 U					
1,4- Dichlorobenzene	330	370 U	350 U					
Benzyl Alcohol	330	370 U	350 U					
1,2- Dichlorobenzene	330	370 U	350 U					
2- Methylphenol	330	370 U	350 U					
bis (2- Chloroisopropyl) Ether	330	370 U	350 U					
4- Methylphenol	330	370 U	350 U					
N-Nitroso-Di-n-Propylamine	330	370 U	350 U					
Hexachloroethane	330	370 U	350 U					
Nitrobenzene	330	370 U	350 U					
Isophorone	330	370 U	350 U					
2-Nitrophenol	330	370 U	350 U					
2,4-Dimethylphenol	330	370 U	350 U					
Benzoic Acid	1600	1800 U	1700 U					
bis (2-Chloroethoxy) Methane	330	370 U	350 U					
2,4-Dichlorophenol	330	370 U	350 U					
1,2,4-Trichlorobenzene	330	370 U	350 U					
Naphthalene	330	370 U	350 U					
4-Chloroaniline	330	370 U	350 U					
Hexachlorobutadiene	330	370 U	350 U					
4-Chloro-3-Methylphenol	330	370 U	350 U					
2-Methylnaphthalene	330	370 U	350 U					
Hexachlorocyclopentadiene	330	370 U	350 U					
2,4,6-Trichlorophenol	330	370 U	350 U					
2,4,5-Trichlorophenol	1600	1800 U	1700 U					
2-Chloronaphthalene	330	370 U	350 U					
2-Nitroaniline	1600	1800 U	1700 U					
Dimethylphthalate	330	370 U	350 U					
Acenaphthylene	330	370 U	350 U					
2,6-Dinitrotoluene	330	370 U	350 U					
3-Nitroaniline	1600	1800 U	1700 U					
Acenaphthene	330	370 U	350 U					
2,4-Dinitrophenol	1600	1800 U	1700 U					
4-Nitrophenol	1600	1800 U	1700 U					
Dibenzofuran	330	370 U	350 U					
2,4-Dinitrotoluene	330	370 U	350 U					
Diethylphthalate	330	370 U	350 U					
4-Chlorophenyl-phenylether	330	370 U	350 U					
Fluorene	330	370 U	350 U					
4-Nitroaniline	1600	1800 U	1700 U					

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
DATE ANALYZED:		03/02/92	03/02/92					
DILUTION FACTOR:		1.0	1.0					
% SOLIDS:		90.0	93.0					
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
4,6-Dinitro-2-Methylphenol	1600	1800 U	1700 U					
N-Nitrosodiphenylamine	330	370 U	350 U					
1,2-Diphenylhydrazine	330	370 U	350 U					
4-Bromophenyl-phenylether	330	370 U	350 U					
Hexachlorobenzene	330	370 U	350 U					
Pentachlorophenol	1600	1800 U	1700 U					
Phenanthrene	330	370 U	350 U					
Anthracene	330	370 U	350 U					
Di-n-Butylphthalate	330	370 U	350 U					
Fluoranthene	330	370 U	350 U					
Pyrene	330	370 U	350 U					
Butylbenzylphthalate	330	370 U	350 U					
3,3'-Dichlorobenzidine	660	730 U	710 U					
Benzo (a) Anthracene	330	370 U	350 U					
Chrysene	330	370 U	350 U					
bis (2-Ethylhexyl) Phthalate	330	630	1100					
Di-n-Octyl Phthalate	330	370 U	350 U					
Benzo (b) Fluoranthene	330	370 U	350 U					
Benzo (k) Fluoranthene	330	370 U	350 U					
Benzo (a) Pyrene	330	370 U	350 U					
Indeno (1,2,3-cd) Pyrene	330	370 U	350 U					
Dibenz (a,h) Anthracene	330	370 U	350 U					
Benzo (g,h,i) Perylene	330	370 U	350 U					
2-Picoline	1600	1800 U	1700 U					
Methyl methanesulfonate	330	370 U	350 U					
Ethyl methanesulfonate	330	370 U	350 U					
Acetophenone	330	370 U	350 U					
N-Nitrosopiperidine	330	370 U	350 U					
Phenyl-tert-butylamine	1600	1800 UR	1700 UR					
2,6-Dichlorophenol	330	370 U	350 U					
N-Nitroso-di-n-butylamine	330	370 U	350 U					
N-Nitrosodiethylamine	330	370 UJ	350 UJ					
N-Nitrosopyrrolidine	330	370 UJ	350 UJ					
Benzidine	1600	1800 UJ	1700 UJ					
1,2,4,5-Tetrachlorobenzene	1600	1800 U	1700 U					
Pentachlorobenzene	1600	1800 U	1700 U					
1-Naphthylamine	1600	1800 U	1700 U					
2-Naphthylamine	1600	1800 U	1700 U					
2,3,4,6-Tetrachlorophenol	330	370 U	350 U					
Diphenylamine	330	370 UR	350 UR					
Phenacetin	330	370 U	350 U					
4-Aminobiphenyl	1600	1800 U	1700 U					
Pentachloronitrobenzene	1600	1800 U	1700 U					
Pronamide	330	370 U	350 U					
p-Dimethylaminoazobenzene	330	370 U	350 U					

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
DATE ANALYZED:		03/02/92	03/02/92					
DILUTION FACTOR:		1.0	1.0					
% SOLIDS:		90.0	93.0					
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
7,12-Dimethylbenz (a) Anthracene	330	370 U	350 U					
3-Methylcholanthrene	330	370 U	350 U					
Pyridine	1600	1800 U	1700 U					
N-Nitrosomethylethylamine	330	370 UJ	350 UJ					
N-Nitrosomorpholine	330	370 UJ	350 UJ					
o-Toluidine	330	370 UJ	350 UJ					
3-Methylphenol	330	370 U	350 U					
Hexachloropropene	1600	1800 UJ	1700 UJ					
p-Phenylenediamine	1600	1800 UJ	1700 UJ					
Safrole	1600	1800 UJ	1700 UJ					
Isosafrole	1600	1800 UJ	1700 UJ					
1,4-Naphthoquinone	1600	1800 UJ	1700 UJ					
1,3-Dinitrobenzene	330	370 UJ	350 UJ					
5-Nitro-o-toluidine	330	370 UJ	350 UJ					
1,3,5-Trinitrobenzene	330	370 UJ	350 UJ					
4-Nitroquinoline-1-oxide	330	370 UJ	360 UJ					
Methapyrilene	1600	1800 UJ	1700 UJ					
3,3'-Dimethylbenzidine	330	370 UJ	350 UJ					
2-Acetamidofluorene	330	370 UJ	350 UJ					
Hexachlorophene	1600	1800 UJ	1700 UJ					
POLYCHLORINATED DIBENZO- FURANS/DIOXINS -- METHOD 8280								
DATE ANALYZED:		02/21/92	02/21/92					
ANALYTE	CRQL							
PCDFs (total)	------	0.0022 U	0.0025 U					
2,3,7,8- TCDD	------	0.0032 U	0.0023 U					
PCDDs (total)	------	0.0053 U	0.0063 U					

PROJECT: NSB KINGS BAY, GEORGIA	PESTICIDE/PCB/HERBICIDE SOIL ANALYSES (ug/kg)						Validation/Summary Table	
SAMPLE LOCATION:		5-SB-01	5-SB-02	5-SB-02D	5-SB-03	5-SB-04	5-SB-05	5-SB-06
LAB NUMBER:		S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
DATE SAMPLED:		02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
% SOLIDS:		80.0	81.0	81.0	80.0	77.0	75.0	84.0
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
beta-BHC	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
delta-BHC	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-BHC (Lindane)	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aldrin	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor epoxide	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endosulfan I	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Dieldrin	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
4,4'-DDE	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Endrin	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Endosulfan II	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
4,4'-DDD	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Endrin Aldehyde	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Endosulfan Sulfate	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
4,4'-DDT	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Methoxychlor	1.6	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2.1 U	1.9 U
Endrin Ketone	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Chlordane	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toxaphene	20	25 U	25 U	25 U	25 U	26 U	27 U	24 U
Aroclor-1016	32	40 U	40 U	40 U	40 U	42 U	43 U	38 U
Aroclor-1221	80	100 U	99 U	99 U	100 U	100 U	110 U	95 U
Aroclor-1232	80	100 U	99 U	99 U	100 U	100 U	110 U	95 U
Aroclor-1242	32	40 U	40 U	40 U	40 U	42 U	43 U	38 U
Aroclor-1248	16	20 U	20 U	20 U	20 U	21 U	21 U	19 U
Aroclor-1254	8	10 U	10 U	10 U	10 U	10 U	11 U	10 U
Aroclor-1260	8	10 U	10 U	10 U	10 U	10 U	11 U	10 U
Chlorobenzilate	20	25 U	25 U	25 U	25 U	26 U	27 U	24 U
Diallate	40	50 U	49 U	49 U	50 U	52 U	53 U	48 U
Isodrin	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Thionazin	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Phorate	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Sulfotepp	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Methyl Parathion	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Ethyl Parathion	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
Famphur	50	62 U	62 U	62 U	62 U	65 U	67 U	60 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	100	125 U	123 U	123 U	125 U	130 U	133 U	119 U
Silvex	20	25 U	25 U	25 U	25 U	26 U	27 U	24 U
2,4,5-T	20	25 U	25 U	25 U	25 U	26 U	27 U	24 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA — PESTICIDE/PCB/HERBICIDE SOIL ANALYSES (ug/kg) — Validation/Summary Table

SAMPLE LOCATION:		5-SB-07	05-SS-01	05-SS-02	05-SS-03	05-SS-03D	05-SS-04	05-SS-05
LAB NUMBER:		S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
DATE SAMPLED:		02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
% SOLIDS:		74.0	86.0	87.0	77.0	77.0	86.0	86.0
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
beta-BHC	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
delta-BHC	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-BHC (Lindane)	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
Aldrin	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor epoxide	0.4	0.5 U	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U
Endosulfan I	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Dieldrin	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
4,4'-DDE	0.8	1.1 U	0.9 U	0.7 J	1.0 U	1.0 U	0.9 U	0.9 U
Endrin	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Endosulfan II	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
4,4'-DDD	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Endrin Aldehyde	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Endosulfan Sulfate	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
4,4'-DDT	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Methoxychlor	1.6	2.2 U	1.9 U	1.8 U	2.1 U	2.1 U	1.9 U	1.9 U
Endrin Ketone	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Chlordane	4	5 U	5 U	4 U	5 U	5 U	5 U	5 U
Toxaphene	20	27 U	23 U	23 U	26 U	26 U	23 U	23 U
Aroclor-1016	32	43 U	37 U	37 U	42 U	42 U	37 U	37 U
Aroclor-1221	80	110 U	93 U	92 U	100 U	100 U	93 U	93 U
Aroclor-1232	80	110 U	93 U	92 U	100 U	100 U	93 U	93 U
Aroclor-1242	32	43 U	37 U	37 U	42 U	42 U	37 U	37 U
Aroclor-1248	16	22 U	19 U	18 U	21 U	21 U	19 U	19 U
Aroclor-1254	8	11 U	9 U	9 U	10 U	10 U	9 U	9 U
Aroclor-1260	8	11 U	9 U	53	10 U	10 U	9 U	9 U
Chlorobenzilate	20	27 U	23 U	23 U	26 U	26 U	23 U	23 U
Diallate	40	54 U	46 U	46 U	52 U	52 U	46 U	46 U
Isodrin	0.8	1.1 U	0.9 U	0.9 U	1.0 U	1.0 U	0.9 U	0.9 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Thionazin	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Phorate	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Sulfotepp	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Methyl Parathion	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Ethyl Parathion	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
Famphur	50	68 U	58 U	57 U	65 U	65 U	58 U	58 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	100	135 U	116 U	115 U	130 U	130 U	116 U	116 U
Silvex	20	27 U	23 U	23 U	26 U	26 U	23 U	23 U
2,4,5-T	20	27 U	23 U	23 U	26 U	26 U	23 U	23 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SS-06	05-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
LAB NUMBER:		S20940007	S20940008	S20867008	S20873001	S20873002	20873003	S20873004
DATE SAMPLED:		02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
% SOLIDS:		90.0	88.0	80.0	82.0	79.0	79.0	80.0
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
beta-BHC	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
delta-BHC	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-BHC (Lindane)	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aldrin	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptachlor epoxide	0.4	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endosulfan I	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dieldrin	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4,4'-DDE	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Endrin	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Endosulfan II	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4,4'-DDD	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Endrin Aldehyde	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Endosulfan Sulfate	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4,4'-DDT	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methoxychlor	1.6	1.8 U	1.8 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Endrin Ketone	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlordane	4	4 U	4 U	5 U	5 U	5 U	5 U	5 U
Toxaphene	20	22 U	23 U	25 U	24 U	25 U	25 U	25 U
Aroclor-1016	32	36 U	36 U	40 U	39 U	40 U	40 U	40 U
Aroclor-1221	80	89 U	91 U	100 U	98 U	100 U	100 U	100 U
Aroclor-1232	80	89 U	91 U	100 U	98 U	100 U	100 U	100 U
Aroclor-1242	32	36 U	36 U	40 U	39 U	40 U	40 U	40 U
Aroclor-1248	16	18 U	18 U	20 U	20 U	20 U	20 U	20 U
Aroclor-1254	8	9 U	9 U	10 U	10 U	10 U	10 U	10 U
Arolcor-1260	8	9 U	9 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzilate	20	22 U	23 U	25 U	24 U	25 U	25 U	25 U
Diallate	40	44 U	45 U	50 U	49 U	51 U	51 U	50 U
Isodrin	0.8	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Thionazin	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Phorate	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Sulfotepp	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Methyl Parathion	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Ethyl Parathion	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
Famphur	50	56 U	57 U	62 U	62 U	63 U	63 U	62 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	100	111 U	114 U	125 U	122 U	126 U	126 U	125 U
Silvex	20	22 U	23 U	25 U	24 U	25 U	25 U	25 U
2,4,5-T	20	22 U	23 U	25 U	24 U	25 U	25 U	25 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA

PESTICIDE/PCB/HERBICIDE SOIL ANALYSES (ug/kg)

Validation/Summary Table

SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	S20900003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
% SOLIDS:		81.0	80.0	82.0	87.0	74.0	87.0	87.0
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
beta-BHC	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
delta-BHC	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
gamma-BHC (Lindane)	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
Heptachlor	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
Aldrin	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
Heptachlor epoxide	0.4	0.5 U	0.5 U	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U
Endosulfan I	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Dieldrin	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
4,4'-DDE	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Endrin	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Endosulfan II	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
4,4'-DDD	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Endrin Aldehyde	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Endosulfan Sulfate	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
4,4'-DDT	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Methoxychlor	1.6	2.0 U	2.0 U	2.0 U	1.8 U	2.2 U	1.8 U	1.8 U
Endrin Ketone	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Chlordane	4	5 U	5 U	5 U	4 U	5 U	4 U	4 U
Toxaphene	20	25 U	25 U	24 U	23 U	27 U	23 U	23 U
Aroclor-1016	32	40 U	40 U	39 U	37 U	43 U	37 U	37 U
Aroclor-1221	80	99 U	100 U	98 U	92 U	110 U	92 U	92 U
Aroclor-1232	80	99 U	100 U	98 U	92 U	110 U	92 U	92 U
Aroclor-1242	32	40 U	40 U	39 U	37 U	43 U	37 U	37 U
Aroclor-1248	16	20 U	20 U	20 U	18 U	22 U	18 U	18 U
Aroclor-1254	8	10 U	10 U	10 U	9 U	11 U	9 U	9 U
Aroclor-1260	8	10 U	10 U	10 U	9 U	11 U	9 U	9 U
Chlorobenzilate	20	25 U	25 U	24 U	23 U	27 U	23 U	23 U
Diallate	40	49 U	50 U	49 U	46 U	54 U	46 U	46 U
Isodrin	0.8	1.0 U	1.0 U	1.0 U	0.9 U	1.1 U	0.9 U	0.9 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Thionazin	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Phorate	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Sulfotepp	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Methyl Parathion	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Ethyl Parathion	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
Famphur	50	62 U	62 U	61 U	57 U	60 U	57 U	57 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	100	123 U	125 U	122 U	115 U	135 U	110 U	110 U
Silvex	20	25 U	25 U	24 U	23 U	27 U	23 U	23 U
2,4,5-T	20	25 U	25 U	24 U	23 U	27 U	23 U	23 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE SOIL ANALYSES (ug/kg)					Validation/Summary Table	
SAMPLE LOCATION:		16-SB-03	16-SB-04					
LAB NUMBER:		S20900002	S20900001					
DATE SAMPLED:		02/12/92	02/12/92					
% SOLIDS:		85.0	88.0					
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.4	0.5 U	0.4 U					
beta-BHC	0.8	0.9 U	0.9 U					
delta-BHC	0.4	0.5 U	0.4 U					
gamma-BHC (Lindane)	0.4	0.5 U	0.4 U					
Heptachlor	0.4	0.5 U	0.4 U					
Aldrin	0.4	0.5 U	0.4 U					
Heptachlor epoxide	0.4	0.5 U	0.4 U					
Endosulfan I	0.8	0.9 U	0.9 U					
Dieldrin	0.8	0.9 U	0.9 U					
4,4'- DDE	0.8	0.9 U	0.9 U					
Endrin	0.8	0.9 U	0.9 U					
Endosulfan II	0.8	0.9 U	0.9 U					
4,4'- DDD	0.8	1	0.9 U					
Endrin Aldehyde	0.8	0.9 U	0.9 U					
Endosulfan Sulfate	0.8	0.9 U	0.9 U					
4,4'- DDT	0.8	0.9 U	0.9 U					
Methoxychlor	1.6	1.9 U	1.8 U					
Endrin Ketone	0.8	0.9 U	0.9 U					
Chlordane	4	5 U	4 U					
Toxaphene	20	24 U	23 U					
Aroclor-1016	32	38 U	36 U					
Aroclor-1221	80	94 U	91 U					
Aroclor-1232	80	94 U	91 U					
Aroclor-1242	32	38 U	36 U					
Aroclor-1248	16	19 U	18 U					
Aroclor-1254	8	9 U	9 U					
Aroicor-1260	8	9 U	9 U					
Chlorobenzilate	20	24 U	23 U					
Diallate	40	47 U	45 U					
Isodrin	0.8	0.9 U	0.9 U					
Kepone	NR	NR	NR					
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	50	59 U	57 U					
Thionazin	50	59 U	57 U					
Phorate	50	59 U	57 U					
Sulfotepp	50	59 U	57 U					
Dimethoate	NR	NR	NR					
Disulfoton	50	59 U	57 U					
Methyl Parathion	50	59 U	57 U					
Ethyl Parathion	50	59 U	57 U					
Famphur	50	59 U	57 U					
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	100	120 U	110 U					
Silvex	20	24 U	23 U					
2,4,5-T	20	24 U	23 U					
Dinoseb	NR	NR	NR					

PROJECT: NSB KINGS BAY, GEORGIA

INORGANIC SOIL ANALYSES (mg/kg)

Validation/Summary Table

	SAMPLE LOCATION:	5-SB-01	5-SB-02	5-SB-02D	5-SB-03	5-SB-04	5-SB-05	5-SB-06
	SAMPLING DEPTH:	4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT
	LAB NUMBER:	S20867003	S20867004	S20867012	S20867001	S20867002	S20865005	S20865004
	DATE SAMPLED:	02/08/92	02/08/92	02/08/92	02/08/92	02/08/92	02/07/92	02/07/92
	% SOLIDS:	79.9	81.2	80.1	81.0	77.6	79.1	83.6
ANALYTE	CRQL							
Antimony	12	2.7 U	2.7 U	2.7 U	2.7 U	2.8 U	2.8 U	2.6 U
Arsenic	2	1.1 J	0.24 J	0.17 U	0.70 J	1.0 J	0.17 U	0.17 U
Barium	40	2.8 J	5.0 J	5.3 J	3.6 J	2.8 J	3.6 J	3.5 J
Beryllium	1	0.16 J	0.05 J	0.07 J	0.15 J	0.15 J	0.15 J	0.05 U
Cadmium	1	0.73 U	0.72 U	0.73 U	0.72 U	0.76 U	0.74 U	0.70 U
Chromium	2	8.7	6.5	6.0	6.5	5.9	5.9	2.4 U
Cobalt	10	0.89 U	0.88 U	0.89 U	0.88 U	0.92 U	0.90 U	0.85 U
Copper	5	2.0 U	2.3 U	1.6 U	1.8 U	3.4 U	2.5 U	1.4 U
Lead	0.6	4.4	2.7	3.2	2.7	6.0	8.5	4.5
Mercury	0.1	0.09 U	0.07 U	0.08 U	0.09 U	0.10 U	0.08 U	0.08 U
Nickel	8	1.7 J	0.98 J	0.98 J	1.5 J	2.8 J	1.7 J	0.91 U
Selenium	1	0.93 J	0.71 J	0.33 J	1.3	0.86 J	0.40 J	0.31 U
Silver	2	0.43 U	0.42 U	0.43 U	0.43 U	0.44 U	0.44 U	0.41 U
Thallium	2	0.35 U	0.34 U	0.35 U	0.35 U	0.36 U	0.36 U	0.34 U
Tin	41.6	52.1 U	51.2 U	51.9 U	51.4 U	53.6 U	52.6 U	49.8 U
Vanadium	10	8.5 J	2.2 U	2.2 U	3.4 J	1.6 U	2.1 U	2.0 U
Zinc	4	6.7	3.3 U	3.7 U	2.8 U	7.4	3.1 U	4.7 U
Cyanide	1	0.45 U	0.44 U	0.45 U	0.44 U	0.46 U	4.6	0.43 U
Sulfide	4000	5000 U	5000 U	5000 U	5000 U	5200 U	5000 U	4800 U

PROJECT: NSB KINGS BAY, GEORGIA

INORGANIC SOIL ANALYSES (mg/kg)

Validation/Summary Table

	SAMPLE LOCATION:	5-SB-07	05-SS-01	05-SS-02	05-SS-03	05-SS-03D	05-SS-04	05-SS-05
	SAMPLING DEPTH:	4-6 FT	0 FT	0 FT	0 FT	0 FT	0 FT	0 FT
	LAB NUMBER:	S20865006	S20940001	S20940002	S20940003	S20940004	S20940005	S20940006
	DATE SAMPLED:	02/07/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92	02/17/92
	% SOLIDS:	74.5	86.6	87.0	78.0	78.0	86.7	86.6
ANALYTE	CRQL							
Antimony	12	2.9 U	2.5 U	2.5 U	2.8 U	2.8 U	2.5 U	2.5 U
Arsenic	2	0.19 U	0.54 U	0.48 U	0.66 U	0.92 U	0.22 U	0.61 U
Barium	40	4.9 J	2.7 J	8.0 J	3.0 J	3.0 J	2.5 J	4.3 J
Beryllium	1	0.15 J	0.07 J	0.05 J	0.15 J	0.11 J	0.04 U	0.05 J
Cadmium	1	0.79 U	0.68 U	0.67 U	0.75 U	0.75 U	0.68 U	0.68 U
Chromium	2	6.8	4.6	3.0	6.2	6.1	2.9	2.9
Cobalt	10	0.96 U	0.82 U	0.82 U	0.91 U	0.91 U	0.82 U	0.82 U
Copper	5	7.8	5.2 U	3.8 U	7.5 U	1.1 U	2.1 U	1.4 U
Lead	0.6	7.6	5.4	6.4	5.3	5.5	4.1	4.7
Mercury	0.1	0.07 U	0.08 U	0.08 U	0.09 U	0.06 U	0.07 U	0.09 U
Nickel	8	9.2	0.88 U	0.87 U	0.97 U	0.97 U	0.87 U	0.88 U
Selenium	1	1.8	0.30 U	0.30 U	0.33 U	0.33 U	0.31 U	0.30 U
Silver	2	0.46 U	0.40 U	0.40 U	0.44 U	0.44 U	0.40 U	0.40 U
Thallium	2	0.38 U	0.32 U	0.32 U	0.36 U	0.36 U	0.32 U	0.32 U
Tin	41.6	55.8 U	48.0 U	47.8 U	53.3 U	53.3 U	48.0 U	48.0 U
Vanadium	10	2.8 J	2.9 J	2.6 J	3.4 J	3.2 J	1.2 J	2.7 J
Zinc	4	10.1	15.8	31.0	15.9	11.9	5.0	4.8
Cyanide	1	5.0	0.42 U	0.41 U	0.46 U	0.46 U	0.42 U	0.42 U
Sulfide	4000	5400 U	4600 U	4700 U	5200 U	5100	4600	4600 U

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC SOIL ANALYSES (mg/kg)					Validation/Summary Table	
SAMPLE LOCATION:		05-SS-06	05-SS-07	11-SB-01	11-SB-02	11-SB-03	11-SB-03D	11-SB-04
SAMPLING DEPTH:		4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT	4-6 FT
LAB NUMBER:		S20940007	S20940008	S20867008	S20873001	S20873002	S20873003	S20873004
DATE SAMPLED:		02/17/92	02/17/92	02/09/92	02/10/92	02/10/92	02/10/92	02/10/92
% SOLIDS:		91.0	88.6	79.8	81.6	78.2	80.6	50.0
ANALYTE	CRQL							
Antimony	12	2.4 U	2.5 U	2.7 U	2.7 U	2.8 U	2.7 U	4.4 U
Arsenic	2	0.16 U	0.31 U	0.24 J	0.17 U	0.18 U	0.17 U	0.28 U
Barium	40	3.6 J	2.8 J	1.1 J	4.5 J	3.0 J	2.7 J	4.7 J
Beryllium	1	0.04 J	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.08 U
Cadmium	1	0.64 U	0.66 U	0.74 U	0.72 U	0.81 J	0.73 U	1.2 U
Chromium	2	3.1	2.3	1.4 U	3.2	2.9 U	2.6 U	4.0
Cobalt	10	0.78 U	0.80 U	0.89 U	0.87 U	0.91 U	0.88 U	1.4 U
Copper	5	2.7 U	1.4 U	1.5 U	0.96 U	2.6 U	0.88 U	1.3 U
Lead	0.6	4.0	3.3	1.6 U	2.3	1.8	0.88	3.6
Mercury	0.1	0.09 U	0.09 U	0.06 U	0.07 U	0.08 U	0.10 U	0.11 U
Nickel	8	0.83 U	0.86 U	1.0 J	2.0 U	2.2 U	1.1 U	1.6 U
Selenium	1	0.28 U	0.29 U	0.32 U	0.31 U	0.33 U	0.32 U	0.51 U
Silver	2	0.38 U	0.39 U	0.43 U	0.42 U	0.44 U	0.43 U	0.69 U
Thallium	2	0.31 U	0.32 U	0.35 U	0.34 U	0.36 U	0.35 U	0.56 U
Tin	41.6	45.7 U	47.0 U	52.1 U	51.0 U	53.2 U	51.6 U	83.2 U
Vanadium	10	3.5 J	2.1 J	0.68 U	1.4 J	1.7 J	1.6 J	2.7 J
Zinc	4	8.8	4.1 J	1.8 U	1.9 U	3.8 U	1.5 U	4.0 U
Cyanide	1	0.40 U	0.41 U	0.45 U	0.44 U	0.46 U	0.45 U	0.72 U
Sulfide	4000	4400 U	4600 U	5100 U	4900 U	5100 U	5000 U	5000 U

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC SOIL ANALYSES (mg/kg)					Validation/Summary Table	
SAMPLE LOCATION:		11-SB-05	11-SB-06	11-SB-07	11-SB-08	11-SB-09	16-SB-01	16-SB-02
SAMPLING DEPTH:		4-6 FT	4-6 FT	4-6 FT	4-6 FT	2-4 FT	8-10 FT	10-12 FT
LAB NUMBER:		S20873005	S20873006	S20873007	S20867009	S20867007	32241003	S20917001
DATE SAMPLED:		02/10/92	02/10/92	02/10/92	02/09/92	02/09/92	02/12/92	02/13/92
% SOLIDS:		80.4	81.3	81.9	87.7	76.9	87.5	87.8
ANALYTE	CRQL							
Antimony	12	2.7 U	2.7 U	2.7 U	2.5 U	2.8 U	2.3 U	2.5 U
Arsenic	2	0.17 U	0.17 U	0.17 U	0.23 J	0.18 U	0.34 J	0.28 J
Barium	40	1.5 J	1.8 J	2.4 J	3.1 J	0.78 U	3.9 J	6.4 J
Beryllium	1	0.05 U	0.05 U	0.05 J	0.05 J	0.05 U	0.07 U	0.07 U
Cadmium	1	0.73 U	0.72 U	0.72 U	0.67 U	0.76 U	0.23 U	0.67 U
Chromium	2	2.0 U	2.5 U	4.2	2.0 U	1.9 U	4.6 J	12.2
Cobalt	10	0.89 U	0.88 U	0.87 U	0.81 U	0.93 U	0.71 U	0.81 U
Copper	5	1.7 U	1.1 U	1.8 U	3.9 U	2.3 U	2.4 J	2.3 J
Lead	0.6	1.1	0.46 J	0.96	2.2	2.0	3.9	3.4
Mercury	0.1	0.07 U	0.08 U	0.09 U	0.06 U	0.05 U	0.03 U	0.08 U
Nickel	8	0.94 U	2.4 U	1.5 U	2.7 J	1.3 J	1.5 U	3.0 J
Selenium	1	0.46 J	0.32 U	0.31 U	0.29 U	0.33 U	0.14 U	0.29 U
Silver	2	0.43 U	0.42 U	0.47 J	0.39 U	0.54 U	0.29 U	0.39 U
Thallium	2	0.35 U	0.35 U	0.34 U	0.32 U	0.37 U	0.21 U	0.38 U
Tin	41.6	51.7 U	51.2 U	50.8 U	47.4 U	54.1 U	3.3 U	47.4 U
Vanadium	10	1.0 J	1.4 J	1.3 J	1.6 U	1.2 U	2.3 J	1.8 J
Zinc	4	0.90 U	2.4 U	2.5 U	6.8	5.3	1.8 J	3.9 U
Cyanide	1	0.45 U	0.44 U	0.44 [illegible]	0.41 U	0.47 U	0.17 U	0.42 [illegible]
Sulfide	4000	4900 U	5000 U	[illegible]	4500 U	5200 U	4600 U	[illegible]

PROJECT: NSB KINGS BAY, GEORGIA			INORGANIC SOIL ANALYSES (mg/kg)				Validation/Summary Table	
	SAMPLE LOCATION:	16-SB-03	16-SB-04					
	SAMPLING DEPTH:	8-10 FT	8-10 FT					
	LAB NUMBER:	32241002	32241001					
	DATE SAMPLED:	02/12/92	02/12/92					
	% SOLIDS:	87.5	87.6					
ANALYTE	CRQL							
Antimony	12	2.4 U	2.3 U					
Arsenic	2	0.26 J	0.16 J					
Barium	40	5.1 J	2.1 J					
Beryllium	1	0.07 UJ	0.07 UJ					
Cadmium	1	0.24 U	0.23 U					
Chromium	2	1540	4.9					
Cobalt	10	0.73 U	0.71 U					
Copper	5	2.4 J	1.8 J					
Lead	0.6	2.5	1.5					
Mercury	0.1	0.03 U	0.03 U					
Nickel	8	1.5 U	1.5 U					
Selenium	1	0.14 U	0.14 U					
Silver	2	0.28 U	0.35 U					
Thallium	2	0.21 U	0.21 U					
Tin	41.6	3.4 U	3.3 U					
Vanadium	10	2.4 J	1.5 J					
Zinc	4	3.4 J	0.68 J					
Cyanide	1	0.18 U	0.17 U					
Sulfide	4000	4700 U	9200					

GROUNDWATER
SAMPLE EVENT NO. 1
FEBRUARY 1992

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

	SAMPLE LOCATION:	KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
	LAB NUMBER:	W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
	DATE SAMPLED:	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
	DATA ANALYZED:	03/03/92	03/03/92	03/03/92	03/04/92	03/04/92	03/04/92	03/04/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	9 U	9 U	9 U	5 U	5 U	7 U	6 U
Acetone	10	72	12 U	10 U	10 U	12 U	12 U	14 U
Carbon Disulfide	5	2 J	1 J	2 J	5 U	5 U	1 J	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	7
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	3 J	10 U	10 U	10 U	3 J	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	1 J	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	4 J	5 U	5 U	5 U	6	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
LAB NUMBER:		W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATA ANALYZED:		03/03/92	03/03/92	03/03/92	03/04/92	03/04/92	03/04/92	03/04/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA — VOLATILE AQUEOUS ANALYSES (ug/l) — Validation/Summary Table

	SAMPLE LOCATION:	KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
	LAB NUMBER:	W2098508	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
	DATE SAMPLED:	02/20/92	02/22/92	02/22/92	02/22/92	02/24/92	02/21/92	02/22/92
	DATE ANALYZED:	03/04/92	03/05/92	03/03/92	03/05/92	03/05/92	03/04/92	03/04/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	18
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	7 U	5 U	5 U	5 U	9 U	9 U	5 U
Acetone	10	10 U	10 U	29 U	19 U	28 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	7
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	3 J	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	2 J	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	5 U	3 J	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
LAB NUMBER:		W2098506	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
DATE SAMPLED:		02/20/92	02/22/92	02/22/92	02/22/92	02/24/92	02/21/92	02/22/92
DATE ANALYZED:		03/04/92	03/05/92	03/03/92	03/05/92	03/05/92	03/04/92	03/04/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
	LAB NUMBER:	W2100202	W2100203	W2099708	W2099709	W2099704	W2099703	W2099706
	DATE SAMPLED:	02/22/92	02/22/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92
	DATE ANALYZED:	03/04/92	03/04/92	03/05/92	03/05/92	03/04/92	03/04/92	03/04/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	2 J
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	8 U	5 U	15 U	10 U
Acetone	10	25 U	17 U	18 U	13 U	10 U	10 U	23 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	3 J	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	6	7	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	1 J
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	5 U	5 U	2 J	2 J	5 U	5
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	13	15	5 U	5 U	1 J	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
LAB NUMBER:		W2100202	W2100203	W2099708	W2099709	W2099704	W2099703	W2099706
DATE SAMPLED:		02/22/92	02/22/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92
DATE ANALYZED:		03/04/92	03/04/92	03/05/92	03/05/92	03/04/92	03/04/92	03/04/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA			VOLATILE AQUEOUS ANALYSES (ug/l)				Validation/Summary Table	
	SAMPLE LOCATION:	KBA-11-9						
	LAB NUMBER:	W2099705						
	DATE SAMPLED:	02/21/92						
	DATE ANALYZED:	03/03/92						
	DILUTION FACTOR:	1.0						
ANALYTE	CRQL							
Chloromethane	10	10 U						
Bromomethane	10	10 U						
Vinyl Chloride	10	10 U						
Chloroethane	10	10 U						
Methylene Chloride	5	5 U						
Acetone	10	32 U						
Carbon Disulfide	5	5 U						
Trichlorofluoromethane	5	5 U						
1,1-Dichloroethene	5	5 U						
1,1-Dichloroethane	5	5 U						
1,2-Dichloroethene (total)	5	5 U						
Chloroform	5	5 U						
1,2-Dichloroethane	5	5 U						
2-Butanone	10	10 U						
1,1,1-Trichloroethane	5	5 U						
Carbon Tetrachloride	5	5 U						
Vinyl Acetate	10	10 U						
Bromodichloromethane	5	5 U						
1,2-Dichloropropane	5	5 U						
cis-1,3-Dichloropropene	5	5 U						
Trichloroethene	5	5 U						
Dibromochloromethane	5	5 U						
1,1,2-Trichloroethane	5	5 U						
Benzene	5	5 U						
trans-1,3-Dichloropropene	5	5 U						
2-Chloroethylvinylether	10	10 U						
Bromoform	5	5 U						
2-Hexanone	10	10 U						
4-Methyl-2-Pentanone	10	10 U						
Tetrachloroethene	5	5 U						
1,1,2,2-Tetrachloroethane	5	5 U						
Toluene	5	5 U						
Chlorobenzene	5	5 U						
Ethylbenzene	5	5 U						
Styrene	5	5 U						
Xylene (total)	5	3 J						
1,3-Dichlorobenzene	5	5 U						
1,4-Dichlorobenzene	5	5 U						
1,2-Dichlorobenzene	5	5 U						
Acrolein	100	100 U						
Iodomethane	10	10 U						
Acrylonitrile	100	100 U						
Dibromomethane	5	5 U						
Ethyl Methacrylate	5	5 U						
1,2,3-Trichloropropane	5	5 U						

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table
SAMPLE LOCATION:		KBA-11-9					
LAB NUMBER:		W2099705					
DATE SAMPLED:		02/21/92					
DATE ANALYZED:		03/03/92					
DILUTION FACTOR:		1.0					
ANALYTE	CRQL						
trans-1,4-Dichloro-2-Butene	5	5 U					
Acetonitrile	100	100 UJ					
3-Chloropropene	5	5 UJ					
Propionitrile	100	100 UJ					
Methacrylonitrile	5	5 UJ					
1,4-Dioxane	200	200 U					
Methyl Methacrylate	10	10 UJ					
1,2-Dibromoethane	5	5 UJ					
1,1,1,2-Tetrachloroethane	5	5 UJ					
1,2-Dibromo-3-Chloropropane	10	10 UJ					
Pentachloroethane	10	10 UJ					
Isobutyl alcohol	200	200 UJ					
Chloroprene	200	200 UJ					

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
LAB NUMBER:		W2096501	W2096502	W2096503	W2096504	W2096505	W2096506	W2096507
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/12/92	03/12/92	03/12/92	03/17/92	03/13/92	03/13/92	03/13/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2- Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3- Dichlorobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
1,4- Dichlorobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzyl Alcohol	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
1,2- Dichlorobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2- Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2- Chloroisopropyl) Ether	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
3-Nitroaniline	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
LAB NUMBER:		W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/12/92	03/12/92	03/12/92	03/17/92	03/13/92	03/13/92	03/13/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
1,2-Diphenylhydrazine	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Di-n-Butylphthalate	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 UJ	20 U	20 U	20 U
Benzo (a) Anthracene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
bis (2-Ethylhexyl) Phthalate	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Di-n-Octyl Phthalate	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzo (b) Fluoranthene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzo (k) Fluoranthene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzo (a) Pyrene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Indeno (1,2,3-cd) Pyrene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Dibenz (a,h) Anthracene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzo (g,h,i) Perylene	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2-Picoline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenyl-tert-butylamine	50	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR
2,6-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzidine	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
1,2,4,5-Tetrachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,3,4,6-Tetrachlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diphenylamine	10	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR
Phenacetin	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Aminobiphenyl	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachloronitrobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pronamide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz (a) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Methylcholanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
LAB NUMBER:		W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/12/92	03/12/92	03/12/92	03/17/92	03/13/92	03/13/92	03/13/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
N-Nitrosomethylethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomarpholine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
o-Toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3- & 4- Methylphenol	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloropropene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
p-Phenylenediamine	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Safrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Isosafrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,4-Naphthoquinone	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,3-Dinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
5-Nitro-o-toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,3,5-Trinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Nitroquinoline-1-oxide	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Methapyrilene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
3,3'-Dimethylbenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2-Acetamidofluorene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachlorophene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
POLYCHLORINATED DIBENZO-FURANS/DIOXINS -- METHOD 8280 (ng/l)								
DATE ANALYZED:		03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92
ANALYTE	CRQL (ng/l)							
PCDFs (total)	10	0.041 U	0.039 U	0.034 U	0.038 U	0.029 U	0.052 U	0.030 U
2,3,7,8-TCDD	5	0.029 U	0.036 U	0.024 U	0.025 U	0.020 U	0.031 U	0.028 U
PCDDs (total)	10	0.13 U	0.13 U	0.12 U	0.13 U	0.10 U	0.15 U	0.098 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
LAB NUMBER:		W2098508	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/13/92	03/17/92	03/18/92	03/17/92	03/17/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-Nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2- Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
1,4- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzyl Alcohol	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
1,2- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2- Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2- Chloroisopropyl) Ether	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
LAB NUMBER:		W2098508	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/13/92	03/17/92	03/18/92	03/17/92	03/17/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
1,2-Diphenylhydrazine	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Di-n-Butylphthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 UJ	20 U	20 U
Benzo (a) Anthracene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
bis (2-Ethylhexyl) Phthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Di-n-Octyl Phthalate	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzo (b) Fluoranthene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzo (k) Fluoranthene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzo (a) Pyrene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Indeno (1,2,3-cd) Pyrene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Dibenz (a,h) Anthracene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzo (g,h,i) Perylene	10	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-Picoline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenyl-tert-butylamine	50	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR
2,6-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzidine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1,2,4,5-Tetrachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,3,4,6-Tetrachlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diphenylamine	10	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR
Phenacetin	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Aminobiphenyl	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachloronitrobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pronamide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz (a) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Methylcholanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
LAB NUMBER:		W2098508	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/13/92	03/17/92	03/18/92	03/17/92	03/17/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
N-Nitrosomethylethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
o-Toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3- & 4- Methylphenol	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloropropene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
p-Phenylenediamine	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Safrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Isosafrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,4-Naphthoquinone	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,3-Dinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
5-Nitro-o-toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,3,5-Trinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Nitroquinoline-1-oxide	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Methapyrilene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
3,3'-Dimethylbenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2-Acetamidofluorene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachlorophene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
POLYCHLORINATED DIBENZO-- FURANS/DIOXINS --- METHOD 8280 (ng/l)								
DATE ANALYZED:		03/03/92	03/04/92	03/04/92	03/04/92	03/04/92	03/10/92	03/04/92
ANALYTE	CRQL (ng/l)							
PCDFs (total)	10	0.033 U	0.086 U	0.040 U	0.14 U	0.048 U	0.11 U	0.055 U
2,3,7,8- TCDD	5	0.035 U	0.060 U	0.040 U	0.057 U	0.049 U	0.091 U	0.040 U
PCDDs (total)	10	0.11 U	0.40 U	0.18 U	0.34 U	0.11 U	0.48 U	0.20 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)						Validation/Summary Table
SAMPLE LOCATION:		KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
LAB NUMBER:		W2100202	W2100203	W2099708	W2099709	W2099704	W2099703	W2099706
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/17/92	03/17/92	03/17/92	03/17/92	03/16/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-Nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2- Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3- Dichlorobenzene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
1,4- Dichlorobenzene	10	4 J	7 J	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
1,2- Dichlorobenzene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2- Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2- Chloroisopropyl) Ether	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 UJ	10 U	10 U	10 U	10 U	10 U	9 J
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
LAB NUMBER:		W2100202	W2100203	W2099708	W2099709	W2099704	W2099703	W2099706
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/17/92	03/17/92	03/17/92	03/17/92	03/16/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
1,2-Diphenylhydrazine	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
Benzo (a) Anthracene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Ethylhexyl) Phthalate	10	31 UJ	10 U	10 U	10 U	10 U	94	10 U
Di-n-Octyl Phthalate	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (b) Fluoranthene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (k) Fluoranthene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (a) Pyrene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Indeno (1,2,3-cd) Pyrene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz (a,h) Anthracene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (g,h,i) Perylene	10	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Picoline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenyl-tert-butylamine	50	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR
2,6-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzidine	50	50 U	50 U	50 UJ	50 UJ	50 U	50 U	50 UJ
1,2,4,5-Tetrachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,3,4,6-Tetrachlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diphenylamine	10	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR
Phenacetin	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Aminobiphenyl	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachloronitrobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pronamide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz (a) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Methylcholanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U

PROJECT: NSB KINGS BAY, GEORGIA

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
LAB NUMBER:		W2100202	W2100203	W2099708	W2099709	W2099704	W2099703	W2099706
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
DATE ANALYZED:		03/17/92	03/17/92	03/17/92	03/17/92	03/16/92	03/16/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
N-Nitrosomethylethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
o-Toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3- & 4- Methylphenol	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloropropene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
p-Phenylenediamine	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Safrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Isosafrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,4-Naphthoquinone	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,3-Dinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
5-Nitro-o-toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,3,5-Trinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Nitroquinoline-1-oxide	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Methapyrilene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
3,3'-Dimethylbenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2-Acetamidofluorene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachlorophene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
POLYCHLORINATED DIBENZO-FURANS/DIOXINS -- METHOD 8280 (ng/l)								
	DATE ANALYZED:	03/04/92	03/04/92	03/06/92	03/06/92	03/05/92	03/05/92	03/05/92
ANALYTE	CRQL (ng/l)							
PCDFs (total)	10	0.11 U	0.15 U	0.048 U	0.083 U	0.052 U	0.043 U	0.039 U
2,3,7,8-TCDD	5	0.060 U	0.056 U	0.046 U	0.070 U	0.051 U	0.052 U	0.039 U
PCDDs (total)	10	0.50 U	0.52 U	0.087 U	0.21 U	0.15 U	0.12 U	0.082 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table
SAMPLE LOCATION:		KBA-11-9					
LAB NUMBER:		W2099705					
DATE SAMPLED:		02/20/92					
DATE ANALYZED:		03/17/92					
DILUTION FACTOR:		1.0					
SEMIVOLATILES -- METHOD 8270							
ANALYTE	CRQL						
N-Nitrosodimethylamine	10	10 U					
Phenol	10	10 U					
Aniline	10	10 U					
bis (2-Chloroethyl) Ether	10	10 U					
2- Chlorophenol	10	10 U					
1,3- Dichlorobenzene	10	10 U					
1,4- Dichlorobenzene	10	10 U					
Benzyl Alcohol	10	10 U					
1,2- Dichlorobenzene	10	10 U					
2- Methylphenol	10	10 U					
bis (2- Chloroisopropyl) Ether	10	10 U					
N-Nitroso-Di-n-Propylamine	10	10 U					
Hexachloroethane	10	10 U					
Nitrobenzene	10	10 U					
Isophorone	10	10 U					
2-Nitrophenol	10	10 U					
2,4-Dimethylphenol	10	10 U					
Benzoic Acid	50	50 U					
bis (2-Chloroethoxy) Methane	10	10 U					
2,4-Dichlorophenol	10	10 U					
1,2,4-Trichlorobenzene	10	10 U					
Naphthalene	10	10 U					
4-Chloroaniline	10	10 U					
Hexachlorobutadiene	10	10 U					
4-Chloro-3-Methylphenol	10	10 U					
2-Methylnaphthalene	10	10 U					
Hexachlorocyclopentadiene	10	10 U					
2,4,6-Trichlorophenol	10	10 U					
2,4,5-Trichlorophenol	50	50 U					
2-Chloronaphthalene	10	10 U					
2-Nitroaniline	50	50 U					
Dimethylphthalate	10	10 U					
Acenaphthylene	10	10 U					
2,6-Dinitrotoluene	10	10 U					
3-Nitroaniline	50	50 U					
Acenaphthene	10	10 U					
2,4-Dinitrophenol	50	50 U					
4-Nitrophenol	50	50 U					
Dibenzofuran	10	10 U					
2,4-Dinitrotoluene	10	10 U					
Diethylphthalate	10	10 U					
4-Chlorophenyl-phenylether	10	10 U					
Fluorene	10	10 U					
4-Nitroaniline	50	50 U					
4,6-Dinitro-2-Methylphenol	50	50 U					
N-Nitrosodiphenylamine	10	10 U					

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table
SAMPLE LOCATION:		KBA-11-9					
LAB NUMBER:		W2099705					
DATE SAMPLED:		02/20/92					
DATE ANALYZED:		03/17/92					
DILUTION FACTOR:		1.0					
SEMIVOLATILES -- METHOD 8270 (continued)							
ANALYTE	CRQL						
1,2-Diphenylhydrazine	10	10 U					
4-Bromophenyl-phenylether	10	10 U					
Hexachlorobenzene	10	10 U					
Pentachlorophenol	50	50 U					
Phenanthrene	10	10 U					
Anthracene	10	10 U					
Di-n-Butylphthalate	10	10 U					
Fluoranthene	10	10 U					
Pyrene	10	10 U					
Butylbenzylphthalate	10	10 U					
3,3'-Dichlorobenzidine	20	20 U					
Benzo (a) Anthracene	10	10 U					
Chrysene	10	10 U					
bis (2-Ethylhexyl) Phthalate	10	10 U					
Di-n-Octyl Phthalate	10	10 U					
Benzo (b) Fluoranthene	10	10 U					
Benzo (k) Fluoranthene	10	10 U					
Benzo (a) Pyrene	10	10 U					
Indeno (1,2,3-cd) Pyrene	10	10 U					
Dibenz (a,h) Anthracene	10	10 U					
Benzo (g,h,i) Perylene	10	10 U					
2-Picoline	50	50 U					
Methyl methanesulfonate	10	10 U					
Ethyl methanesulfonate	10	10 U					
Acetophenone	10	10 U					
N-Nitrosopiperidine	10	10 U					
Phenyl-tert-butylamine	50	50 UR					
2,6-Dichlorophenol	10	10 U					
N-Nitroso-di-n-butylamine	10	10 U					
N-Nitrosodiethylamine	10	10 UJ					
N-Nitrosopyrrolidine	10	10 UJ					
Benzidine	50	50 UJ					
1,2,4,5-Tetrachlorobenzene	50	50 U					
Pentachlorobenzene	50	50 U					
1-Naphthylamine	50	50 U					
2-Naphthylamine	50	50 U					
2,3,4,6-Tetrachlorophenol	10	10 U					
Diphenylamine	10	10 UR					
Phenacetin	10	10 U					
4-Aminobiphenyl	50	50 U					
Pentachloronitrobenzene	50	50 U					
Pronamide	10	10 U					
p-Dimethylaminoazobenzene	10	10 U					
7,12-Dimethylbenz (a) Anthracene	10	10 U					
3-Methylcholanthrene	10	10 U					
Pyridine	50	50 U					

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table
SAMPLE LOCATION:		KBA-11-9					
LAB NUMBER:		W2099705					
DATE SAMPLED:		02/20/92					
DATE ANALYZED:		03/17/92					
DILUTION FACTOR:		1.0					
SEMIVOLATILES -- METHOD 8270 (continued)							
ANALYTE	CRQL						
N-Nitrosomethylethylamine	10	10 UJ					
N-Nitrosomorpholine	10	10 UJ					
o-Toluidine	10	10 UJ					
3- & 4- Methylphenol	20	20 U					
Hexachloropropene	50	50 UJ					
p-Phenylenediamine	50	50 UJ					
Safrole	50	50 UJ					
Isosafrole	50	50 UJ					
1,4-Naphthoquinone	50	50 UJ					
1,3-Dinitrobenzene	10	10 UJ					
5-Nitro-o-toluidine	10	10 UJ					
1,3,5-Trinitrobenzene	10	10 UJ					
4-Nitroquinoline-1-oxide	10	10 UJ					
Methapyrilene	50	50 UJ					
3,3'-Dimethylbenzidine	10	10 UJ					
2-Acetamidofluorene	10	10 UJ					
Hexachlorophene	50	50 UJ					
POLYCHLORINATED DIBENZO-FURANS/DIOXINS -- METHOD 8280 (ng/l)							
	DATE ANALYZED:	03/05/92					
ANALYTE	CRQL (ng/l)						
PCDFs (total)	10	0.024 U					
2,3,7,8-TCDD	5	0.026 U					
PCDDs (total)	10	0.060 U					

PROJECT: NSB KINGS BAY, GEORGIA — PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l) — Validation/Summary Table

SAMPLE LOCATION:		KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
LAB NUMBER:		W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
DATE SAMPLED:		02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
beta-BHC	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
gamma-BHC (Lindane)	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor epoxide	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDE	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDD	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDT	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Chlordane	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Toxaphene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1016	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1221	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1232	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1242	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1248	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Aroclor-1254	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroicor-1260	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzilate	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diallate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isodrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Thionazin	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phorate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sulfotepp	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Famphur	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
LAB NUMBER:		W2098506	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
DATE SAMPLED:		02/20/92	02/22/92	02/22/92	02/22/92	02/24/92	02/21/92	02/22/92
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
beta-BHC	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
gamma-BHC (Lindane)	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor epoxide	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'- DDE	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'- DDD	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'- DDT	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Chlordane	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Toxaphene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1016	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1221	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1232	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1242	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1248	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Aroclor-1254	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroicor-1260	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzilate	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diallate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isodrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Thionazin	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phorate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sulfotepp	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	1	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Methyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Famphur	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA	PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l)						Validation/Summary Table
SAMPLE LOCATION:	KBA-11-3	KBA-11-3D	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8
LAB NUMBER:	W2100202	W2100202	W2099708	W2099709	W2099704	W2099703	W2099706
DATE SAMPLED:	02/22/92	02/22/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080							
ANALYTE CRQL							
alpha-BHC 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
beta-BHC 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
gamma-BHC (Lindane) 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor epoxide 0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDE 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDD 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDT 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor 0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Chlordane 0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Toxaphene 0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1016 0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1221 2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1232 2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1242 0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1248 0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Aroclor-1254 0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroicor-1260 0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzilate 0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diallate 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isodrin 0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Kepone NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140							
ANALYTE CRQL							
Triethylphosphorothioate 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Thionazin 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phorate 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sulfotepp 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethoate NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Parathion 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl Parathion 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Famphur 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES -- METHOD 8150							
ANALYTE CRQL							
2,4-D 2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex 0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T 0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dinoseb NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		KBA-11-9						
LAB NUMBER:		W2099705						
DATE SAMPLED:		02/21/92						
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.01	0.01 U						
beta-BHC	0.02	0.02 U						
delta-BHC	0.01	0.01 U						
gamma-BHC (Lindane)	0.01	0.01 U						
Heptachlor	0.01	0.01 U						
Aldrin	0.01	0.01 U						
Heptachlor epoxide	0.01	0.01 U						
Endosulfan I	0.02	0.02 U						
Dieldrin	0.02	0.02 U						
4,4'- DDE	0.02	0.02 U						
Endrin	0.02	0.02 U						
Endosulfan II	0.02	0.02 U						
4,4'- DDD	0.02	0.02 U						
Endrin Aldehyde	0.02	0.02 U						
Endosulfan Sulfate	0.02	0.02 U						
4,4'- DDT	0.02	0.02 U						
Methoxychlor	0.04	0.04 U						
Endrin Ketone	0.02	0.02 U						
Chlordane	0.1	0.1 U						
Toxaphene	0.5	0.5 U						
Aroclor-1016	0.8	0.8 U						
Aroclor-1221	2	2 U						
Aroclor-1232	2	2 U						
Aroclor-1242	0.8	0.8 U						
Aroclor-1248	0.4	0.4 U						
Aroclor-1254	0.2	0.2 U						
Aroclor-1260	0.2	0.2 U						
Chlorobenzilate	0.5	0.5 U						
Diallate	1	1 U						
Isodrin	0.02	0.02 U						
Kepone	NR	NR						
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	1	1 U						
Thionazin	1	1 U						
Phorate	1	1 U						
Sulfotepp	1	1 U						
Dimethoate	NR	NR						
Disulfoton	1	1 U						
Methyl Parathion	1	1 U						
Ethyl Parathion	1	1 U						
Famphur	1	1 U						
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	2.5	2.5 U						
Silvex	0.5	0.5 U						
2,4,5-T	0.5	0.5 U						
Dinoseb	NR	NR						

PROJECT: NSB KINGS BAY, GEORGIA — INORGANIC AQUEOUS ANALYSES (ug/l) — Validation/Summary Table

	SAMPLE LOCATION:	KBA-5-1	KBA-5-2	KBA-5-3	KBA-5-4	KBA-5-4D	KBA-5-5	KBA-5-6
	LAB NUMBER:	W2098501	W2098502	W2098503	W2098504	W2098505	W2098506	W2098507
	DATE SAMPLED:	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92	02/20/92
ANALYTE	CRQL							
Antimony	60	10.9 U	10.9 U	10.9 U	14.0 J	10.9 U	10.9 U	11.3 J
Arsenic	10	36.5	27.9	22.5	15.9	18.0	33.2	14.9
Barium	200	742	459	161 J	601	588	332	640
Beryllium	5	4.2 J	2.7 J	0.92 J	3.1 J	2.9 J	3.0 J	5.1
Cadmium	5	2.9 U	2.9 U	2.9 U	2.9 U	3.7 J	2.9 U	25.4
Chromium	10	134	95.7	29.5	103	101	102	152
Cobalt	50	36.4 J	21.3 J	11.8 J	28.5 J	29.1 J	29.2 J	30.4 J
Copper	25	37.8	51.5	77.6	31.7	36.9	77.4	63.3
Lead	5	30.2	23.2	7.2	22.0	25.2	23.0	32.0
Mercury	0.2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.40
Nickel	40	49.0	50.3	79.8	40.2 J	42.7 J	77.2	59.8
Selenium	5	1.3 U	1.4 J	1.3 U	2.0 J	1.6 J	2.2 J	1.3 U
Silver	10	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Thallium	10	1.4 U	1.4 U	1.4 U	1.6 J	1.5 J	1.6 J	1.6 J
Tin	208	208 U	208 U	208 U	232	208 U	208 U	208 U
Vanadium	50	117	80.6	24.4 J	84.7	82.6	81.8	138
Zinc	20	168J	322 J	100 J	153 J	177 J	200 J	235 J
Cyanide	10	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 J
Sulfide	100	300	300	200	300	400	200	2100

PROJECT: NSB KINGS BAY, GEORGIA — INORGANIC AQUEOUS ANALYSES (ug/l) — Validation/Summary Table

	SAMPLE LOCATION:	KBA-5-7	KBA-16-1	KBA-16-2	KBA-16-3	KBA-16-4	KBA-11-1	KBA-11-2
	LAB NUMBER:	W2098508	W2100207	W2100204	W2100206	W2101201	W2099702	W2100201
	DATE SAMPLED:	02/20/92	02/22/92	02/22/92	02/22/92	02/24/92	02/21/92	02/22/92
ANALYTE	CRQL							
Antimony	60	16.8 J	18.5 J	13.3 J	11.4 J	10.9 U	10.9 U	10.9 UJ
Arsenic	10	76.9	29.9	19.3	25.8	4.9 J	1.9 J	3.5 J
Barium	200	748	171 J	478	519	386	61.6 J	228
Beryllium	5	6.1	2.5 J	6.2	13.1	2.4 J	0.72 J	4.3 J
Cadmium	5	25.9	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
Chromium	10	228	84.6	256	194	34.0	44.4 J	247
Cobalt	50	48.4 J	11.6 J	74.4	29.1 J	3.6 U	3.6 U	5.6 J
Copper	25	73.4	25.0 U	67.0 U	33.6 U	38.1 U	26.8 U	53.5 U
Lead	5	43.0	14.8 J	36.3 J	19.9 J	12.0 J	12.6 J	18.1 J
Mercury	0.2	0.16 U	0.16 U	0.60	0.82	0.16 U	0.16 U	0.60
Nickel	40	84.4	27.0 J	132	54.7	10.5 U	12.8 J	32.2 J
Selenium	5	1.7 J	3.2 J	8.0	1.3 U	2.3 J	6.9	25.6
Silver	10	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Thallium	10	2.2 J	17.3 J	1.9 J	1.7 UJ	1.7 U	1.7 U	1.7 UJ
Tin	208	208 U	208 U	208 U	208 U	208 U	208 UJ	208 U
Vanadium	50	183	119	257	175	29.8 J	24.8 J	94.6
Zinc	20	260 J	50.0 U	297	182	43.6 U	20.1 U	53.3 U
Cyanide	10	5.6 J	3.4 J	2.6 J	1.9 J	1.8 U	1.8 U	1.8 U
Sulfide	100	300	400	1800	200	300	100 U	500

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	KBA-11-3	KBA-11-4	KBA-11-5	KBA-11-6	KBA-11-7	KBA-11-8	KBA11-9
	LAB NUMBER:	W2100202	W2099708	W2099709	W2099704	W2099703	W2099706	W2099705
	DATE SAMPLED:	02/22/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92	02/21/92
ANALYTE	CRQL							
Antimony	60	11.1 J	11.4 J	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U
Arsenic	10	2.3 U	0.69 U	89.0	7.3 J	16.9	7.7 J	3.5 J
Barium	200	155 J	192 J	617	262	285	102 J	135 J
Beryllium	5	2.0 J	5.8	10.2	4.8 J	4.1 J	2.5 J	3.0 J
Cadmium	5	2.9 U	2.9 U	3.5 J	2.9 U	2.9 U	2.9 U	2.9 U
Chromium	10	113	297 J	620 J	261 J	354 J	139 J	121 J
Cobalt	50	3.9 J	7.4 J	16.8 J	6.5 J	5.9 J	3.6 U	3.6 U
Copper	25	41.0 U	68.8	384	49.0	121	62.2	43.2
Lead	5	18.8 J	24.7 J	53.5 J	16.3 J	20.4 J	16.8 J	17.6 J
Mercury	0.2	0.60 J	1.4	2.9	1.0	1.9	0.58	0.28
Nickel	40	19.6 U	41.6	107	31.2 J	44.7	18.6J	17.0 J
Selenium	5	24.5	14.6	9.4	13.8	10.4	11.4	6.4 U
Silver	10	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Thallium	10	1.7 UJ	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Tin	208	208 U	208 UJ	208 UJ	208 UJ	208 UJ	208 UJ	208 UJ
Vanadium	50	87.4	209	314	108	143	67.8	80.2
Zinc	20	54.8 U	86.1	269	211	82.1	93.6	38.1
Cyanide	10	3.0 J	2.3 J	1.8 U	1.8 U	1.8 U	3.8 J	1.8 U
Sulfide	100	600	1300	700	400	3400	300	200

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	KBA-11-3D						
	LAB NUMBER:	W2102203						
	DATE SAMPLED:	02/22/92						
ANALYTE	CRQL							
Antimony	60	10.9 UJ						
Arsenic	10	0.69 U						
Barium	200	280						
Beryllium	5	2.9 J						
Cadmium	5	2.9 U						
Chromium	10	177						
Cobalt	50	5.1 J						
Copper	25	86.5 U						
Lead	5	14.8 J						
Mercury	0.2	0.67						
Nickel	40	42.2						
Selenium	5	26.0						
Silver	10	1.7 U						
Thallium	10	1.7 UJ						
Tin	208	208 U						
Vanadium	50	138						
Zinc	20	102						
Cyanide	10	1.8 U						
Sulfide	100	1000						

TRIP BLANKS
SOURCE WATER BLANKS
SAMPLE EVENT NO. 1
FEBRUARY 1992

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	BT-1-FB	BT-2-FB	BT-3-FB	BT-4-FB	BT-5-FB	BT-6-FB	BT-7-FB
	LAB NUMBER:	20865001	20867005	20867010	20873008	20900004	20917002	20940009
	DATE SAMPLED:	02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
	DATA ANALYZED:	02/14/92	02/13/92	02/13/92	02/18/92	02/22/92	02/26/92	02/28/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	3 J	16 U	12 U	6 U	14 U	5 U	10 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
LAB NUMBER:		20985009	20997007	21002005	21012002	20665002	20997010	20997011
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
beta-BHC	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
gamma-BHC (Lindane)	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor epoxide	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDE	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDD	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDT	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Chlordane	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Toxaphene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1016	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1221	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1232	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1242	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1248	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Aroclor-1254	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroloor-1260	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzilate	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diallate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isodrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Thionazin	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phorate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sulfotepp	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	1	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Methyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Famphur	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
	LAB NUMBER:	20865003	20867006	20867011	20873009	32241004	20917003	20940010
	DATE SAMPLED:	02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
ANALYTE	CRQL							
Antimony	60	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U
Arsenic	10	0.69 U	0.69 U	0.69 U	0.69 U	0.40 U	0.69 U	0.69 U
Barium	200	13.7 J	13.6 J	0.65 U	0.73 U	0.33 J	1.1 U	1.6 U
Beryllium	5	0.19 U	0.19 U	0.19 U	0.19 U	0.30 U	0.19 U	0.19 U
Cadmium	5	2.9 U	2.9 U	2.9 U	2.9 U	1.0 U	2.9 U	2.9 U
Chromium	10	3.9 J	2.1 U	2.1 U	2.1 U	2.0 U	4.1 J	2.1 U
Cobalt	50	3.6 U	3.6 U	3.6 U	3.6 U	3.1 U	3.6 U	3.6 U
Copper	25	3.3 J	7.5 J	2.1 U	3.6 J	1.4 U	2.9 U	4.1 U
Lead	5	0.92 J	0.68 U	0.68 U	0.68 U	0.70 J	0.68 U	1.3 J
Mercury	0.2	0.16 U	0.16 U	0.16 U	0.16 U	0.10 U	0.16 U	0.16 U
Nickel	40	4.3 J	3.8 U	3.8 U	3.8 U	6.5 U	3.8 U	3.8 U
Selenium	5	1.3 U	1.3 U	1.3 U	1.3 U	0.60 U	1.3 U	1.3 U
Silver	10	1.7 U	1.7 U	1.7 U	1.7 U	1.2 U	1.7 U	1.7 U
Thallium	10	1.4 U	1.4 U	1.4 U	1.4 U	0.90 U	1.7 U	1.4 U
Tin	208	208 U	208 U	208 U	208 U	14.5 U	208 U	208 U
Vanadium	50	1.9 J	1.7 U	1.7 U	1.7 U	1.2 U	1.7 U	1.7 U
Zinc	20	8.5 U	10.4 U	24.4 U	8.6 U	4.8 J	11.0 U	20.4 U
Cyanide	10	1.8 U	1.8 U	1.8 U	1.8 U	3.0 U	1.8 U	1.8 U
Sulfide	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U

PROJECT: NSB KINGS BAY, GEORGIA		INORGANIC AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
	LAB NUMBER:	20895009	20997007	21002005	21012002	20865002	20997010	20997011
	DATE SAMPLED:	02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
ANALYTE	CRQL							
Antimony	60	10.9 U	10.9 U	10.9 UJ	10.9 U	10.9 U	10.9 U	10.9 U
Arsenic	10	0.69 U	0.69 U	0.69 U	0.69 UJ	1.4 J	0.72 J	0.69 U
Barium	200	11.1 J	1.3 J	0.58 U	1.8 U	0.69 U	0.79 J	2.1 J
Beryllium	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Cadmium	5	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
Chromium	10	3.4 U	3.4 J	2.1 U	2.3 J	2.4 J	2.1 UJ	5.1 J
Cobalt	50	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
Copper	25	4.8 U	10.3 U	2.1 U	5.8 U	2.1 U	3.9 U	5.3 U
Lead	5	3.1 U	0.70 J	1.6 J	0.68 UJ	0.88 J	0.68 UJ	0.68 UJ
Mercury	0.2	0.16 U	0.16 U	0.16 UJ	0.16 U	0.16 U	0.16 U	0.16 U
Nickel	40	3.8 UJ	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	4.8 J
Selenium	5	1.3 U	6.4 U	6.4 U	1.3 U	1.3 U	6.4 U	6.4 U
Silver	10	1.7 U	2.1 J	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Thallium	10	1.4 U	1.7 U	1.7 UJ	1.7 U	1.4 U	1.7 U	1.7 U
Tin	208	208 U	208 UJ	208 U	208 U	208 U	208 UJ	208 UJ
Vanadium	50	1.7 U	1.7 U	1.7 U	1.7 U	1.9 J	1.7 U	1.7 U
Zinc	20	7.5 UJ	11.2 U	30.4 U	8.8 U	6.5 U	11.8 U	11.3 U
Cyanide	10	1.8 U	2.8 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Sulfide	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
LAB NUMBER:		20965009	20997007	21002005	21012002	20865002	20997010	20997011
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
DATE ANALYZED:		03/13/92	03/17/92	03/17/92	03/17/92	02/24/92	03/17/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
N-Nitrosomethylethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
o-Toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3- & 4- Methylphenol	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloropropene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
p-Phenylenediamine	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Safrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Isosafrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,4-Naphthoquinone	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,3-Dinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
5-Nitro-o-toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,3,5-Trinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Nitroquinoline-1-oxide	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Methapyrilene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
3,3'-Dimethylbenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2-Acetamidofluorene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachlorophene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
POLYCHLORINATED DIBENZO-FURANS/DIOXINS -- METHOD 8280 (ng/l)								
DATE ANALYZED:		03/03/92	03/06/92	03/04/92	03/04/92	02/12/92	03/06/92	03/05/92
ANALYTE	CRQL (ng/l)							
PCDFs (total)	10	0.034 U	0.060 U	0.12 U	0.058 U	0.086 U	0.13 U	0.15 U
2,3,7,8-TCDD	5	0.031 U	0.055 U	0.056 U	0.047 U	0.067 U	0.068 U	0.13 U
PCDDs (total)	10	0.12 U	0.11 U	0.43 U	0.11 U	0.31 U	0.24 U	0.34 U

PROJECT: NSB KINGS BAY, GEORGIA		PESTICIDE/PCB/HERBICIDE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
LAB NUMBER:		20865003	20867006	20867011	20873009	20900005	20917003	20940010
DATE SAMPLED:		02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
ORGANOCHLORINE PESTICIDES AND PCBs -- METHOD 8080								
ANALYTE	CRQL							
alpha-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
beta-BHC	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
gamma-BHC (Lindane)	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor epoxide	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDE	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDD	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
4,4'-DDT	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Chlordane	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Toxaphene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1016	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1221	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1232	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor-1242	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Aroclor-1248	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Aroclor-1254	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroicor-1260	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzilate	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diallate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isodrin	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Kepone	NR	NR	NR	NR	NR	NR	NR	NR
ORGANOPHOSPHOROUS PESTICIDES -- METHOD 8140								
ANALYTE	CRQL							
Triethylphosphorothioate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Thionazin	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phorate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sulfotepp	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethoate	NR	NR	NR	NR	NR	NR	NR	NR
Disulfoton	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl Parathion	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Famphur	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES -- METHOD 8150								
ANALYTE	CRQL							
2,4-D	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dinoseb	NR	NR	NR	NR	NR	NR	NR	NR

PROJECT: NSB KINGS BAY, GEORGIA — SEMIVOLATILE AQUEOUS ANALYSES (ug/l) — Validation/Summary Table

SAMPLE LOCATION:		BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
LAB NUMBER:		20985009	20997007	21002005	21012002	20885002	20997010	20997011
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
DATE ANALYZED:		03/13/92	03/17/92	03/17/92	03/17/92	02/24/92	03/17/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-Nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Chloroisopropyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
LAB NUMBER:		20965009	20997007	21002005	21012002	20865002	20997010	20997011
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
DATE ANALYZED:		03/13/92	03/17/92	03/17/92	03/17/92	02/24/92	03/17/92	03/17/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-Nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2- Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2- Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2- Chloroisopropyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
LAB NUMBER:		20865003	20867006	20867011	20873009	20900005	20917003	20940010
DATE SAMPLED:		02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
DATE ANALYZED:		02/24/92	03/02/92	03/03/92	02/25/92	03/04/92	03/03/92	03/12/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
1,2-Diphenylhydrazine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo (a) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Ethylhexyl) Phthalate	10	12	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Octyl Phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (b) Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (k) Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (a) Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno (1,2,3-cd) Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz (a,h) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo (g,h,i) Perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Picoline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenyl-tert-butylamine	50	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR
2,6-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzidine	50	50 U	50 U	50 U	50 U	50 UJ	50 UJ	50 U
1,2,4,5-Tetrachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachlorobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1-Naphthylamine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Naphthylamine	50	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U
2,3,4,6-Tetrachlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Diphenylamine	10	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR
Phenacetin	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Aminobiphenyl	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pentachloronitrobenzene	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Pronamide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz (a) Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Methylcholanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
LAB NUMBER:		20865003	20867006	20867011	20873009	20900005	20917003	20940010
DATE SAMPLED:		02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
DATE ANALYZED:		02/24/92	03/02/92	03/03/92	02/25/92	03/04/92	03/03/92	03/12/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270 (continued)								
ANALYTE	CRQL							
N-Nitrosomethylethylamine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
o-Toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3- & 4- Methylphenol	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloropropene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
p-Phenylenediamine	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Safrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Isosafrole	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,4-Naphthoquinone	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
1,3-Dinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
5-Nitro-o-toluidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,3,5-Trinitrobenzene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Nitroquinoline-1-oxide	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Methapyrilene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
3,3'-Dimethylbenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2-Acetamidofluorene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachlorophene	50	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
POLYCHLORINATED DIBENZO-FURANS/DIOXINS -- METHOD 8280 (ng/l)								
	DATE ANALYZED:	02/12/92	02/13/92	02/12/92	02/17/92	02/21/92	02/20/92	Not Analyzed
ANALYTE	CRQL (ng/l)							
PCDFs (total)	10	0.064 U	0.0081 U	0.44 U	0.052 U	0.021 U	0.094 U	Not Analyzed
2,3,7,8-TCDD	5	0.074 U	0.017 U	0.26 U	0.035 U	0.024 U	0.064 U	Not Analyzed
PCDDs (total)	10	0.25 U	0.028 U	1.4 U	0.17 U	0.068 U	0.23 U	Not Analyzed

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
LAB NUMBER:		20895009	20997007	21002005	21012002	20865002	20997010	20997011
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
DATE ANALYZED:		03/04/92	03/04/92	03/04/92	03/04/92	02/14/92	03/04/92	03/04/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA		SEMIVOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
LAB NUMBER:		20865003	20867006	20867011	20873009	20900005	20917003	20940010
DATE SAMPLED:		02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
DATE ANALYZED:		02/24/92	03/02/92	03/03/92	02/25/92	03/04/92	03/03/92	03/12/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
SEMIVOLATILES -- METHOD 8270								
ANALYTE	CRQL							
N-nitrosodimethylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2-Chloroethyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2- Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2- Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2- Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis (2- Chloroisopropyl) Ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-Propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis (2-Chloroethoxy) Methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ
4,6-Dinitro-2-Methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

	SAMPLE LOCATION:	BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
	LAB NUMBER:	20865003	20867006	20867011	20873009	20900005	20917003	20940010
	DATE SAMPLED:	02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
	DATE ANALYZED:	02/14/92	02/13/92	02/14/92	02/18/92	02/22/92	02/26/92	02/28/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 UJ	200 UJ	200 U	200 U	200 U	200 UJ
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	BS-8-ER	BS-9-ER	BS-10-ER	BS-11-ER	BS-1-FB	BS-2-FB	BS-3-FB
	LAB NUMBER:	20695009	20997007	21002005	21012002	20865002	20997010	20997011
	DATE SAMPLED:	02/20/92	02/21/92	02/22/92	02/24/92	02/07/92	02/21/92	02/21/92
	DATE ANALYZED:	03/04/92	03/04/92	03/04/92	03/04/92	02/14/92	03/04/92	03/04/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	1 J	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	7 U	6 U	5 U	5 U	2 J	8 U	15 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	12	8	9	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	7	3 J	6	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	3 J	5 U	3 J	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	2 J	2 J	2 J	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

Validation/Summary Table

SAMPLE LOCATION:		BT-8-FB	BT-9-FB	BT-10-FB	BT-11-FB			
LAB NUMBER:		20895010	20997001	21002006	21012003			
DATE SAMPLED:		02/20/92	02/21/92	02/22/92	02/24/92			
DATE ANALYZED:		03/03/92	03/04/92	03/04/92	03/04/92			
DILUTION FACTOR:		1.0	1.0	1.0	1.0			
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U			
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ			
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ			
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ			
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ			
1,4-Dioxane	200	200 U	200 U	200 U	200 U			
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ			
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ			
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ			
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ			
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ			
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ			
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ			

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
SAMPLE LOCATION:		BS-1-ER	BS-2-ER	BS-3-ER	BS-4-ER	BS-5-ER	BS-6-ER	BS-7-ER
LAB NUMBER:		20865003	20867006	20867011	20873009	20900005	20917003	20940010
DATE SAMPLED:		02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
DATE ANALYZED:		02/14/92	02/13/92	02/14/92	02/18/92	02/22/92	02/26/92	02/28/92
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	4 J	19 U	5	5 U	6 U	9 U	8 U
Acetone	10	10 U	12 U	10 U	13 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	1 J
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	10	10	10	7	33	17	22
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	7	8	7	4 J	14	9	9
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	3 J	3 J	4 J	2 J	4 J	4 J	3 J
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	1 J	2 J	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	2 J	2 J	2 J	5 U	1 J	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Iodomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acrylonitrile	100	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

PROJECT: NSB KINGS BAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

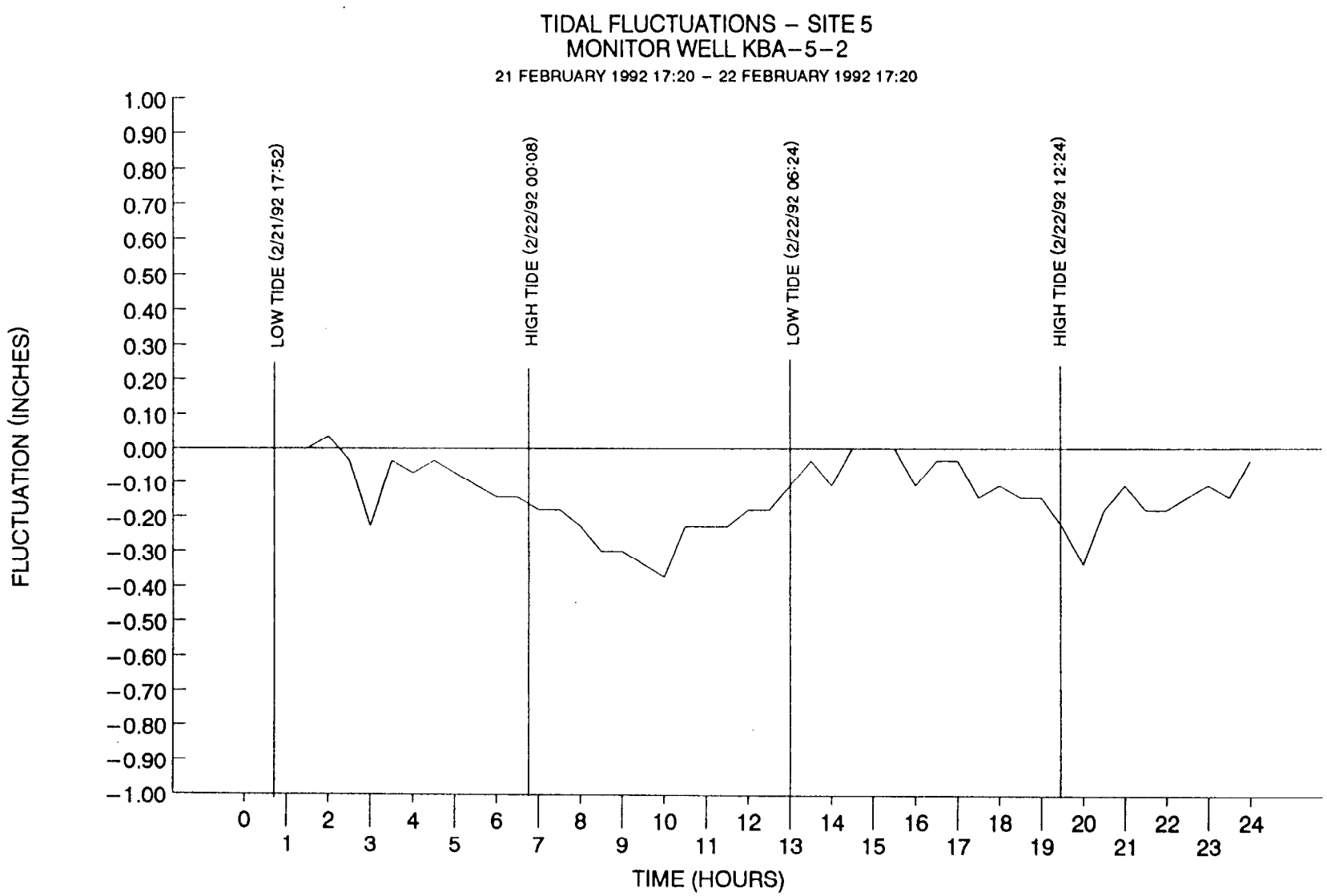
Validation/Summary Table

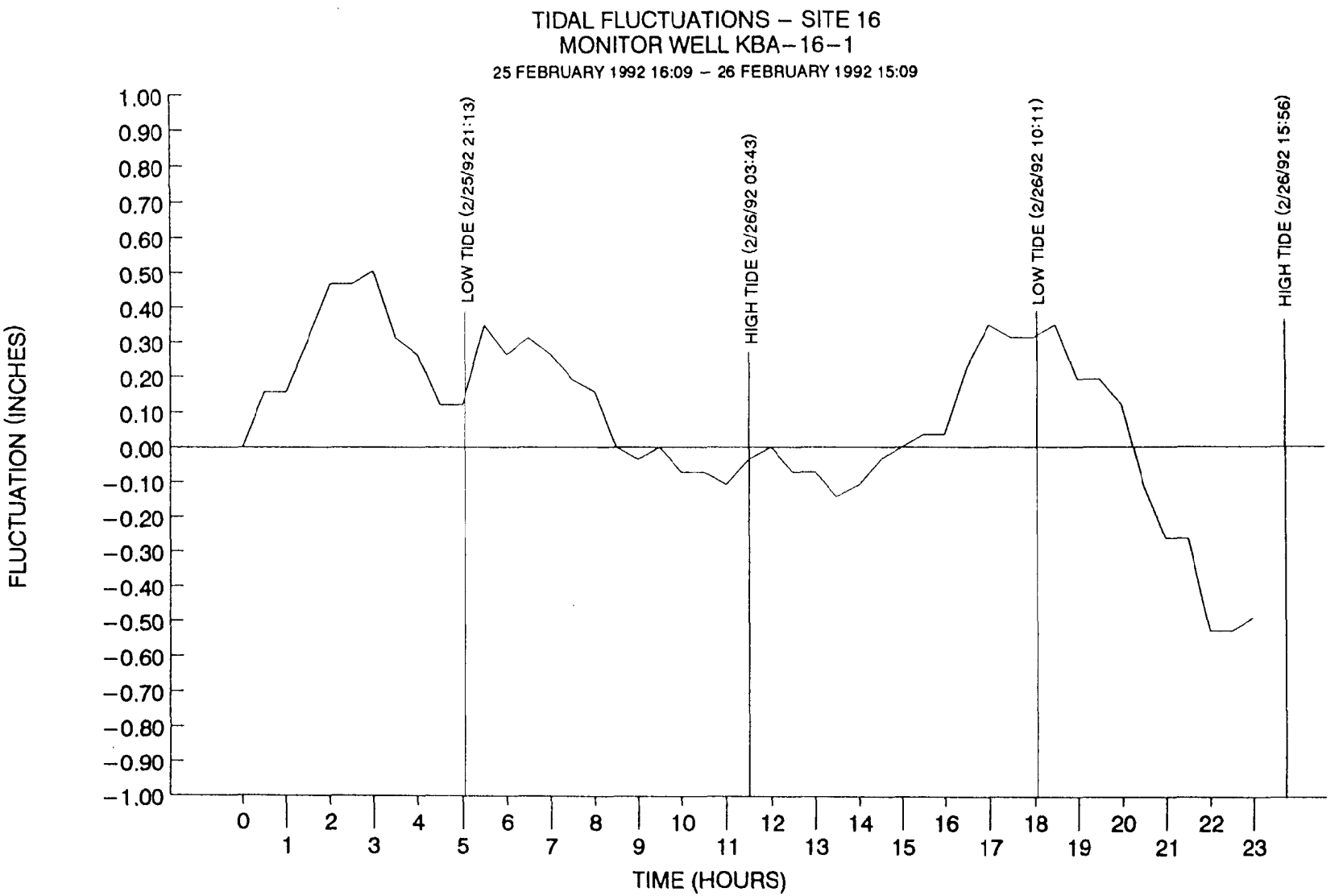
	SAMPLE LOCATION:	BT-1-FB	BT-2-FB	BT-3-FB	BT-4-FB	BT-5-FB	BT-6-FB	BT-7-FB
	LAB NUMBER:	20865001	20867005	20867010	20873008	20900004	20917002	20940009
	DATE SAMPLED:	02/07/92	02/08/92	02/09/92	02/10/92	02/12/92	02/13/92	02/17/92
	DATA ANALYZED:	02/14/92	02/13/92	02/13/92	02/18/92	02/22/92	02/26/92	02/28/92
	DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ANALYTE	CRQL							
trans-1,4-Dichloro-2-Butene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
3-Chloropropene	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Propionitrile	100	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Methacrylonitrile	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,4-Dioxane	200	200 U	200 UJ	200 UJ	200 U	200 U	200 U	200 UJ
Methyl Methacrylate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dibromoethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,1,2-Tetrachloroethane	5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromo-3-Chloropropane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Pentachloroethane	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutyl alcohol	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Chloroprene	200	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ

PROJECT: NSB KINGS BAY, GEORGIA		VOLATILE AQUEOUS ANALYSES (ug/l)					Validation/Summary Table	
	SAMPLE LOCATION:	BT-8-FB	BT-9-FB	BT-10-FB	BT-11-FB			
	LAB NUMBER:	20895010	20997001	21002006	21012003			
	DATE SAMPLED:	02/20/92	02/21/92	02/22/92	02/24/92			
	DATE ANALYZED:	03/03/92	03/04/92	03/04/92	03/04/92			
	DILUTION FACTOR:	1.0	1.0	1.0	1.0			
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U			
Bromomethane	10	10 U	10 U	10 U	10 U			
Vinyl Chloride	10	10 U	10 U	10 U	10 U			
Chloroethane	10	10 U	10 U	10 U	10 U			
Methylene Chloride	5	9 U	7 U	3 J	3 J			
Acetone	10	10 U	10 U	6 J	5 J			
Carbon Disulfide	5	5 U	5 U	5 U	5 U			
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U			
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U			
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U			
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U			
Chloroform	5	5 U	5 U	5 U	5 U			
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U			
2-Butanone	10	10 U	10 U	10 U	10 U			
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U			
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U			
Vinyl Acetate	10	10 U	10 U	10 U	10 U			
Bromodichloromethane	5	5 U	5 U	5 U	5 U			
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U			
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U			
Trichloroethene	5	5 U	5 U	5 U	5 U			
Dibromochloromethane	5	5 U	5 U	5 U	5 U			
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U			
Benzene	5	5 U	5 U	5 U	5 U			
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U			
2-Chloroethylvinylether	10	10 U	10 U	10 U	10 U			
Bromoform	5	5 U	5 U	5 U	5 U			
2-Hexanone	10	10 U	10 U	10 U	10 U			
4-Methyl-2-Pentanone	10	5 U	5 U	5 U	5 U			
Tetrachloroethene	5	5 U	5 U	5 U	5 U			
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U			
Toluene	5	5 U	5 U	5 U	5 U			
Chlorobenzene	5	5 U	5 U	5 U	5 U			
Ethylbenzene	5	5 U	5 U	5 U	5 U			
Styrene	5	5 U	5 U	5 U	5 U			
Xylene (total)	5	5 U	5 U	5 U	5 U			
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U			
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U			
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U			
Acrolein	100	100 U	100 U	100 U	100 U			
Iodomethane	10	10 U	10 U	10 U	10 U			
Acrylonitrile	100	100 U	100 U	100 U	100 U			
Dibromomethane	5	5 U	5 U	5 U	5 U			
Ethyl Methacrylate	5	5 U	5 U	5 U	5 U			
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U			

Appendix D

Tidal Fluctuation Graphs


TIDAL FLUCTUATIONS – SITE 5
MONITOR WELL KBA–5–2
21 FEBRUARY 1992 17:20 – 22 FEBRUARY 1992 17:20
LOW TIDE (2/21/92 17:52)
HIGH TIDE (2/22/92 00:08)
LOW TIDE (2/22/92 06:24)
HIGH TIDE (2/22/92 12:24)
FLUCTUATION (INCHES)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
−0.10
−0.20
−0.30
−0.40
−0.50
−0.60
−0.70
−0.80
−0.90
−1.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
TIME (HOURS)

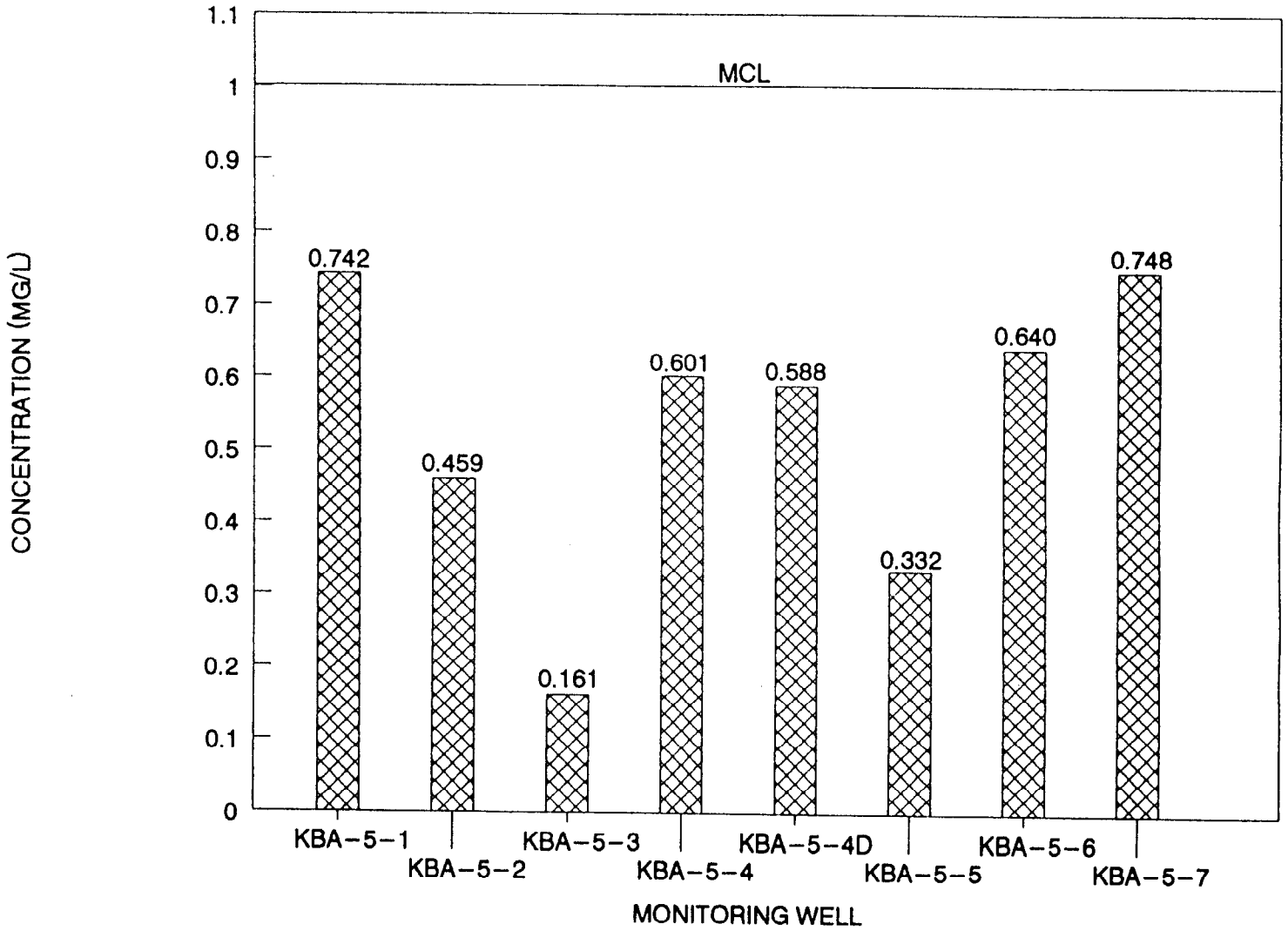

TIDAL FLUCTUATIONS – SITE 16
MONITOR WELL KBA–16–1
25 FEBRUARY 1992 16:09 – 26 FEBRUARY 1992 15:09
FLUCTUATION (INCHES)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
−0.10
−0.20
−0.30
−0.40
−0.50
−0.60
−0.70
−0.80
−0.90
−1.00
LOW TIDE (2/25/92 21:13)
HIGH TIDE (2/26/92 03:43)
LOW TIDE (2/26/92 10:11)
HIGH TIDE (2/26/92 15:56)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
TIME (HOURS)

Appendix E

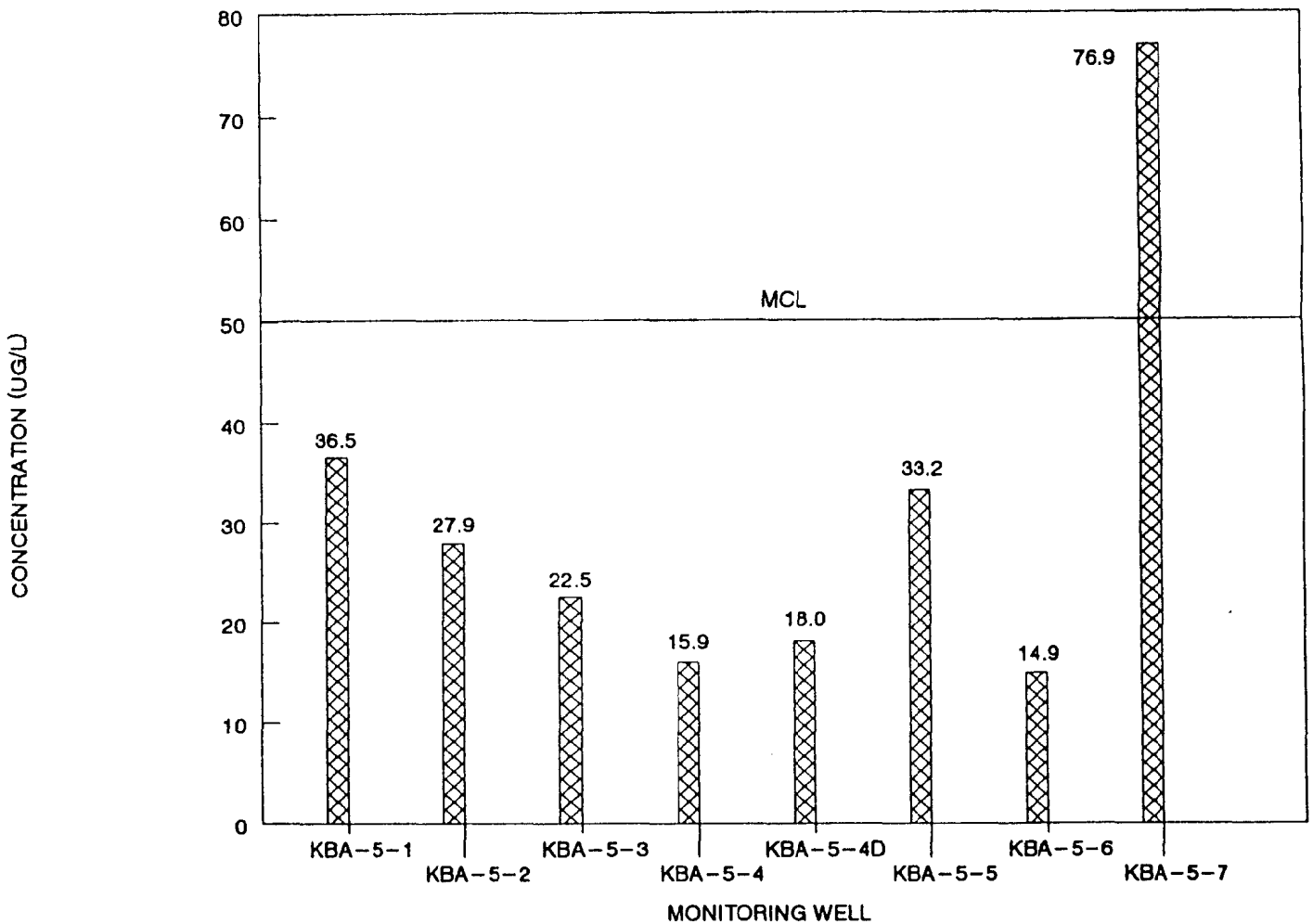
Bar-Chart Graphics of Groundwater Inorganic Data

NSB KINGS BAY, GEORGIA

SITE 5 – BARIUM IN GROUNDWATER

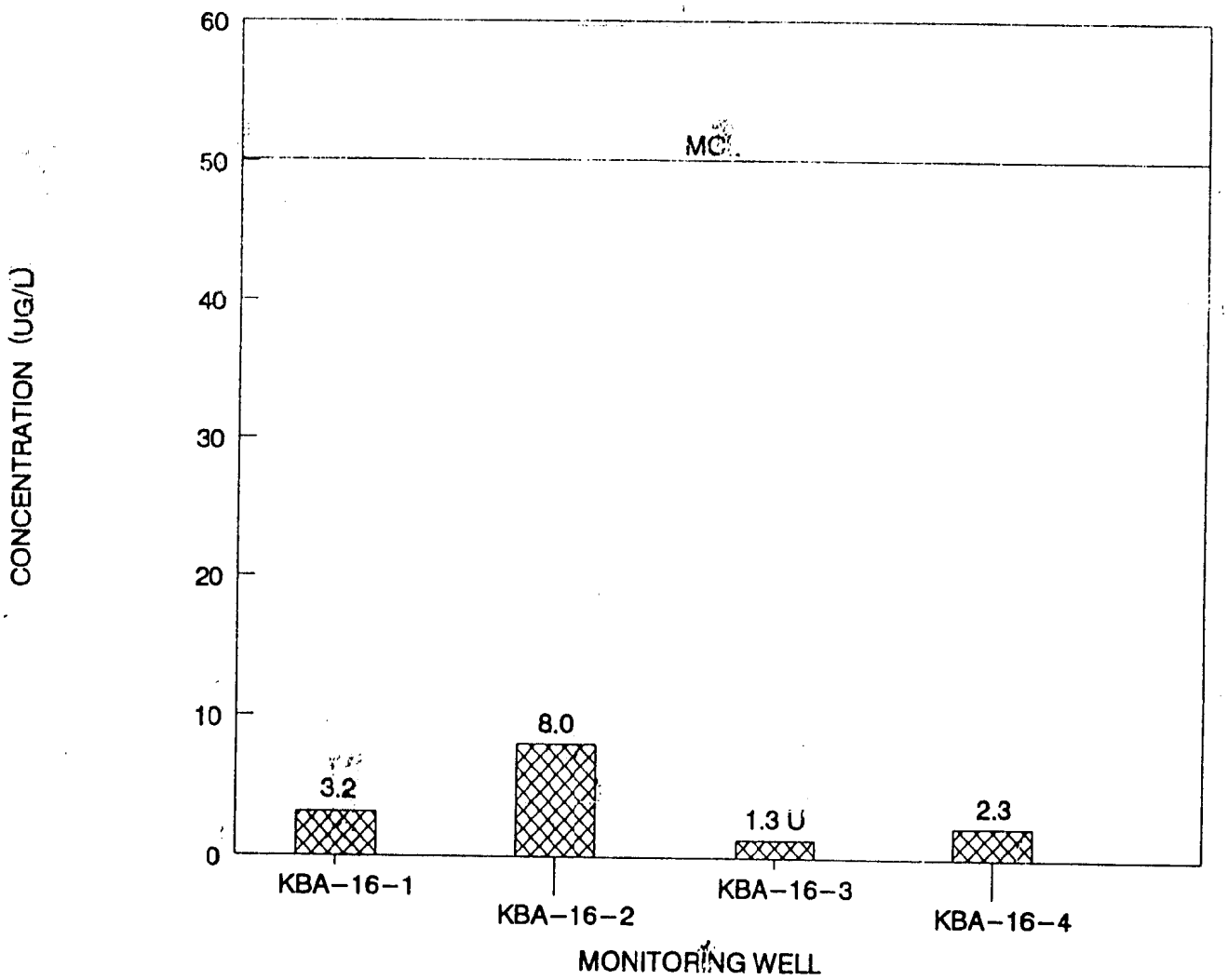


NSB KINGS BAY, GEORGIA
SITE 5 – ARSENIC IN GROUNDWATER



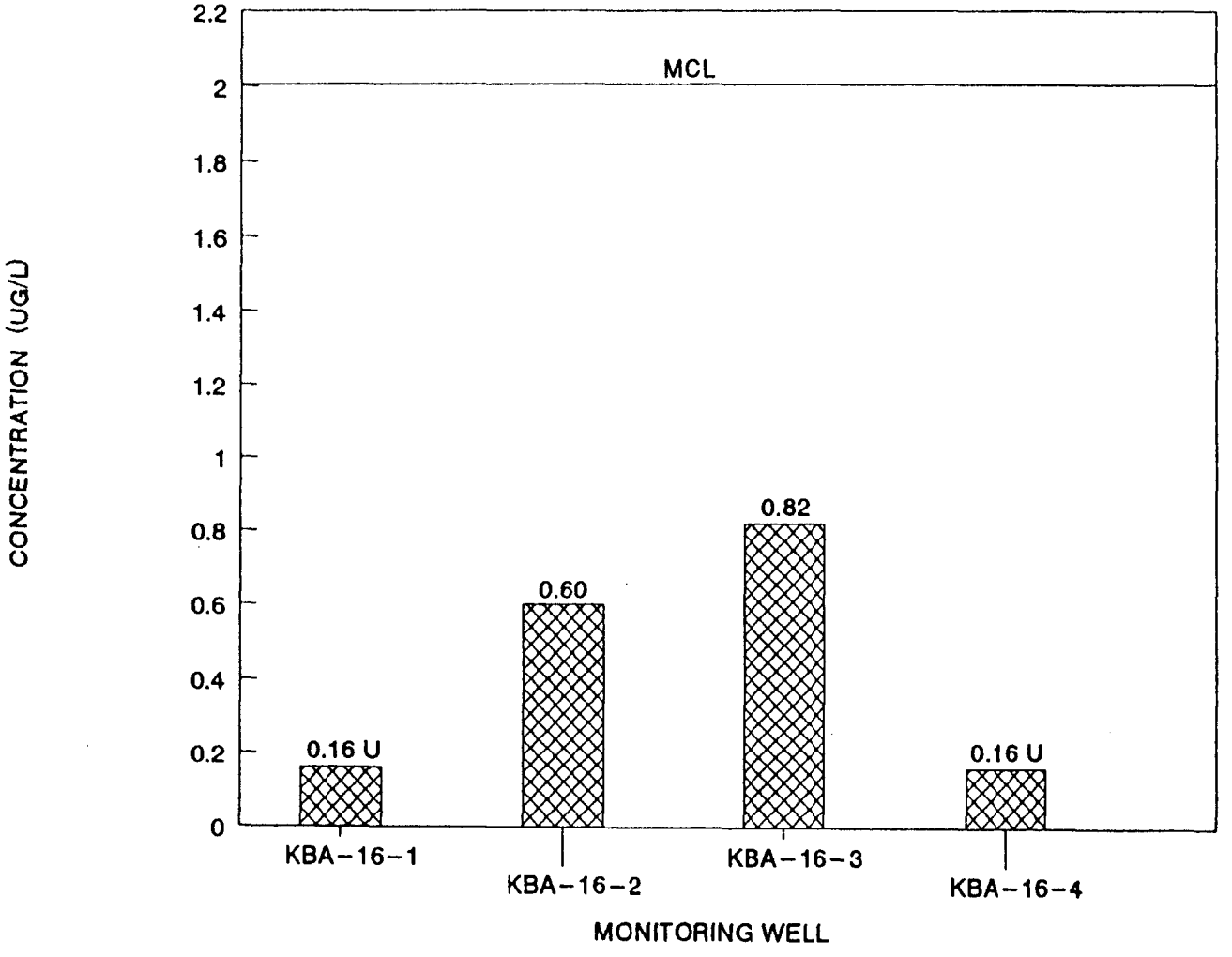
NSB KINGS BAY, GEORGIA

SITE 16 – SELENIUM IN GROUNDWATER



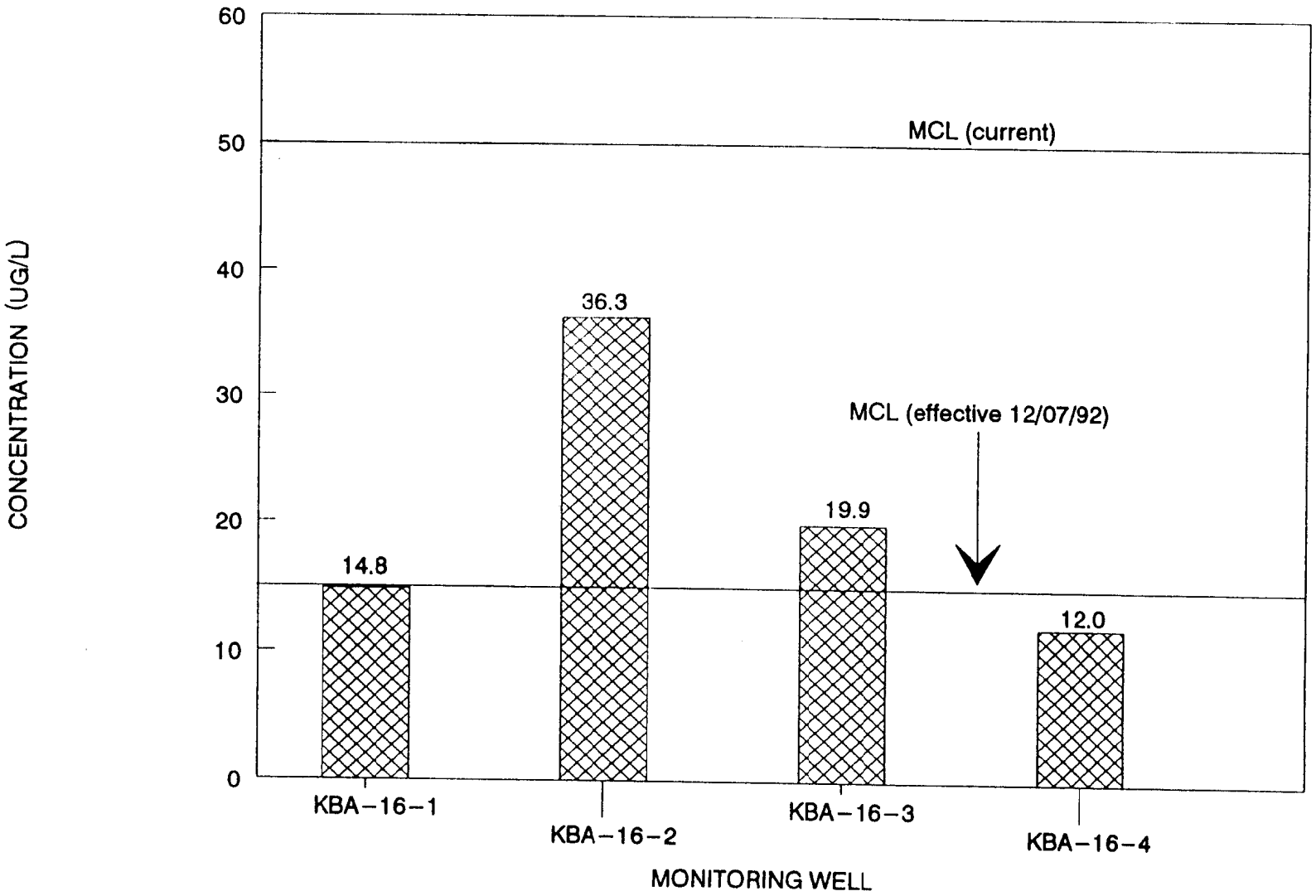
NSB KINGS BAY, GEORGIA

SITE 16 – MERCURY IN GROUNDWATER



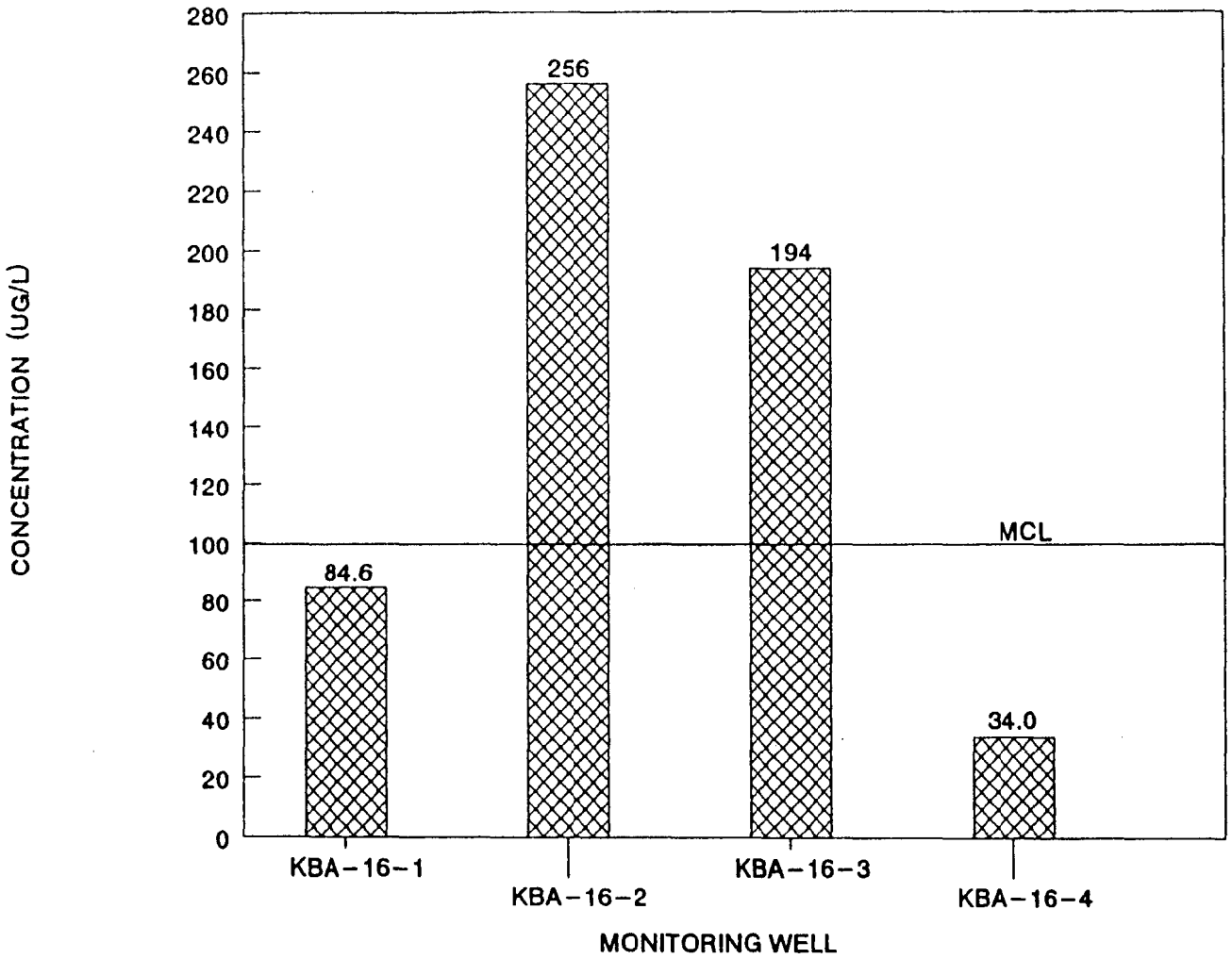
NSB KINGS BAY, GEORGIA

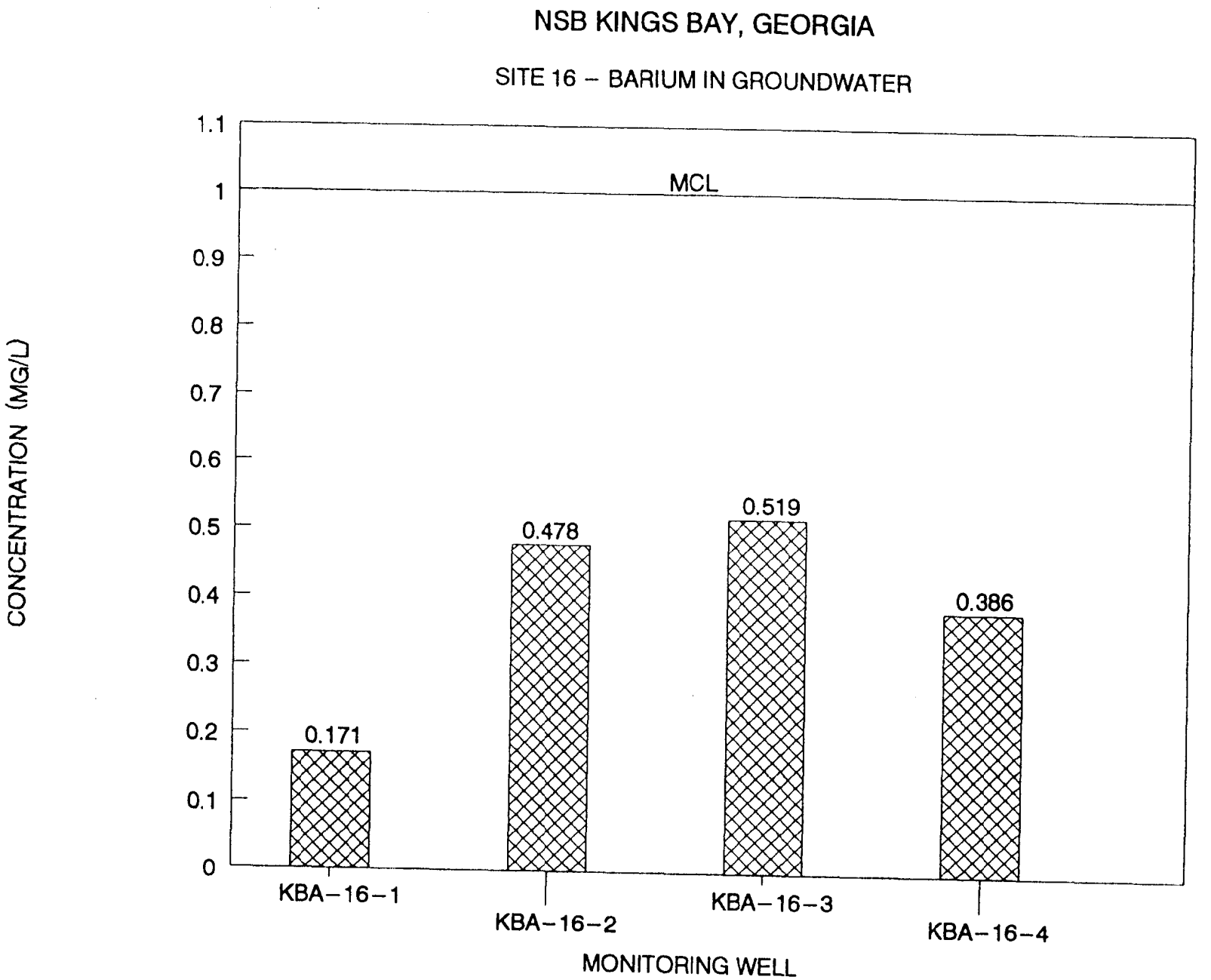
SITE 16 – LEAD IN GROUNDWATER



NSB KINGS BAY, GEORGIA

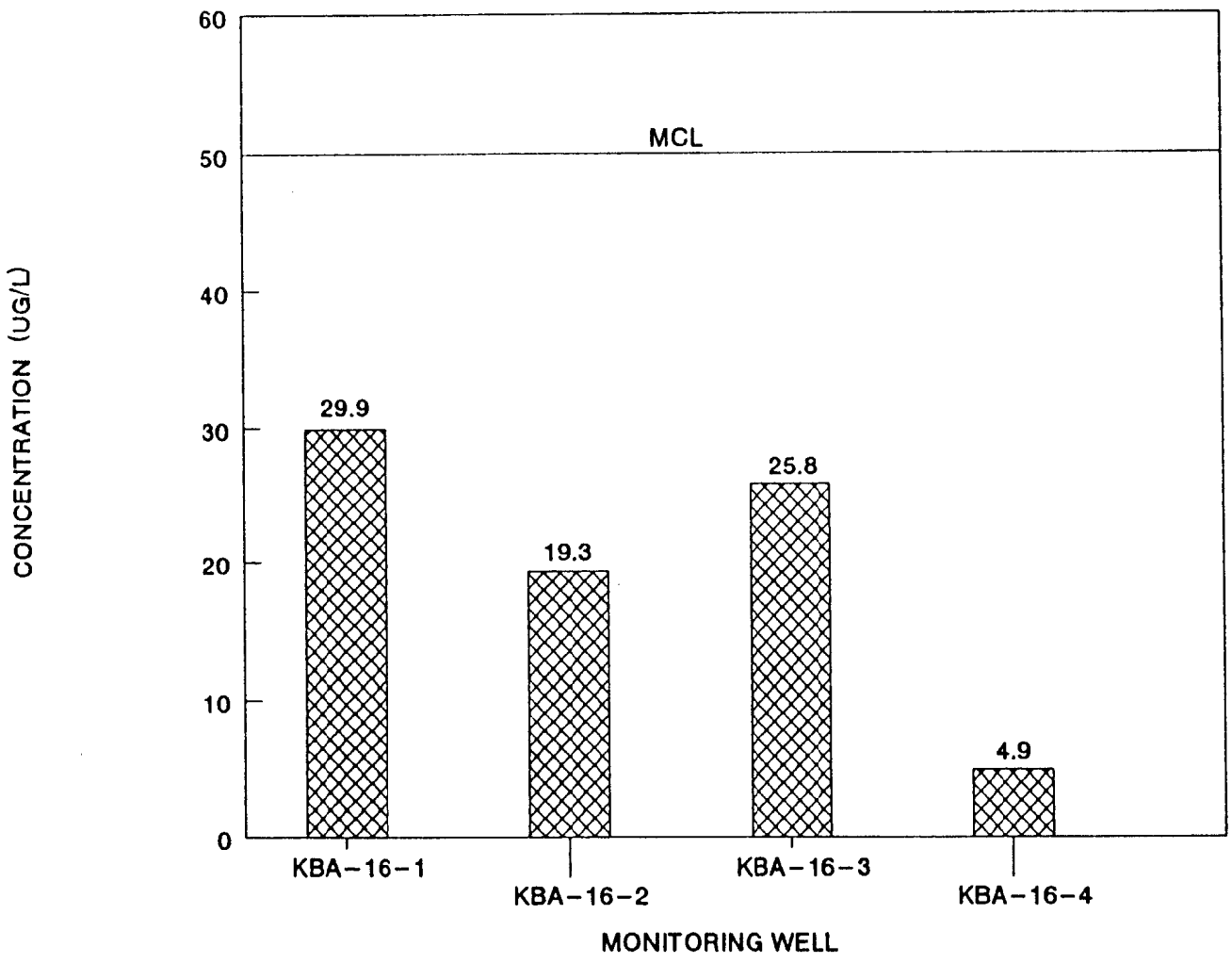
SITE 16 - CHROMIUM IN GROUNDWATER




NSB KINGS BAY, GEORGIA
SITE 16 – BARIUM IN GROUNDWATER
CONCENTRATION (MG/L)
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
MCL
0.171
0.478
0.519
0.386
KBA–16–1
KBA–16–2
KBA–16–3
KBA–16–4
MONITORING WELL

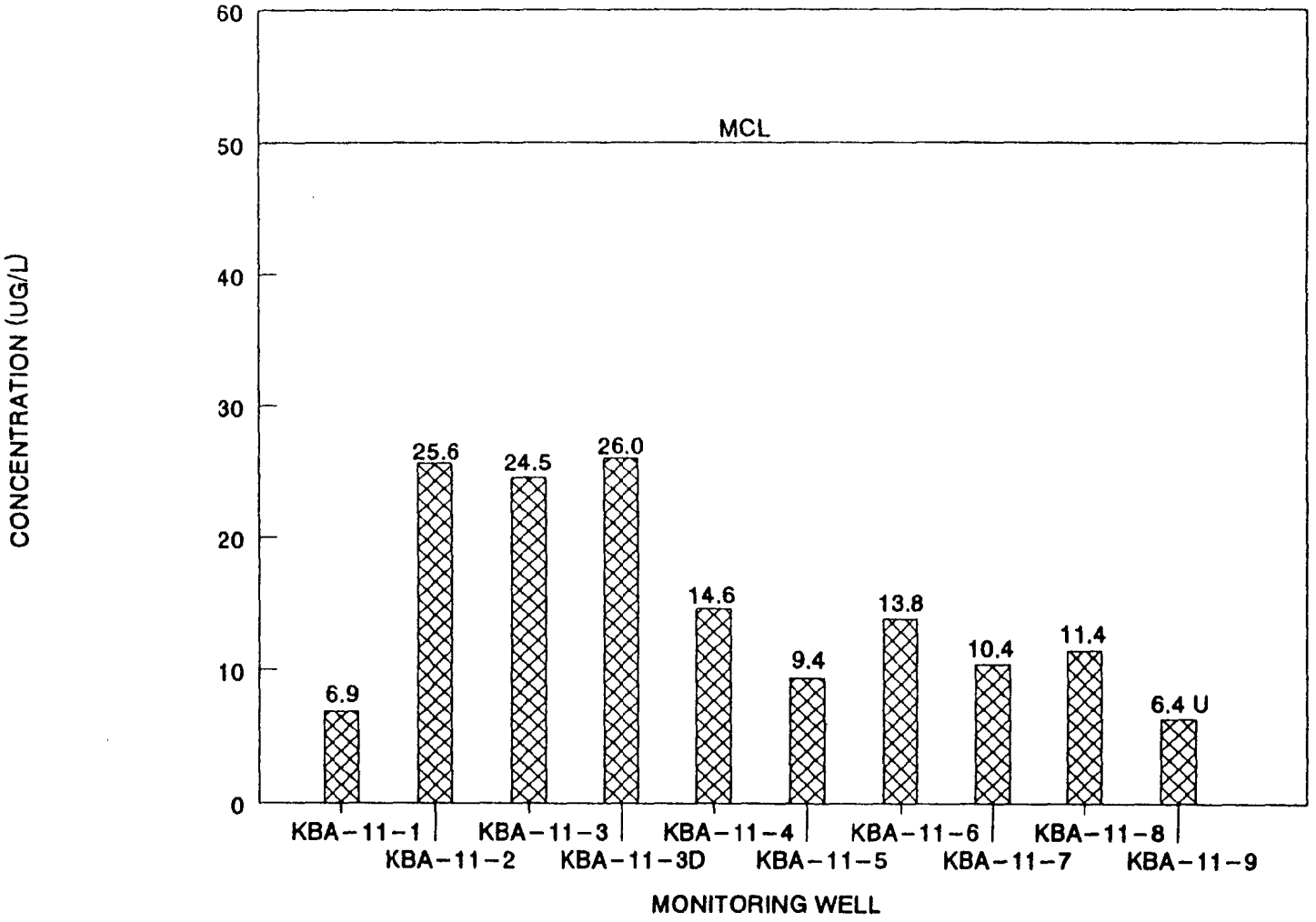
NSB KINGS BAY, GEORGIA

SITE 16 – ARSENIC IN GROUNDWATER



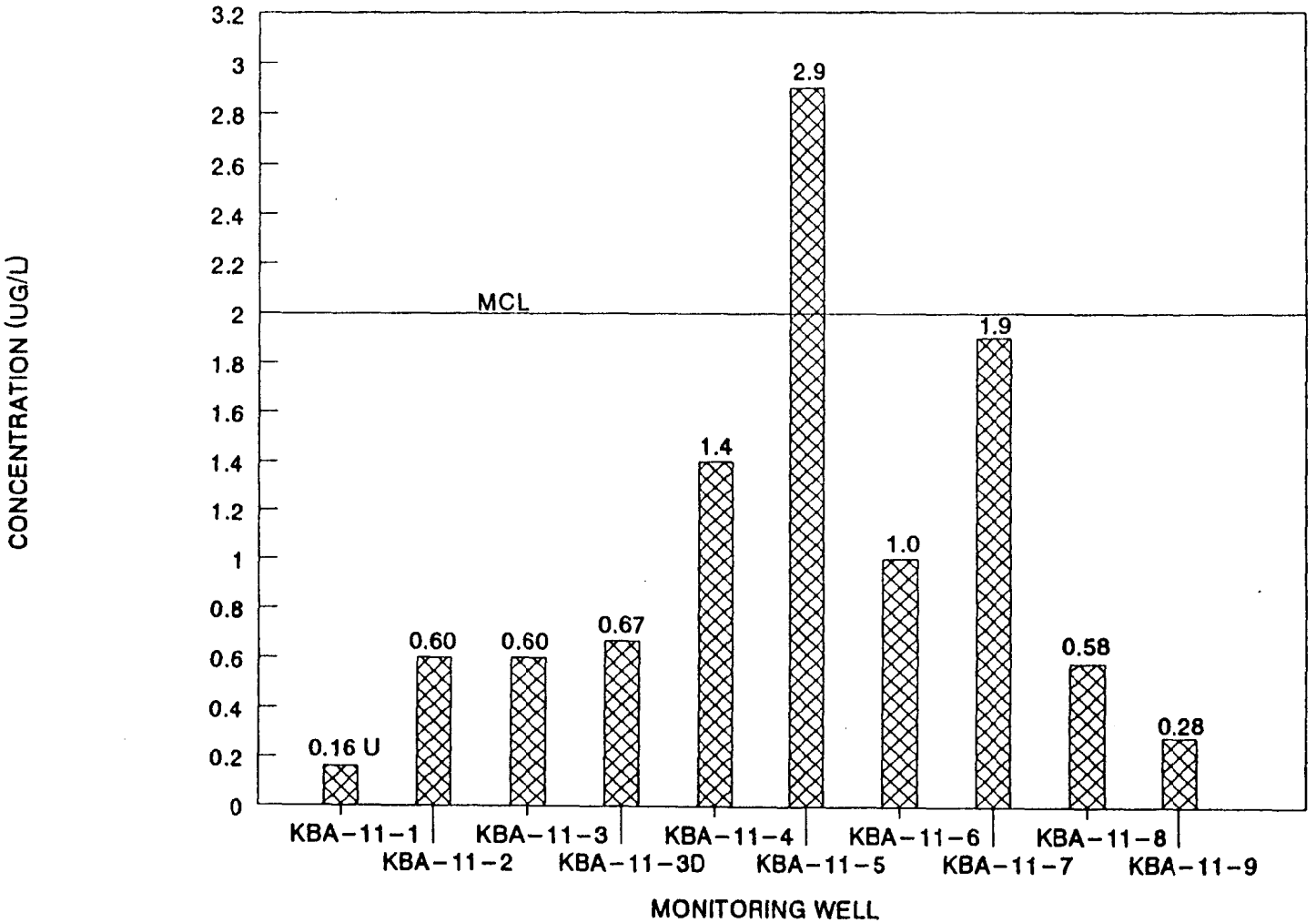
NSB KINGS BAY, GEORGIA

SITE 11 – SELENIUM IN GROUNDWATER



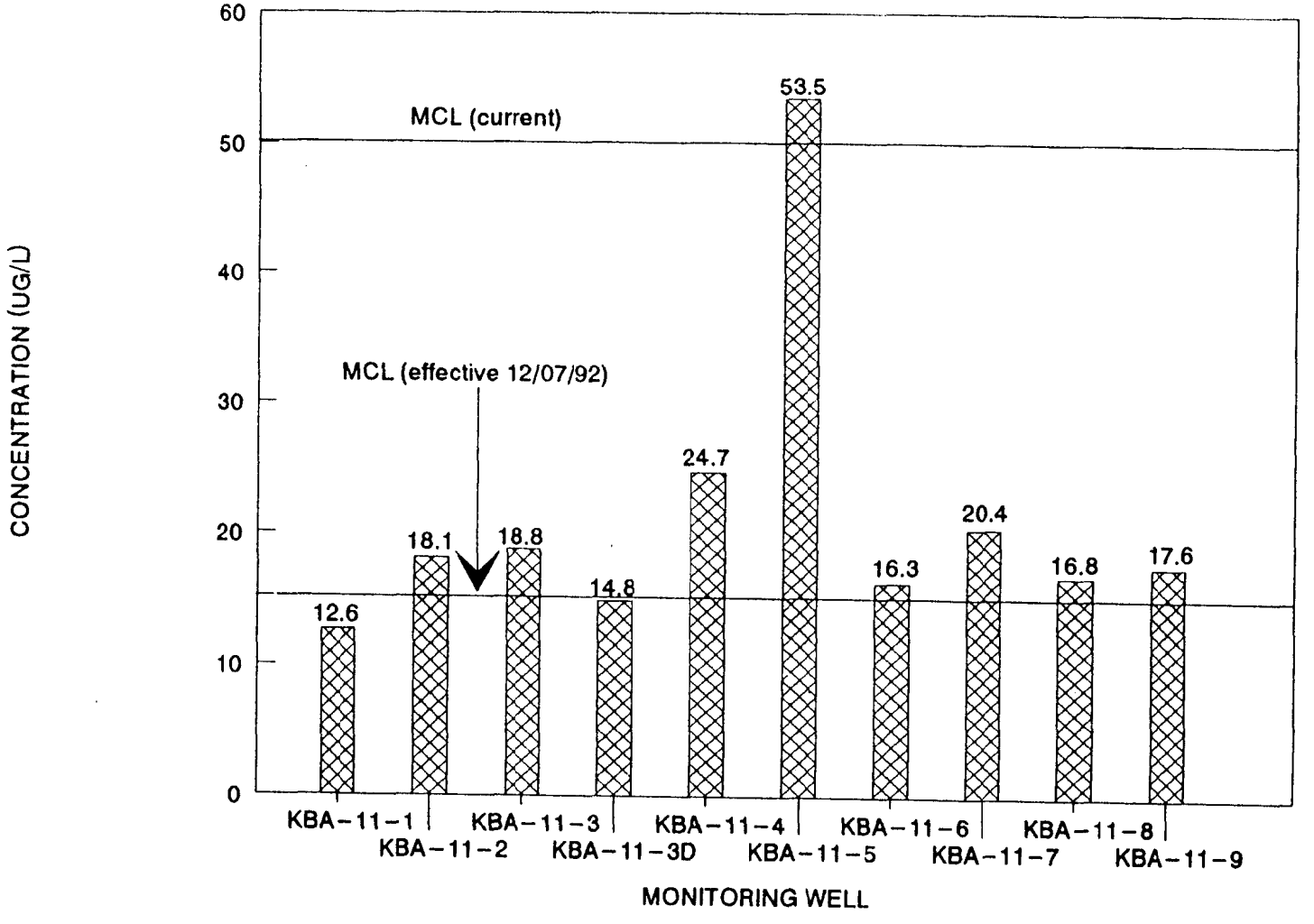
NSB KINGS BAY, GEORGIA

SITE 11 – MERCURY IN GROUNDWATER



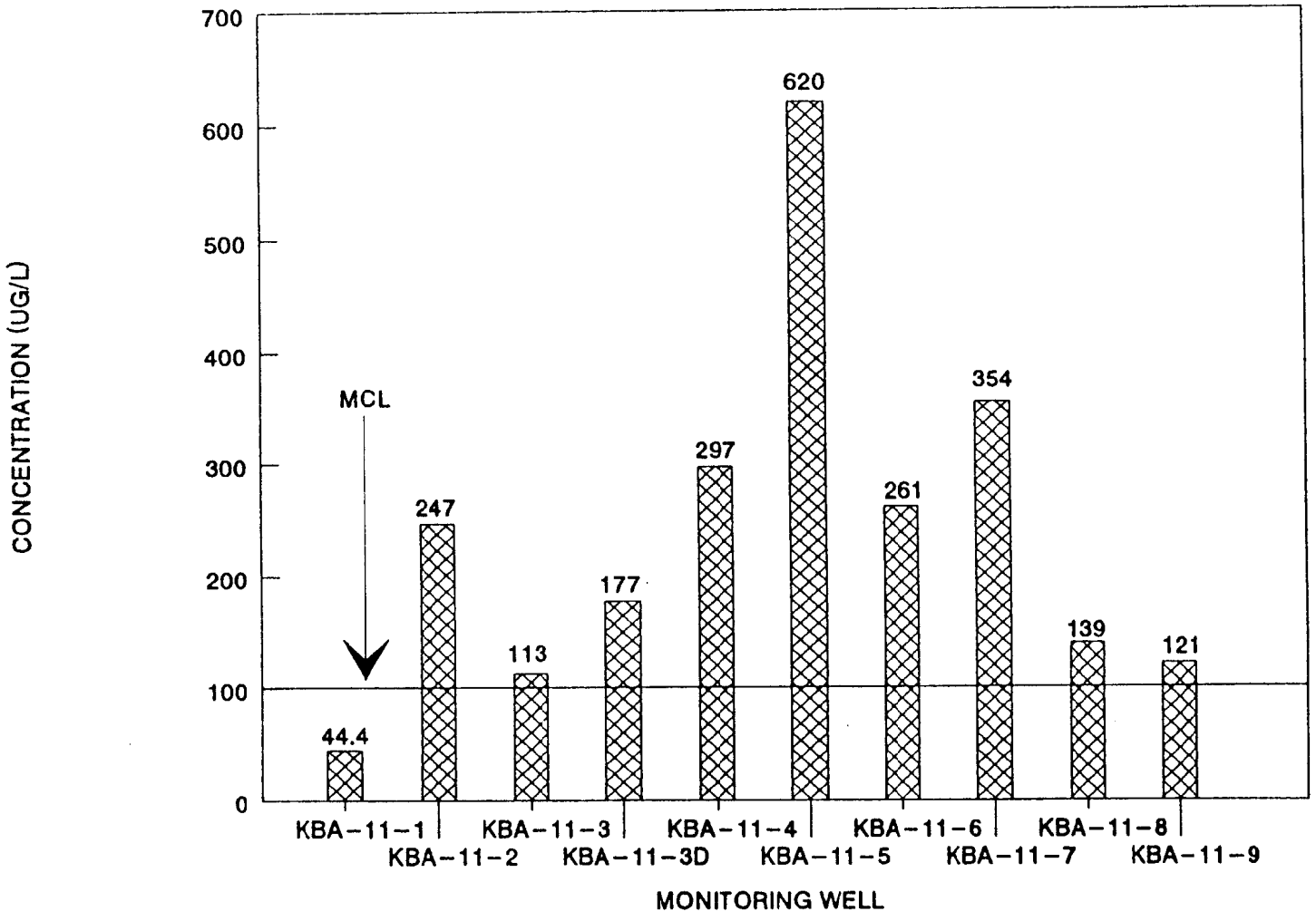
NSB KINGS BAY, GEORGIA

SITE 11 – LEAD IN GROUNDWATER



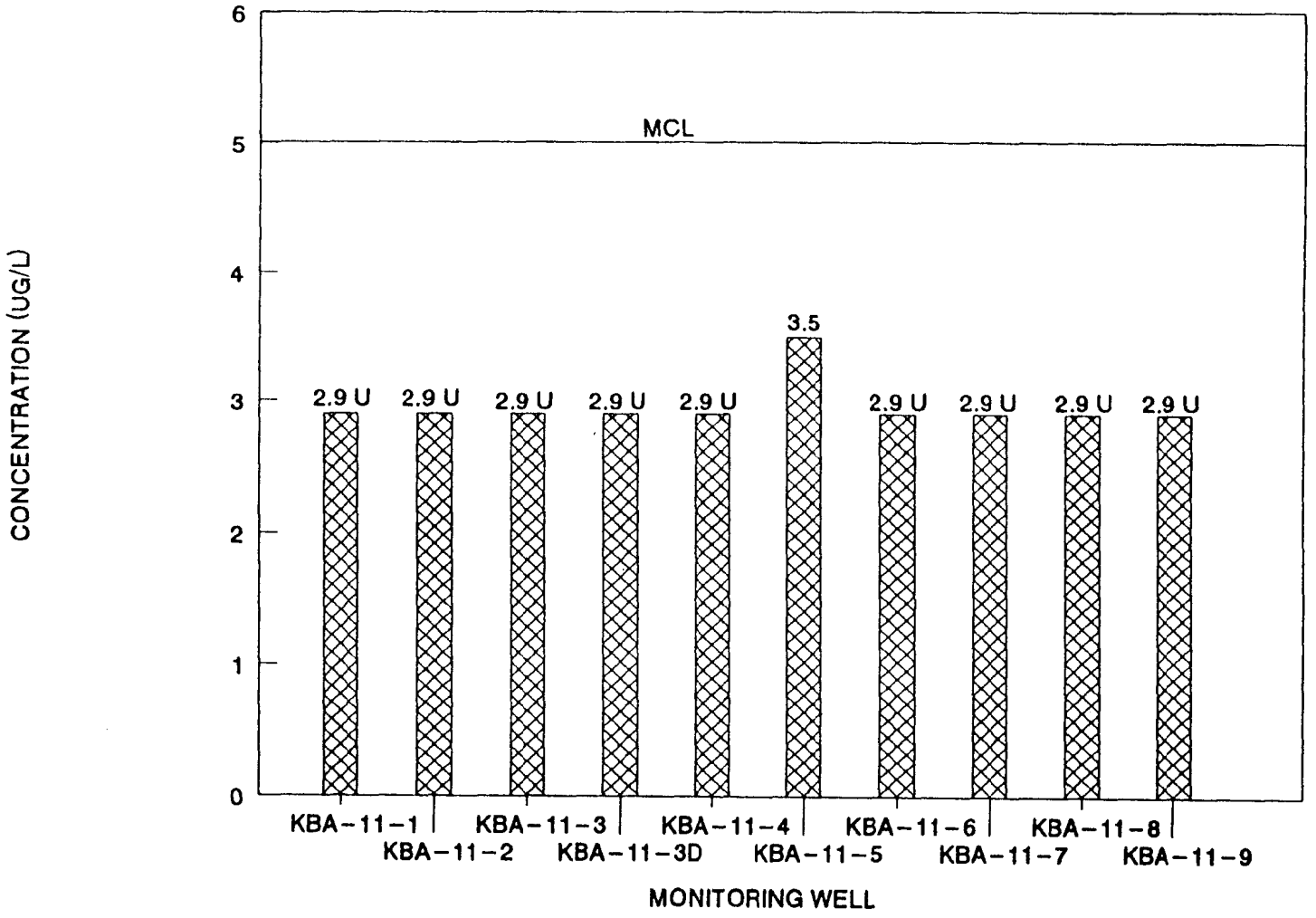
NSB KINGS BAY, GEORGIA

SITE 11 – CHROMIUM IN GROUNDWATER



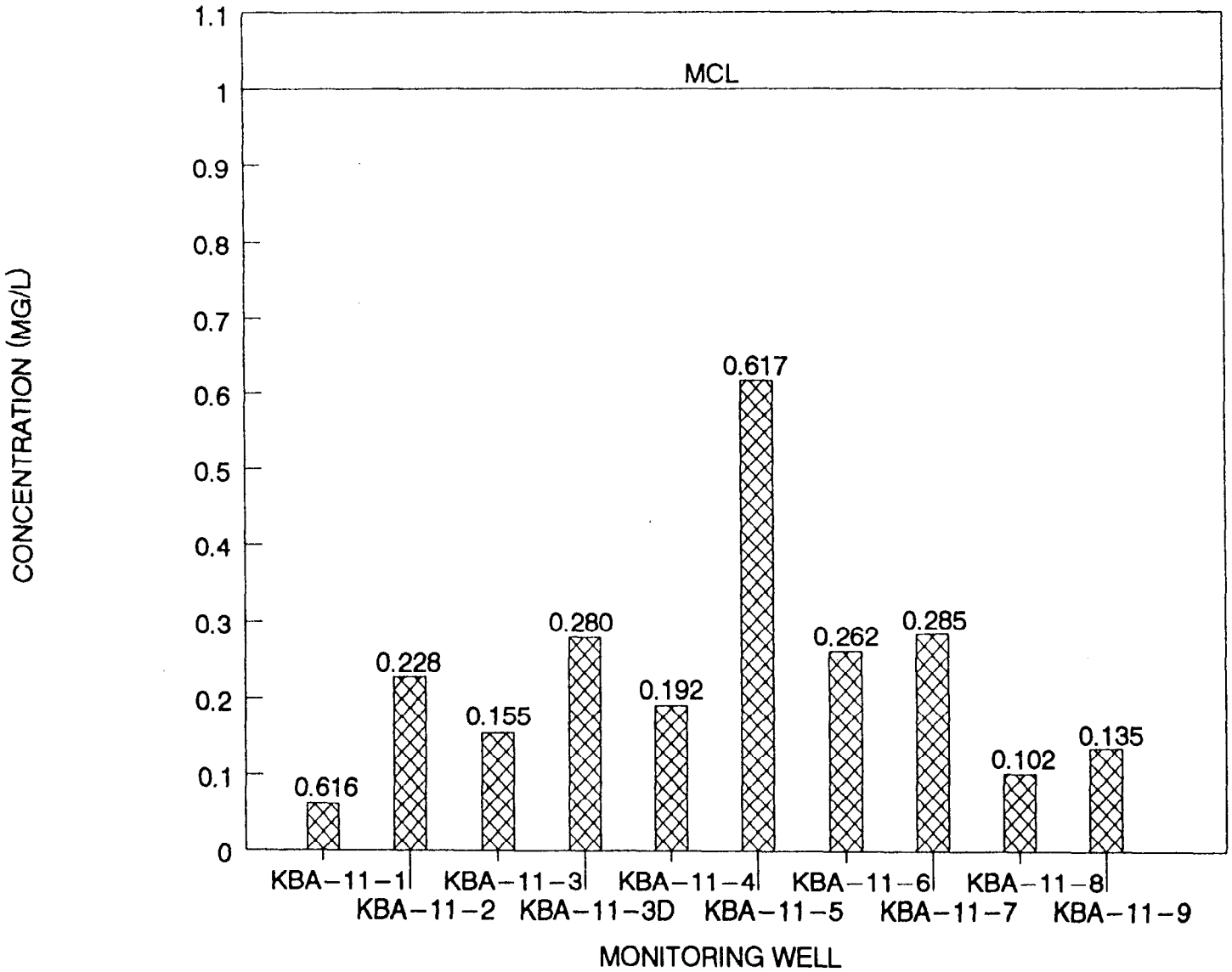
NSB KINGS BAY, GEORGIA

SITE 11 – CADMIUM IN GROUNDWATER



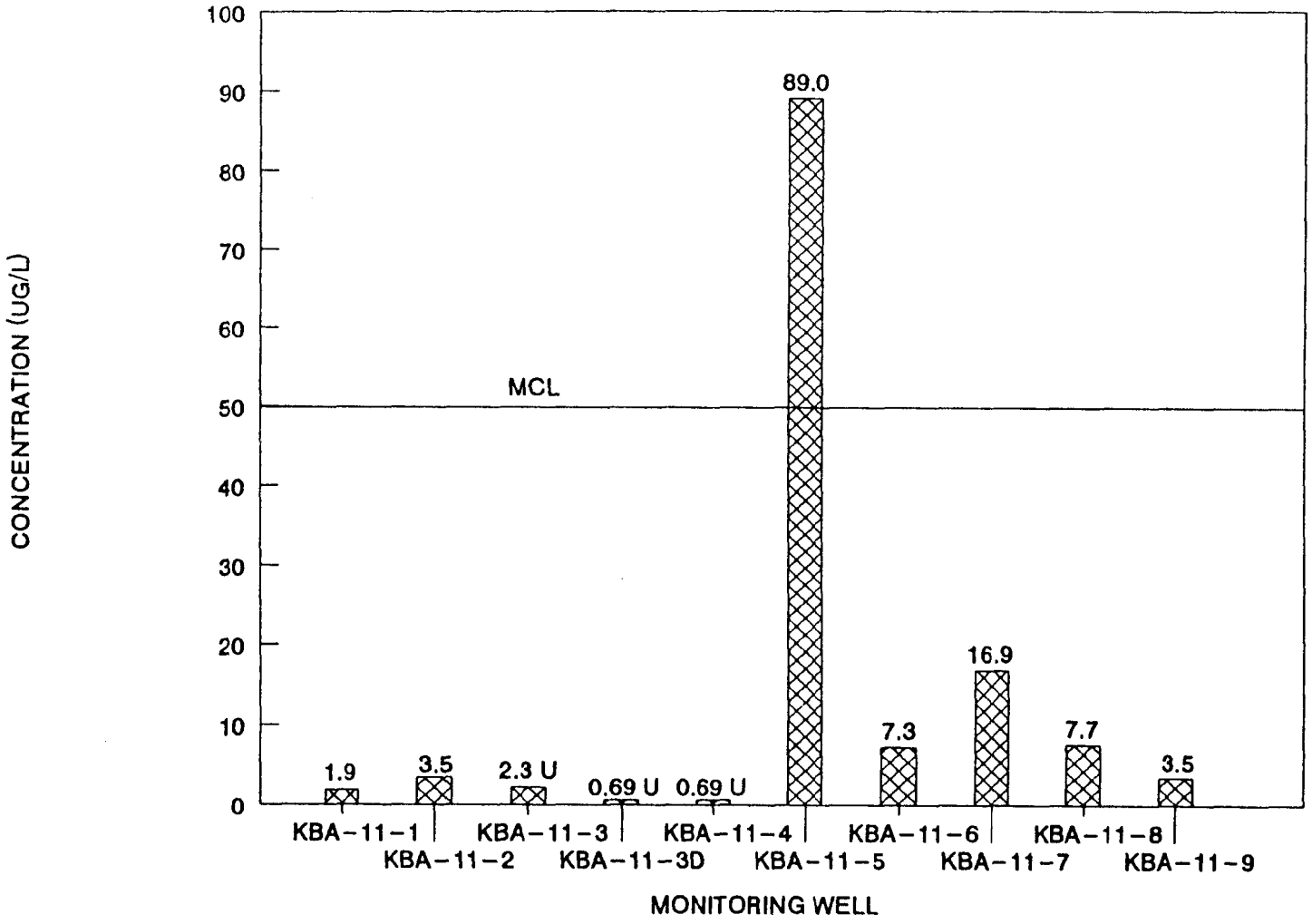
NSB KINGS BAY, GEORGIA

SITE 11 – BARIUM IN GROUNDWATER



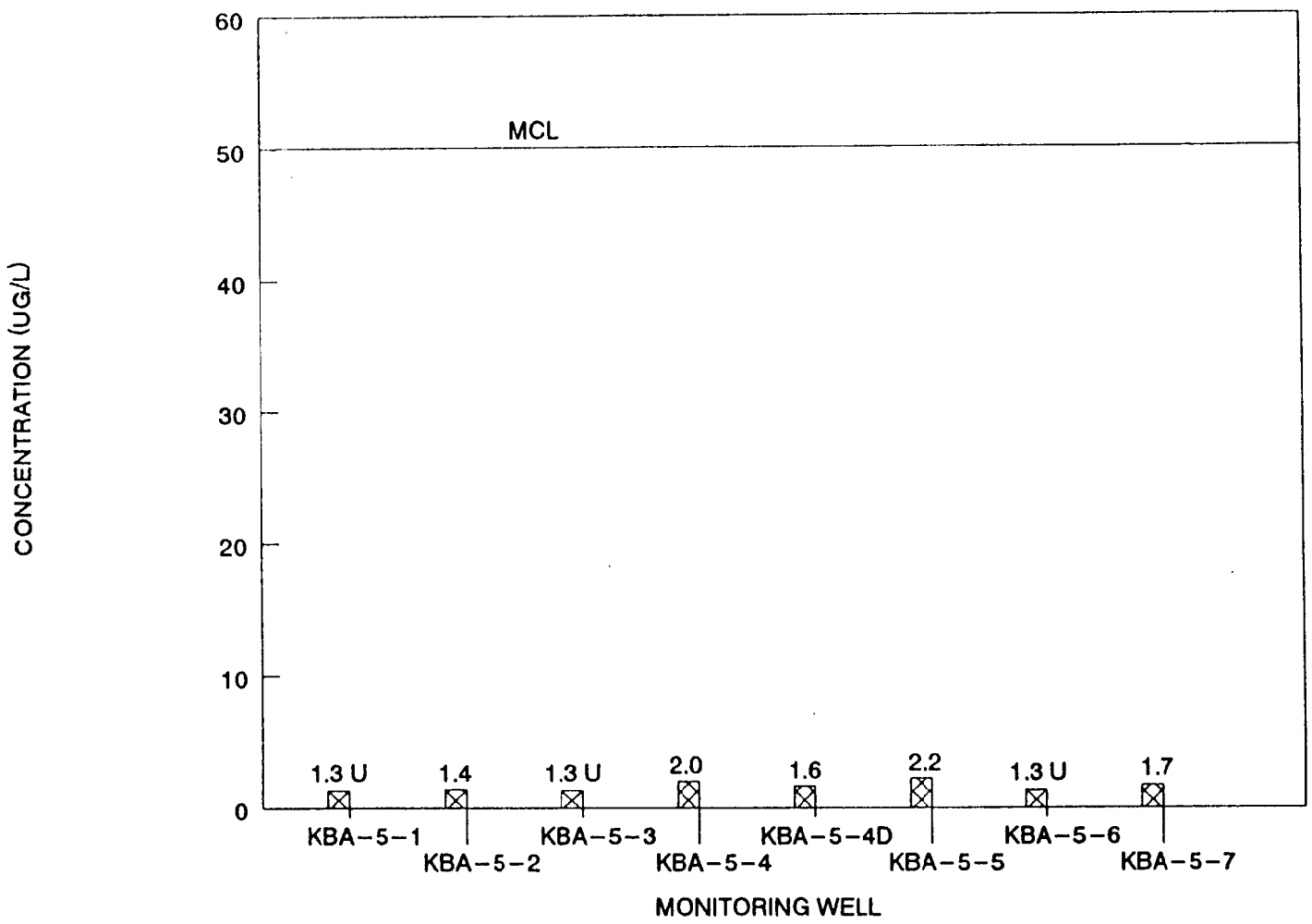
NSB KINGS BAY, GEORGIA

SITE 11 – ARSENIC IN GROUNDWATER



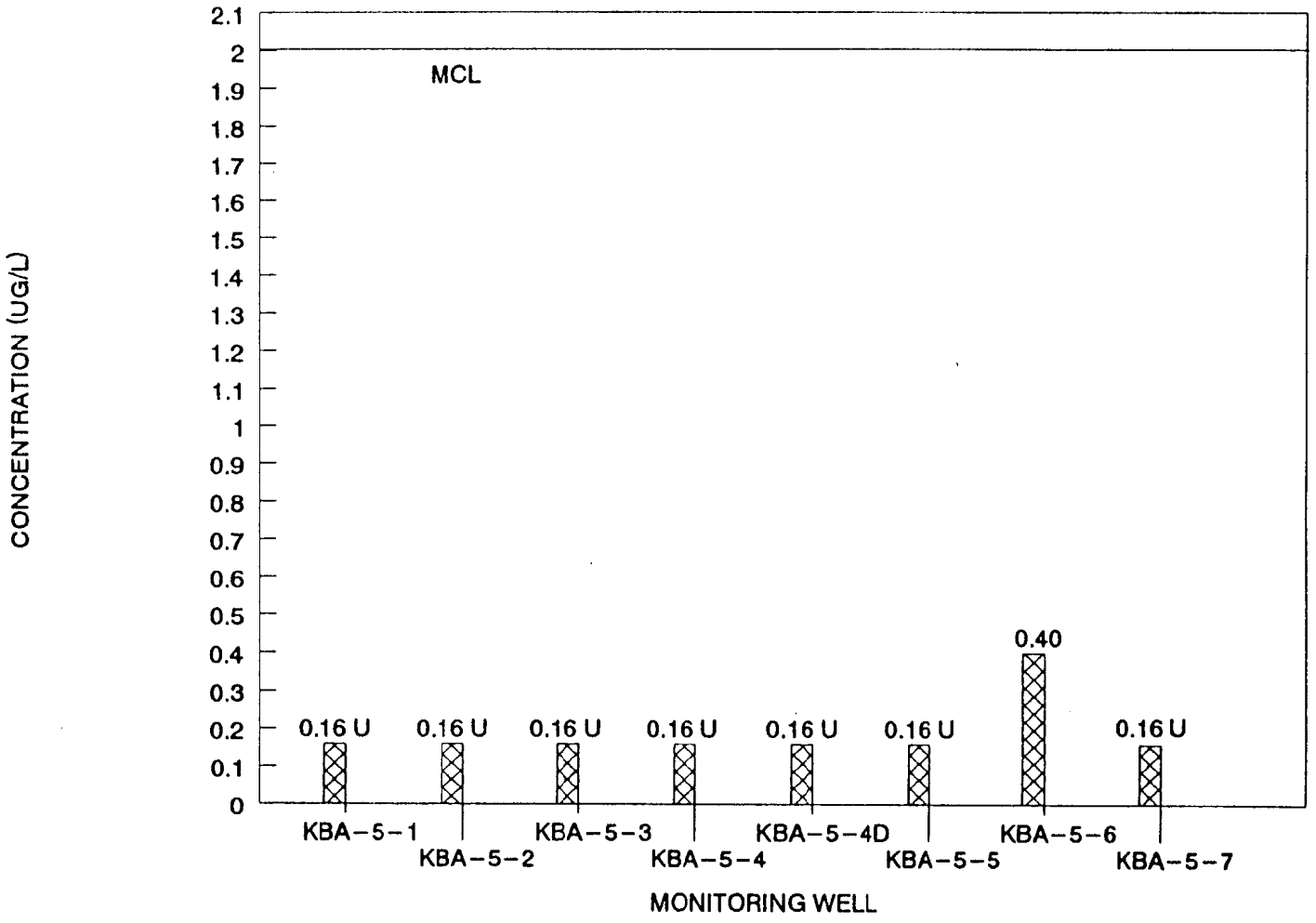
NSB KINGS BAY, GEORGIA

SITE 5 – SELENIUM IN GROUNDWATER



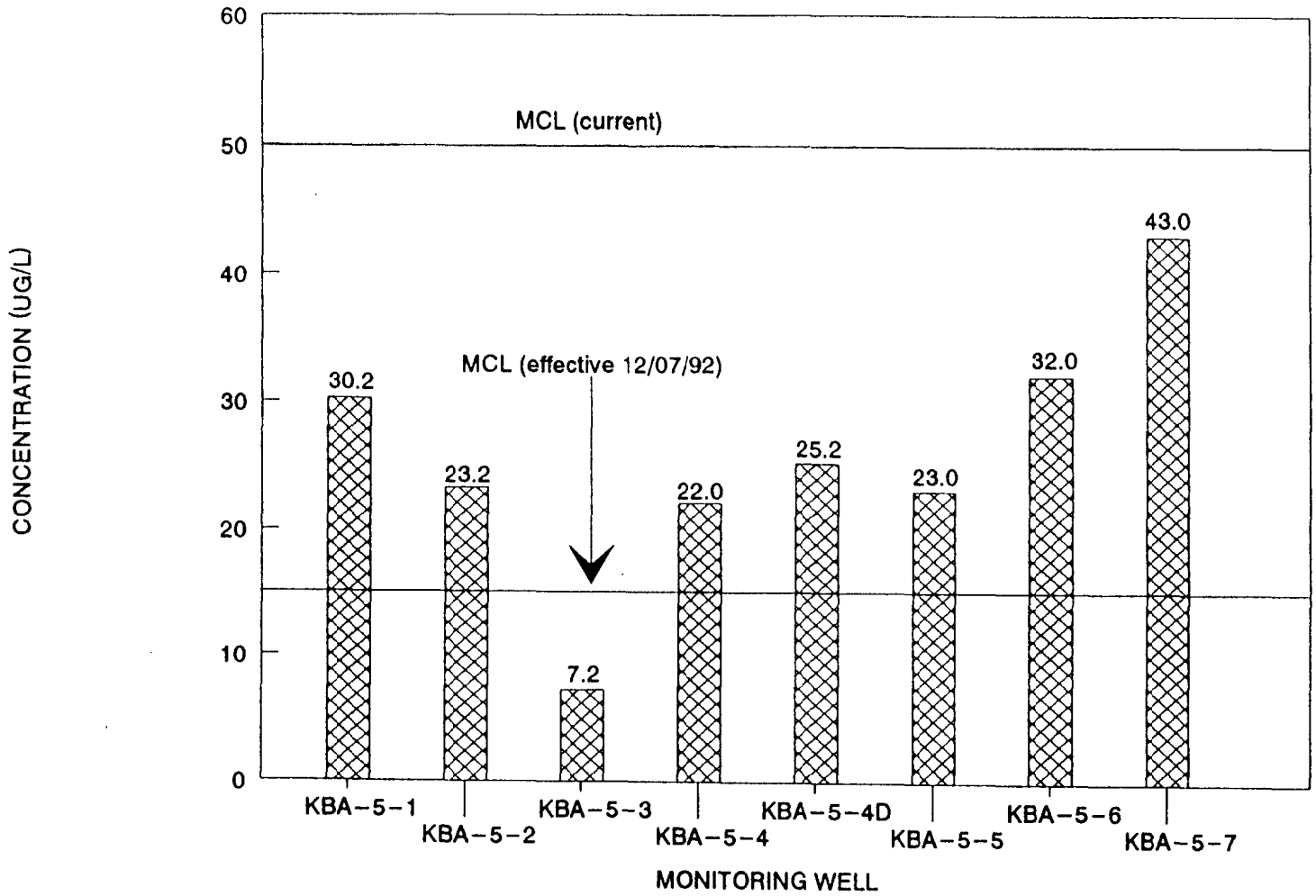
NSB KINGS BAY, GEORGIA

SITE 5 – MERCURY IN GROUNDWATER



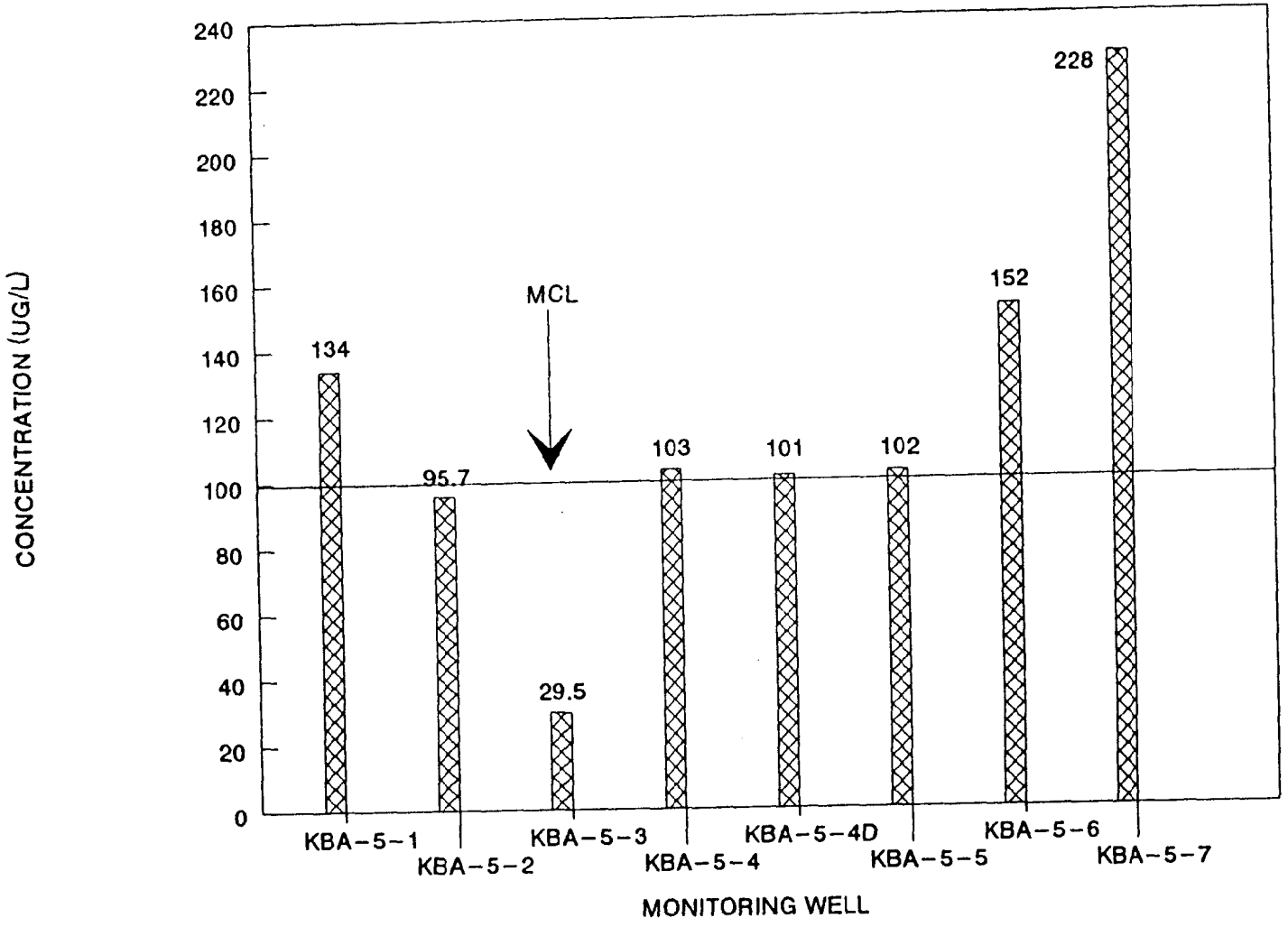
NSB KINGS BAY, GEORGIA

SITE 5 – LEAD IN GROUNDWATER



NSB KINGS BAY, GEORGIA

SITE 5 – CHROMIUM IN GROUNDWATER



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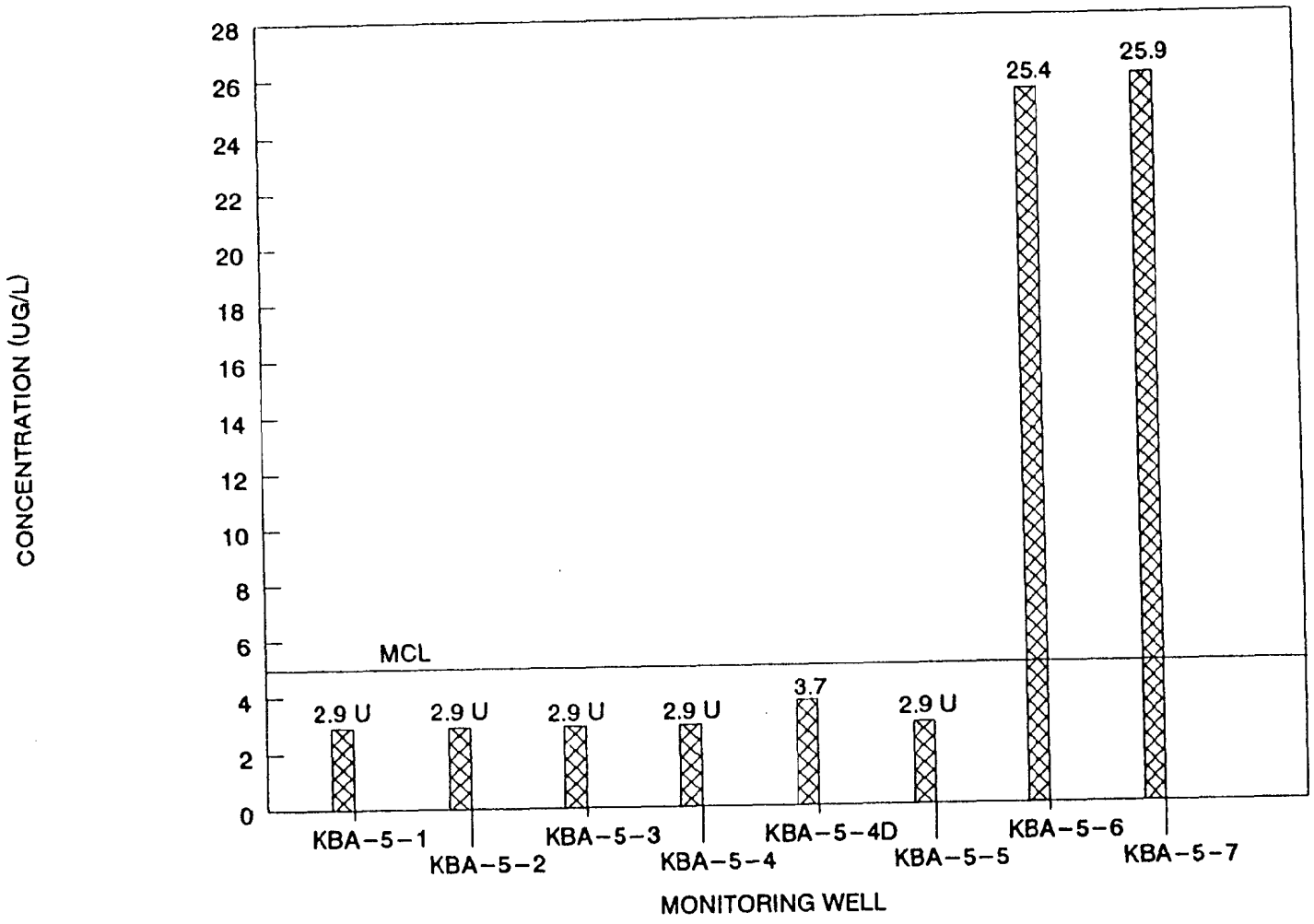
SITE 5 – CADMIUM IN GROUNDWATER