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INTERIM CORRECTIVE MEASURE SCREENING INVESTIGATION ADDENDUM NSB KINGS
BAY GA
12/1/1993
ABB ENVIRONMENTAL SERVICES, INC

**INTERIM CORRECTIVE MEASURE SCREENING
INVESTIGATION ADDENDUM**

**CONTRACT TASK ORDER NO. 041
MODIFICATION NO. 3
NAVY CLEAN - DISTRICT 1
CONTRACT NO. N62467-89-D-0317**

**NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA**

Prepared for:

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December 1993

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FOREWORD

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA), the 1976 Resource Conservation and Recovery Act (RCRA), as augmented by the 1984 Hazardous and Solid Waste Amendments (HSWA), and as directed in Executive Order 12580 of January 1987, the Department of Defense (DOD) conducts an Installation Restoration (IR) Program for evaluating and remediating problems related to releases and disposal of toxic and hazardous materials at DOD facilities.

The Naval Assessment and Control of Installation Pollutants (NACIP) program was developed by the Navy to implement the IR Program for all Naval and Marine Corps facilities. The NACIP program was originally conducted in three phases: (1) Phase I, Initial Assessment Study, (2) Phase II, Confirmation Study (including a Verification Step and a Characterization Step), and (3) Phase III, Planning and Implementation of Remedial Measures. The three-phase IR Program was modified and updated to be congruent with the CERCLA/SARA and RCRA/HSWA-driven DOD IR program.

The updated nomenclature for the RCRA/SARA process is as follows:

- Preliminary Assessment/Site Inspection (PA/SI)
- Remedial Investigation/Feasibility Study (RI/FS)
- Remedial Design/Remedial Action (RD/RA)
- Site Closeout (SC)

Four sites at the Naval Submarine Base (NSB), in Kings Bay, Georgia, were identified for investigation under the IR Program. A work plan for conducting a RCRA Facility Investigation (RFI) at each of the four sites has been completed and implemented. No sampling or analyses will be conducted at the fourth site. The Public Works Department at the NSB will gather information for the fourth site to include in the RFI Report.

Because of the detection of volatile organic compounds in groundwater samples downgradient and off site, an Interim Corrective Measure Screening Investigation (ICMSI) was implemented at Site 11, the Old Camden County Landfill. This addendum presents an evaluation of data collected during a March 1993 field program conducted as part of the initial ICMSI program (reported separately).

Questions regarding this report should be addressed to the NSB Public Affairs office at (912) 673-4714.

EXECUTIVE SUMMARY

This addendum to the Interim Corrective Measure Screening Investigation (ICMSI) Progress Report was prepared as a result of follow-on activities conducted as part of the ICMSI at Site 11, Old Camden County Landfill, at the Naval Submarine Base in Kings Bay, Georgia. The follow-on activities were conducted in January and March of 1993 and included collection of groundwater samples from private irrigation wells (PIWs) in Crooked River Plantation Subdivision and from locations within and north of the landfill. The following paragraphs summarize the interpretations and evaluations of analytical data obtained from this field effort. The information presented herein does not reiterate, but is in addition to that provided in the ICMSI Progress Report.

Fifty-four groundwater samples, including four duplicate samples, were collected from various depths at 16 locations within and north of the landfill. Samples were analyzed in an on-site laboratory for 10 target volatile organic compounds (VOCs) using gas chromatographic (GC) methods. Target VOCs included vinyl chloride, cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene, tetrachloroethane, benzene, toluene, ethylbenzene, m-xylene, and o/p-xylene. Six groundwater samples, including one duplicate sample, were submitted to an off-site contract laboratory for analysis of Target Compound List VOCs.

The data obtained during March 1993 indicate that beneath the landfill the plume is similar in composition to the downgradient portion investigated during the initial ICMSI. The same five VOCs were detected in groundwater samples from within the landfill at concentrations above Federal Maximum Contaminant Levels, including vinyl chloride, tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, and benzene. The concentrations of total VOCs beneath most of the landfill area are lower than those detected along and downgradient of the western margin of the landfill, in the direction of groundwater flow. Contaminants were detected in samples from depths ranging from 15 to 85 feet below ground surface (bgs), which is deeper than the 60 feet bgs estimated for off-site contamination.

The occurrence of VOCs in the 11 PIW samples collected during January 1993 was sporadic. Two of the PIWs sampled were at locations known to overlie the plume. Acetone was detected in one of the two PIW samples and no other VOCs were detected. VOCs detected in one or more of the remaining PIW samples, from locations outside the plume, include VOCs that are commonly observed artifacts of laboratory or sampling procedures (acetone and 2-butanone); trihalomethanes that are commonly formed in water chlorinated for drinking supply (bromoform, bromodichloromethane, and dibromochloromethane); and solvents (trichloroethene, toluene, and styrene).

ACKNOWLEDGEMENTS

In preparing this addendum, 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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LIST OF ACRONYMS

bgs	below ground surface
CLP	USEPA Contract Laboratory Program
GC	gas chromatographic
GPR	ground penetrating radar
ICMSI	Interim Corrective Measure Screening Investigation
MCL	Maximum Contamination Limit
MDL	Minimum Detection Limit
ml	milliliter
$\mu\text{g}/\ell$	micrograms per liter
MS	matrix spike
MSD	matrix spike duplicate
NEESA	Naval Energy and Environment Support Activity
NSB	Naval Submarine Base
%R	percent recovery
PARCC	precision, accuracy, representativeness, completeness, and comparability
PIW	private irrigation well
QC	quality control
RFI	RCRA Facility Investigation
RPD	relative percentage difference
SOW	Statement of Work
TCL	Target Compound List
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds

1.0 INTRODUCTION

Under contract to the U.S. Department of the Navy (Navy) Southern Division, Naval Facilities Engineering Command, this addendum to the Interim Corrective Measure Screening Investigation (ICMSI) Progress Report was prepared for Site 11, the Old Camden County Landfill, located on the Naval Submarine Base (NSB) in Kings Bay, Georgia. This report was prepared under the Navy's Comprehensive Long-term Environmental Action, Navy Contract No. N62467-89-D-0317, Contract Task Order No. 041. This report concludes the activities required for the ICMSI.

The ICMSI was initiated as part of the overall Resource Conservation and Recovery Act Facility Investigation (RFI) field program at NSB Kings Bay to establish whether the volatile organic compounds (VOCs) detected in groundwater downgradient of Site 11 have migrated into the Crooked River Plantation Subdivision. The ICMSI was planned to establish whether an immediate threat to human health exists within the subdivision. The ICMSI Progress Report (Progress Report) documents the findings of the original investigation, including a human health screening risk evaluation. The Progress Report also provides a detailed site description and regulatory information that are not repeated here.

1.1 OBJECTIVES OF THE INTERIM CORRECTIVE MEASURE SCREENING INVESTIGATION ADDENDUM. This addendum documents the findings related to groundwater samples collected from locations within and north of the landfill and from private irrigation wells (PIWs) located within the Crooked River Plantation Subdivision. This sampling was conducted in January and March of 1993. The objectives of collecting these additional samples were to provide sufficient information to evaluate the following:

- the horizontal and vertical extent of groundwater VOC contamination within the landfill boundaries,
- VOC contaminants of potential concern, if any, in the PIW water samples collected within the Crooked River Plantation Subdivision.

The information presented in this addendum does not reiterate, but is in addition to that provided in the ICMSI Progress Report.

1.2 REPORT ORGANIZATION. This addendum presents an interpretation and evaluation of data collected during the January and March 1993 sampling event as part of the ICMSI conducted at the Old Camden County Landfill and includes the following:

- Introduction includes the objectives for the additional activities of the investigation and report organization;
- Site Investigation Program discusses the site-specific field program and activities;
- Quality Assurance Program and Data Quality Assessment discusses the analytical program, and data quality and use;
- Results of the Investigation discusses the chemical and hydrogeologic data in relation to interpreting the site's physical conditions;

- Summary and Recommendations summarizes the results of the additional ICMSI site activities in support of recommendations for a Corrective Measures Study.

2.0 SITE INVESTIGATION PROGRAM

The following subsections describe the scope and components of the follow-on investigation to the ICMSI field program at the Old Camden County Landfill. Included are discussions of methods used to select hydropunch locations through use of ground-penetrating radar (GPR) and to collect samples of groundwater using hydropunch equipment and from PIWs.

2.1 SAMPLE IDENTIFICATION. During March 1993 activities, sample location identifiers for samples collected from landfill locations were consecutive beginning with location 147. Locations 101 through 146 were used during the initial ICMSI activities.

Sample identification for groundwater samples collected using the hydropunch includes location and depth information as described below:

G 147 25
G = hydropunch
147 = location identifier
25 = upper limit of a 1-foot sample interval in feet below ground surface (bgs)

PIW samples collected in January 1993 were labeled consecutively starting with location 52, preceded by CRP-PW, which signifies a PIW in the Crooked River Plantation Subdivision. Locations 1 through 51 were used during the initial ICMSI activities. The sample labels are cross-referenced with location codes identifying the PIW's corresponding street name and number on Table 2-1.

The location codes are needed for the geographical information system database to manage data from multiple sample events at a single location.

The analytical program for the investigation included on-site laboratory analyses of all groundwater samples collected from the landfill using the hydropunch for 10 target VOCs:

vinyl chloride
cis-1,2-dichloroethene
trans-1,2-dichloroethene
trichloroethene
tetrachloroethene
benzene
toluene
m/p-xylene
o-xylene
ethylbenzene

The hydropunch samples were analyzed in an on-site laboratory with a minimum of 10 percent of the samples submitted to an off-site contract laboratory for analysis of VOCs using U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) methods. All the PIW samples were submitted to the contract laboratory for analysis.

Table 2-1 PIW Location Codes and Corresponding Sample Identification

Sample Identification	PIW Location Code ¹
PW52	204COCO
PW53	114CACI
PW54	213PLCO
PW55 ²	204PLCO
PW56	106CHPDR
PW57 ³	310FADR
PW58	301CHPDR
PW59	314SUDR
PW60	300FADRR
PW61	309WODR
PW62	206SUDR

¹ Location codes include numeric prefix and alphabetical suffix. Numeric prefix is the house number in the address. The alphabetical suffix is an abbreviation of the street name. An example follows:

Location Code	Address
FADR	Fairfield Lane
CHPDR	Cherry Point Drive
WODR	Woodlawn Drive
SUDR	Sunnyside Drive
PLCO	Plantation Court
COCO	Cottage Court
CACI	Cambray Circle

² Same location as PW7, sampled during the initial ICMSI field program.
³ Same location as PW36, sampled during the initial ICMSI field program.

2.2 SUBSURFACE EXPLORATION. Previous investigations revealed the presence of trenches of waste materials within the Site 11 landfill. These trenches range from approximately 575 to 775 feet in length and 35 to 50 feet in width. Depth of the trenches is reportedly 8 to 12 feet bgs. Spacing between the trenches ranges between 3 and 5 feet. Based on results of the GPR survey conducted in March 1993, discussed in the following paragraphs, the depth to refuse ranges from 2 to 3 feet bgs. The areas between the trenches are interpreted to represent areas of the landfill that do not have substantial amounts of refuse beneath them.

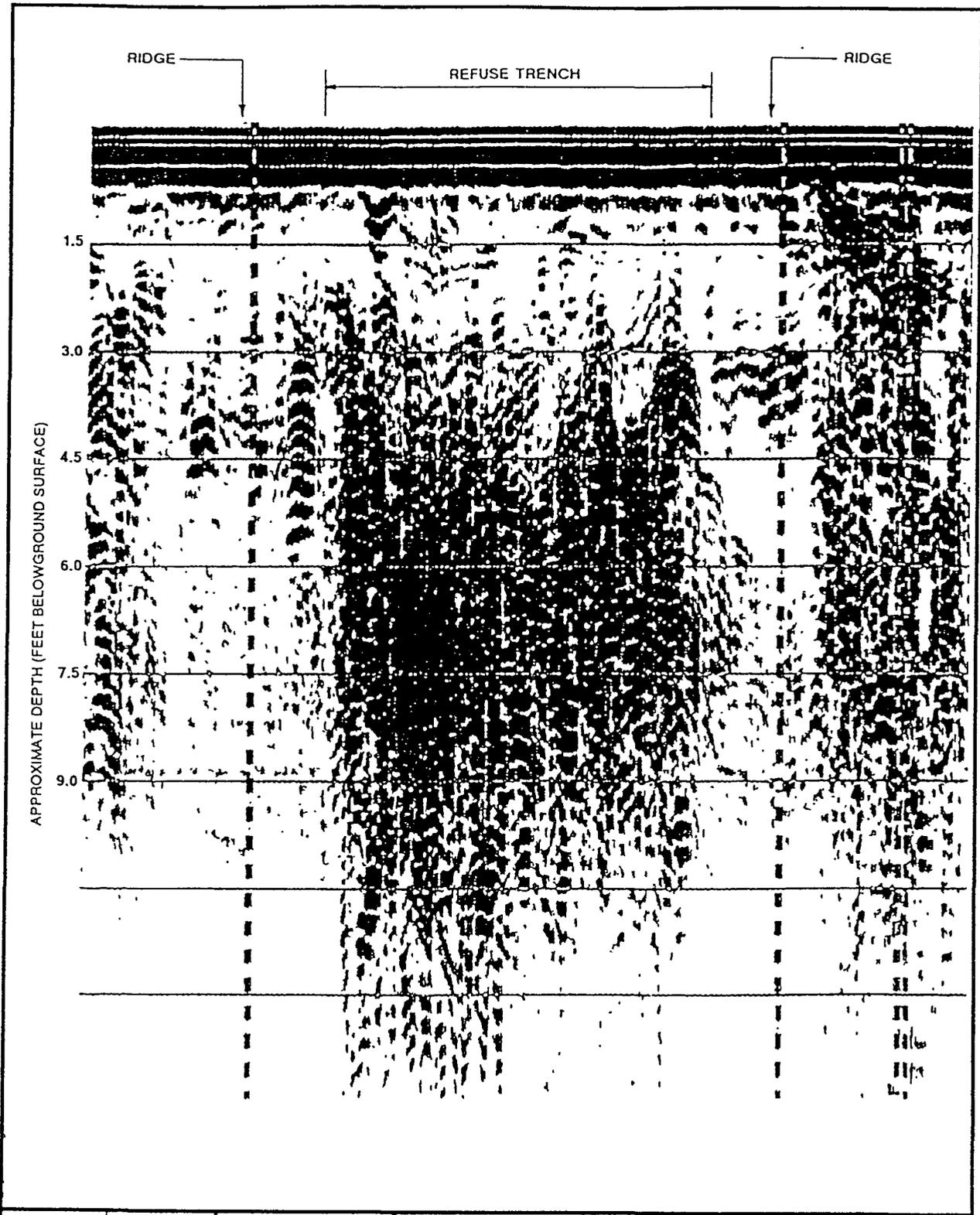
A GPR survey was conducted at Site 11 to assist in the selection of hydropunch locations within the landfill that would not encounter substantial amounts of refuse. The GPR technique uses high frequency radio waves to establish the presence of subsurface objects and structures.

Thirty-two proposed hydropunch locations were staked within the landfill boundary, based on the results of GPR data. Proposed locations were surveyed using GPR to verify they were clear of substantial amounts of refuse. The GPR survey was conducted with a GSSI System III GPR unit equipped with a 500-megahertz antenna.

Figure 2-1 shows the reflection signature of a portion of the GPR profiles conducted at the landfill. The GPR signature of the trenches compared to areas that did not receive waste is evident, as shown in Figure 2-1. Trenches are characterized by chaotic reflections and diffractions. Trenches most likely display this signature because of the nature of landfilled materials and the fact that refuse tends to retain moisture in the unsaturated zone. Areas not appearing to have received waste are typified by reflection-free signatures with some diffractions. These radar signatures are indicative of thickly bedded sands. These types of sedimentary deposits were observed during the cone-penetrometer survey conducted in October and November of 1992.

2.3 HYDROPUNCH GROUNDWATER SAMPLING. The hydropunch groundwater sampling device consists of a stainless steel telescoping assembly containing an airtight and watertight sealed intake screen and sample chamber that is isolated from the surrounding environment. The tool attaches to a standard drill rod and is advanced through the hollow-stem augers by driving the drill rod with a 140-pound hammer. The hydropunch sampler is advanced a distance of 5 feet beyond the augers. When the desired depth for collection is reached, the hydropunch is opened by pulling back on the drill rod. Soil friction holds the drive cone in place as the body of the hydropunch moves back. Once the O-ring seal between the drive cone and the body of the tool is broken, groundwater flows from the surrounding formation into the sample chamber. As the sample is collected, the drive cone and sample chamber are tightly sealed against the borehole walls. This "packer" effect isolates the intake from groundwater above and below and results in a discrete 11-inch sample interval.

Once open, the hydropunch sample chamber fills from the bottom with no aeration and minimal agitation of the sample. As the tool is pulled upward, increased hydrostatic head within the tool closes lower and upper check valves that retain the sample within the body of the hydropunch. Once at the surface, the hydropunch is inverted and the sample is decanted through a top discharge valve and tubing.



DWN SFC	DES. SFC	PROJECT NO. 7553	TITLE GROUND-PENETRATING RADAR PROFILE	 ICWSI ADDENDUM NAVAL SUBMARINE BASE KINGS BAY, GEORGIA
CHKD. NLW	APPD LBH	FIGURE NO. 2-1		
DATE 6/23/93	REV 1.0			

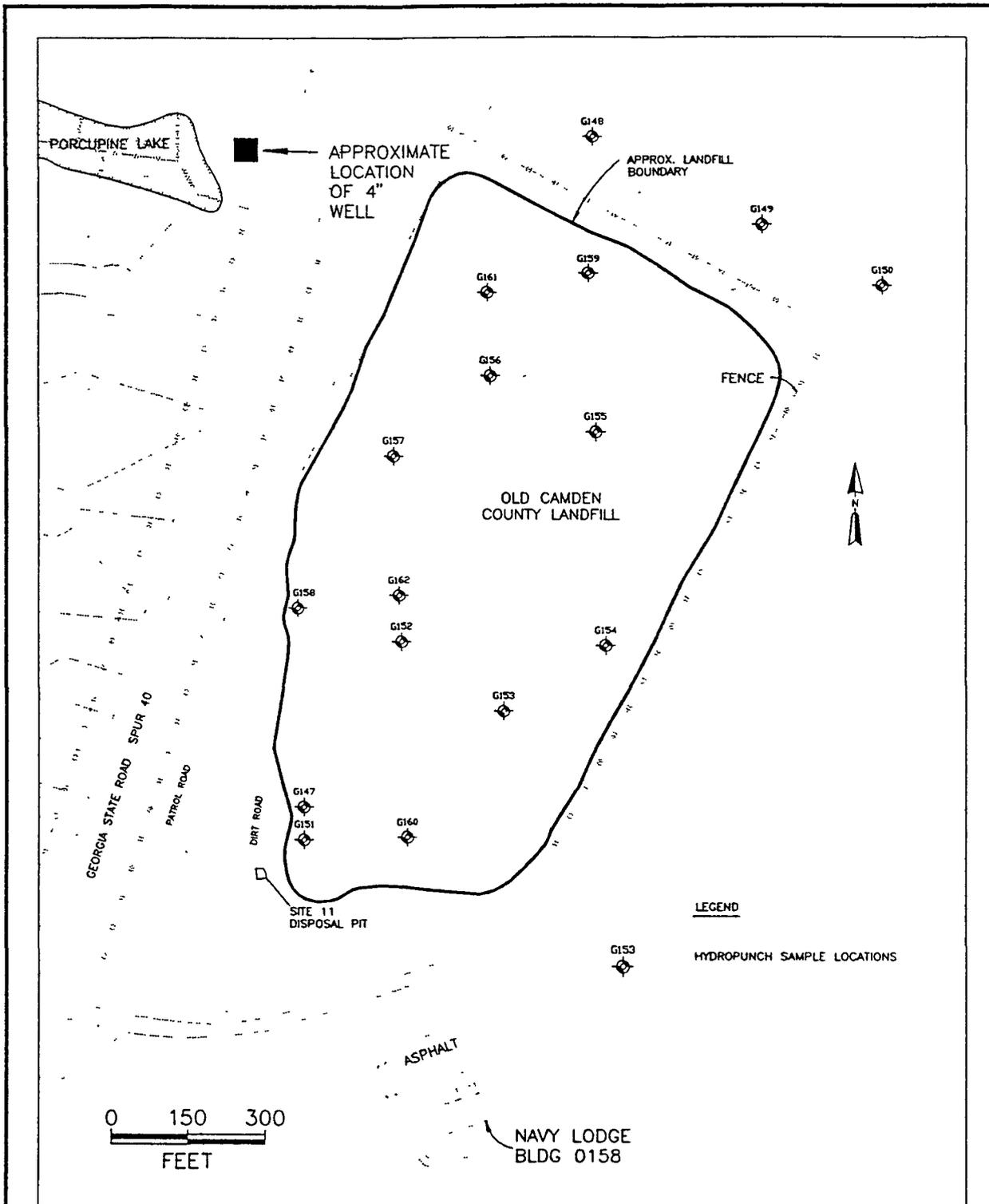
To collect water samples from multiple intervals, the existing borehole is advanced by hollow-stem auger drilling and a clean hydropunch sampler is advanced for sample collection.

During a 9-day period from March 15 to March 24, 1993, groundwater samples were collected from 16 locations within and to the north of the landfill. Figure 2-2 shows the locations where the hydropunch samples were collected. Sample depths ranged from 12 to 90 feet bgs. Sample locations and depth intervals were chosen based on analytical information provided by the on-site laboratory. Thus, the location and depth interval of successive samples were selected based on analytical information from preceding samples. Sampling objectives included evaluating the horizontal and vertical extent of VOC contamination and characterizing concentrations of VOCs in the plume.

Fifty-four groundwater samples, including four duplicate samples, were collected for analysis of target VOCs in the on-site laboratory. Six groundwater samples, including one duplicate sample, were submitted for off-site analysis at the contract laboratory. A sample from G152 (G15230) and a duplicate from this location were submitted for off-site analysis. This sample was not analyzed onsite. Off-site analysis included Target Compound List (TCL) VOCs using the USEPA CLP Statement of Work (SOW) for multi-media samples (USEPA, 1991a). Section 3.0 provides more detailed information about the analytical program for this investigation. The results of this sampling effort are discussed in Section 4.0.

On March 24, 1993, a monitoring well was installed at hydropunch location G162 (see Figure 2-2). The monitoring well was installed following completion of hydropunch sampling, which extended to a depth of 18 feet bgs. The boring was extended to 20 feet bgs and the monitoring well constructed inside the hollow-stem augers. Well construction inside hollow-stem augers involves gradually removing the augers from the borehole as the filter pack and bentonite seal are placed. Figure 2-3 is a construction diagram and boring log for the new monitoring well (KBA-11-10). Well construction materials included Schedule 40, flush threaded polyvinyl chloride well screen and riser pipe. The well screen is 10 feet long and has 0.01-inch machined slots. The filter pack is made up of 20-30 mesh silica sand and extends 2 feet above the top of the screen. A 1-foot-thick bentonite pellet seal was placed on top of the filter pack. The remainder of the annulus was grouted using Type I Portland cement. Well development consisted of pumping 270 gallons of water from the well. Approximately 100 gallons of potable water was used during placement of the sand pack to manage problems associated with bridging of sand within the augers. Groundwater was initial brown and silty but cleared during development. No samples have been collected from this new monitoring well.

2.4 PRIVATE IRRIGATION WELL SAMPLING. On two occasions, residents of the Crooked River Plantation Subdivision were provided questionnaires requesting information about PIWs. Ninety-four PIWs were identified. The second questionnaire requested permission to collect groundwater samples from PIWs and asked property owners for physical information about their PIWs and specifics of use. The initial ICMSI field program included sampling of 51 PIWs. Nine additional PIWs were sampled on January 12 and 13, 1993. Two previously sampled PIWs were also resampled. Figure 2-4 shows the locations of the PIWs sampled in January 1993. All samples were analyzed for TCL VOCs in the off-site contract laboratory using the USEPA CLP SOW for multimedia samples (USEPA, 1991a). Copies



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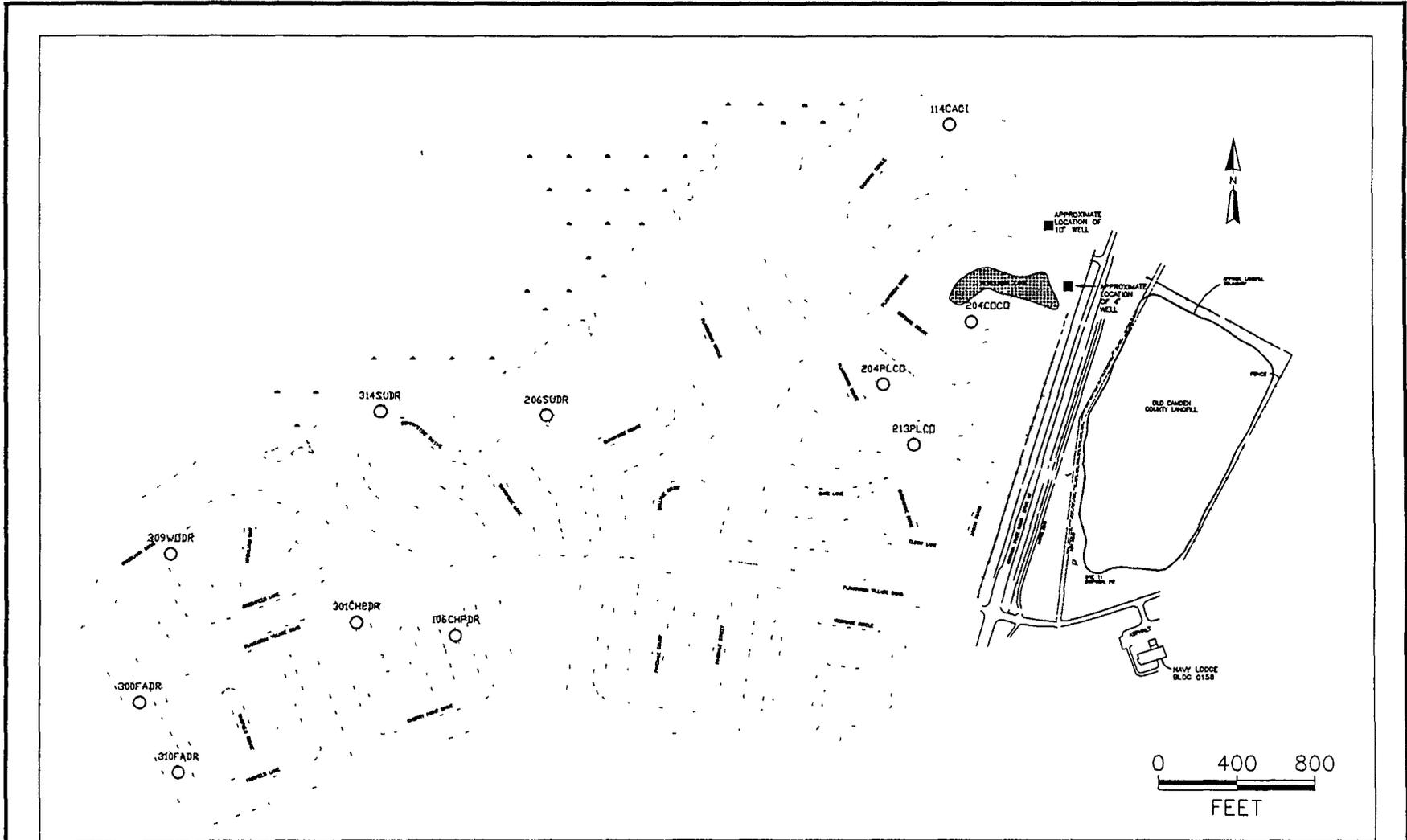
DWN NLW	DES NLW	PROJECT NO. 7553	TITLE HYDROPUNCH SAMPLING LOCATIONS MARCH 1993	
CHKD VAR	APPD LBH	FIGURE NO.. 2-2		
DATE 6/23/93	REV. 11			

TITLE: NSB KINGS BAY		LOG of WELL: KBA-11-10	BORING NO.
CLIENT: U.S. NAVY, SOUTHNAVFACENCOM			PROJECT NO: 7553-33
CONTRACTOR: Ground Water Protection		DATE STARTED: 3/24/93	COMPLTD: 3/24/93
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8.25"	PROTECTION LEVEL: 0
TOC ELEV.: FT.	MONITOR INST.: PORTA FID	TOT DPTH: 20FT.	DPTH TO $\frac{3}{4}$ FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: 3/24/93		SITE: II

DEPTH FT.	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
					Topsoll, light grey to light tan		SC		
					Silty sand, dark brown, medium to fine				
5									
10									
15									
20					boring terminated at 20 ft.				
25					NOTE: log estimated from cuttings				

PAGE 1 of KB-11-10

OWN TLK	DES : TLK	PROJECT NO. 7553	TITLE: BORING LOG AND WELL CONSTRUCTION DIAGRAM FOR KBA-11-10	 ICMSI ADDENDUM NAVAL SUBMARINE BASE KINGS BAY, GEORGIA
CHKD: LBH	APPD LBH	FIGURE NO 2-3		
DATE 6/24/93	REV 1.0			



KINGSBAY\CHEM\MAPS\PIW-1-93.dwg

DWN NLW	DES. NLW	PROJECT NO: 7553
CHKD VAR	APPD LBH	FIGURE NO.: 2-4
DATE: 6/23/93	REV. 1.1	

TITLE:
CROOKED RIVER PLANTATION SUBDIVISION
PRIVATE IRRIGATION WELL LOCATIONS
JANUARY 1993



ICMSI ADDENDUM

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

of completed questionnaires and consent forms for the additional PIWs sampled are provided in Appendix A.

Samples were placed in 40 milliliter (ml) vials directly from spigots or sprinkler heads. When samples were collected from sprinkler heads, the heads were removed so that samples could be collected from a steady flow with minimum aeration. Before sample collection, each well was purged for 15 minutes, during which time flow rates were measured by measuring the time required to fill a 5-gallon bucket. Flow rates were not measured for PIWs that were purged and sampled through sprinkler heads. Flow rate data for the PIWs are provided in Table 2-2. The chemical results of this sampling effort are discussed in Section 4.0 of this report.

2.5 DECONTAMINATION PROCEDURES. Hydropunch sampling equipment that came in contact with sample material was cleaned as follows:

1. Steam-cleaned with potable water.
2. Washed with Alconox™ and distilled water.
3. Rinsed with distilled water.
4. Rinsed with pesticide-grade isopropanol.
5. Rinsed with deionized, organic-free water.
6. Air dried.
7. Wrapped in aluminum foil.

Isopropanol used in decontamination was collected in a plastic bucket and allowed to evaporate. Periodically, unused portions of groundwater samples from on-site analyses were returned to the site. The groundwater and decontamination fluids, other than isopropanol, were disposed of within the area of contamination (within the landfill boundaries) in accordance with USEPA guidance for management of investigation-derived waste (USEPA, 1991b).

Table 2-2 PIW Flow Rates

Sample Identification	Flow Rate (gpm)
PW52	NA
PW53	7.3
PW54	6.4
PW55	5.5
PW56	5.5
PW57	5.0
PW58	12.0
PW59	7.5
PW60	NA
PW61	4.8
PW62	7.5

NA Flow rates out of sprinkler heads were not measured
gpm = gallons per minute

3.0 QUALITY ASSURANCE PROGRAM AND DATA QUALITY ASSESSMENT

This section summarizes the analytical program for on-site and off-site analyses of groundwater samples and PIW samples collected during the 1993 follow-on ICMSI field activities at Site 11. In addition, it assesses on-site and off-site data quality and useability and compares on-site and off-site analytical results.

3.1 ANALYTICAL PROGRAM. Field activities during the screening investigation included the collection of groundwater samples from the landfill using hydropunch equipment and from PIWs. All samples were collected in accordance with procedures outlined in the Quality Assurance Project Plan, Appendix A, of the NSB Kings Bay RFI/Site Investigation Work Plan (ABB-ES, 1991). Groundwater samples from the landfill were analyzed in an on-site laboratory with a minimum of 10 percent of the samples submitted for confirmatory off-site analysis. PIW groundwater samples were submitted to the off-site laboratory and were not analyzed in the on-site laboratory. Table 3-1 summarizes the sampling and analysis program for samples collected for on-site and off-site laboratory analysis.

3.1.1 On-Site Chemical Analysis Hydropunch groundwater samples collected for on-site analysis were analyzed for target VOCs using a gas chromatographic (GC) field laboratory. The analytical method was a modification of the USEPA 8010/8020 purge-and-trap GC method as described in the ICMSI Work Plan (ABB-ES, 1992).

3.1.1.1 On-Site Analytical Method Modifications to the USEPA 8010/8020 Method are summarized in this subsection. Samples were analyzed using an LSC-2000 purge-and trap unit connected to a Hewlett-Packard™ 5890 GC. A DB-624 75-meter megabore column was used for compound separation. The on-site GC was equipped with a purge-and-trap unit and two detectors, a photometric ionization detector and an electrolytic conductivity (Hall) detector. A standard sample volume of 25 milliliters was used for each analysis. The following run conditions were established:

- LSC-2000 purge time = 6 minutes
- LSC-2000 desorb time = 3 minutes
- LSC-2000 bake time = 5 minutes
- HP 5890 injection port temperature = 225 °C
- HP 5890 detector port temperature = 275 °C
- HP 5890 initial oven temperature = 35 °C
- HP 5890 oven temperature ramp = 6 °C per minute
- helium carrier flow = 10 ml per minute
- helium make-up flow = 20 ml per minute
- hydrogen make-up flow = 75 ml per minute

3.1.1.2 Performance Criteria The quality control (QC) criteria for the on-site analytical method were established to monitor method performance. An initial three-point calibration for quantitation (low, mid-range, and high concentrations) was performed for each instrument. Target compounds and reporting limits are presented on Table 3-2. Instrument stabilities were monitored every 24 hours with a calibration standard at the mid-range concentration. The quantitation performance criterion for operation was agreement of the check standard with the three-point calibration curve to within 30 percent.

Table 3-1 Summary of Sampling and Analysis Program for Samples Collected for On-site and Off-site Analysis

Type of Sampling	Number of VOC Analyses	
	On-site	Off-site
Groundwater	50	5
Private Irrigation Wells	0	11
Field Duplicates		
Groundwater	4	1
Private Irrigation Wells	0	3
Quality Control Samples		
Trip Blanks	0	4
Equipment Rinsate Blanks	9	3
Source Water Blanks	2	2
MS/MSDs	3	2
Method Blanks	10	8

Notes:

VOC = Volatile Organic Compound

MS/MSD = Matrix Spike/Matrix Spike Duplicate

Table 3-2 Target Compounds and Reporting Limits for On-site Analysis

Compound Name	Reporting Limit ($\mu\text{g}/\text{l}$)
Vinyl Chloride	1.0
trans-1,2-Dichloroethene	1.0
cis-1,2-Dichloroethene	1.0
Trichloroethene	1.0
Tetrachloroethene	1.0
Benzene	1.0
Toluene	1.0
Ethylbenzene	1.0
m/p-Xylene	2.0
o-Xylene	1.0

Note: $\mu\text{g}/\text{l}$ = micrograms per liter

The identities of the target compounds were based on comparison with the retention times for the standards. Retention time windows of plus or minus 3 percent were established, based on the most recent calibration curve. Every 24 hours, a method blank of deionized water was analyzed to confirm that no target compounds were introduced by sample handling and analysis. The method blank criterion was met if no target compounds were present above the reporting limit for the instrument. A surrogate solution containing 100 micrograms per liter ($\mu\text{g}/\text{l}$) of bromofluorobromine was injected into each sample to establish percentage recoveries. The recovery range of 30 to 170 percent was established as one of the operating criteria for on-site analyses.

3.1.2 Off-Site Analysis In accordance with the ICMSI Work Plan (ABB-ES, 1992), a minimum of 10 percent of all groundwater samples collected for on-site VOC analysis and all PIW samples were submitted to a contract laboratory for chemical analysis. Table 3-1 summarizes the sampling and analysis program for samples collected for off-site analysis. Samples for VOC analysis were analyzed according to the USEPA CLP SOW for multi-media samples (USEPA, 1991a). Naval Energy and Environmental Support Activity (NEESA) Level D documentation (NEESA, 1988) was used for VOC analyses. Appendix B contains validated Level D Data.

Because many target VOCs currently have Federal Primary Drinking Water Maximum Contaminant Levels (MCLs) below their respective CLP Contract Required Quantitation Limits, it was necessary to achieve lower reporting limits for VOCs. Based on VOC Method Detection Limit (MDL) studies performed and submitted by the contract laboratory, lower reporting limits for VOCs were achieved. Table 3-3 lists the TCL VOCs, their corresponding MDLs, and the reporting limits used during this investigation. All reporting limits listed in Table 3-3 are lower than corresponding Federal Primary Drinking Water MCLs. Appendix B contains data supporting the MDL study.

3.2 DATA QUALITY ASSESSMENT. Data generated by the on-site and off-site laboratories were reviewed against applicable performance criteria. In addition, data quality indicators of precision, accuracy, representativeness, comparability, and completeness (PARCC) were evaluated and established for both on-site and off-site data, as discussed below.

3.2.1 On-Site Data Quality and Use All samples collected for on-site analysis during the screening investigation were properly preserved, placed in coolers, and packed with ice immediately after collection. All samples remained in the custody of an investigation team member until delivery to the on-site laboratory. Except for one groundwater sample (G15230), all groundwater samples collected during the investigation were analyzed by the on-site laboratory. Groundwater sample G15230 could not be analyzed on site because of insufficient sample volume; however, this sample was analyzed by the off-site laboratory.

3.2.1.1 Analytical Performance Review of analytical data indicated the on-site laboratory generally met applicable analytical QC criteria for VOC analyses. All tuning criteria, extraction and analysis holding times, initial and continuing calibration standard criteria, and internal standard/surrogate recoveries were met. Overall, no qualification of environmental data was required based on precision and accuracy criteria. However, qualifications were required because several analytical method blanks contained target compounds at concentrations ranging from below the reporting limit of $1.0 \mu\text{g}/\text{l}$ to $2.7 \mu\text{g}/\text{l}$. Table 3-4 summarizes compounds detected in on-site analytical method blanks. In accordance

Table 3-3 Method Detection Limits (MDLs) and Reporting Limits for Volatile Organic Compounds

	MDL ($\mu\text{g/l}$)	Reporting Limit ($\mu\text{g/l}$)
Volatile Organic Compounds (37 total)		
Method: Contract Laboratory Program Statement of Work for Organic Analysis, Multi-media, Multi-concentration, USEPA Document No. OLM01.0, 1991.		
Chloromethane	0.203	1
cis-1,3-Dichloropropene	0.274	1
Bromomethane	0.396	1
Trichloroethene	0.185	1
Vinyl Chloride	0.165	1
Dibromochloromethane	0.190	1
Chloroethane	0.147 ^c	1
1,1,2-Trichloroethane	0.268	1
Methylene Chloride	9.712	10
Benzene	0.235	1
Acetone	3.491	5
trans-1,3-Dichloropropene	0.097	1
Carbon Disulfide	0.114	1
Bromoform	0.230	1
1,1-Dichloroethene	0.175	1
2-Hexanone	0.465	5
1,1-Dichloroethane	0.205	1
4-Methyl-2-Pentanone	0.746	5
cis-1,2-Dichloroethene	0.215	1
Tetrachloroethene	0.340	1
trans-1,2-Dichloroethene	0.254	1
1,1,2,2-Tetrachloroethane	0.391	1
Chloroform	0.285	1
Toluene	0.167	1
1,2-Dichloroethane	0.160	1
Chlorobenzene	0.238	1
2-Butanone	0.709	5
Ethylbenzene	0.195	1
1,1,1-Trichloroethane	0.221	1
Styrene	0.240	1
Carbon Tetrachloride	0.354	1
Xylenes (total)	0.141	1
Bromodichloromethane	0.144	1
1,3-Dichlorobenzene	0.126	1
1,2-Dichloropropane	0.236	1
1,4-Dichlorobenzene	0.164	1
1,2-Dichlorobenzene	0.222	1

Note: $\mu\text{g/l}$ = micrograms per liter

Table 3-4 Summary of Compounds Detected in On-site Analytical Method Blanks

Compound	Reporting Limit	Blank ID Numbers (µg/l)				
		GC002	GC011	GC020	GC032	GC053
Vinyl chloride	1	1 U	1 U	1 U	1 U	0.41 J
trans-1,2-Dichloroethene	1	1 U	1 U	0.98 J	1.0	1 U
cis-1,2-Dichloroethene	1	0.74 J	0.63 J	0.93 J	0.97 J	0.65 J
Trichloroethene	1	2.7	1 U	1 U	1 U	1 U
Tetrachloroethene	1	0.28 J	0.63 J	0.82 J	0.89 J	0.74 J
Benzene	1	0.66 J	1 U	0.71 J	0.77 J	1 U
Toluene	1	0.29 J	1.4	0.50 J	0.52 J	0.34 J
Ethylbenzene	1	0.30 J	1.8	0.72 J	0.71 J	0.62 J
m/p-Xylene	2	0.35 J	2 U	2 U	2 U	2 U
o-Xylene	1	0.60 J	1 U	0.34 J	0.35 J	1 U

Compound	Reporting Limit	Blank ID Numbers (µg/l)				
		GC059	GC069	GC088	GC108	GC122
Vinyl chloride	1	1 U	1 U	1 U	0.79 J	1 U
trans-1,2-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1	0.62 J	0.79 J	0.56 J	1.1	0.47 J
Trichloroethene	1	1 U	1 U	1 U	1.1	1 U
Tetrachloroethene	1	0.76 J	0.59 J	0.54 J	1.0	0.48 J
Benzene	1	0.57 J	0.57 J	0.57 J	0.68 J	1 U
Toluene	1	1.6	1.1	0.78 J	0.85 J	0.43 J
Ethylbenzene	1	0.83 J	0.82 J	0.84 J	1.2	0.62 J
m/p-Xylene	2	2 U	2 U	2 U	2 U	2 U
o-Xylene	1	0.74 J	0.47 J	0.50 J	0.63 J	1 U

Notes: U = compound not detected at the stated quantitation limit
 J = sample result is considered estimated because it is less than the reporting limit
 µg/l = micrograms per liter

with NEESA Level C guidelines (NEESA, 1988), all positive sample results associated with method blank contamination were qualified as undetected if the sample concentration was less than five times the blank concentration. Sample concentrations greater than five times associated method blank concentrations did not require qualification.

3.2.1.2 On-Site Data Use Performance criteria for the on-site analytical method, described in Subsection 3.1.1.2, were used to assess the quality of data generated by the field laboratory. PARCC parameters were established based on the extent of conformance to these performance criteria.

The accuracy and precision of the on-site analytical method were established. Accuracy was calculated based on the range of matrix spike percentage recoveries (%R) for matrix spike/matrix spike duplicate (MS/MSD) samples and precision was calculated based on the relative percentage difference (RPD) between spike results for MS/MSD samples. Calculation of %R and RPD are as follows:

$$\%R = (\text{spike sample result} / \text{concentration of spike added}) \times 100 \quad (1)$$

and

$$RPD = \frac{|\text{MS result} - \text{MSD result}|}{(\text{MS result} + \text{MSD result}) / 2} \times 100 \quad (2)$$

Three sets of MS/MSD samples were analyzed on site during field activities and the precision and accuracy results for the target compounds are shown in Table 3-5. The accuracy range was 73 to 210 and the precision range was 0 to 18 percent. Overall, no qualification of environmental data was required based on accuracy criteria.

Representativeness is a qualitative parameter that expresses how well the sampling represents the environmental conditions of the sampled media. Field duplicate samples, equipment rinsate samples, and source water blanks were collected to give an indication of representativeness and to monitor method reproducibility. A total of four duplicate samples were collected and analyzed on site. Analytical results for duplicate samples are presented in Table 4-1 in Section 4.0 of this document. In general, results for field duplicates show good agreement with RPD values ranging from 0 to 35 percent. Nine equipment rinsate samples and two source water blanks were collected and analyzed by the on-site laboratory. None of the rinsate samples or source water blanks contained target compounds.

The completeness of the on-site data set was measured by establishing what percentage of the data set was considered valid after data review. Valid results are defined as those results from analyses meeting the performance criteria defined by calibration checks and surrogate recoveries. The completeness for all analytes was established to be 100 percent.

Comparability is discussed in Subsection 3.2.3 of this document.

Overall, data generated by the on-site analytical laboratory met USEPA Level II criteria for field screening and are suitable for use in site characterization, engineering design, and evaluation of remedial alternatives.

Table 3-5 Summary of Precision and Accuracy for On-site MS/MSD Analysis

Compound	MS/MSD Recovery Range (Accuracy)	RPD Range (Precision)
Vinyl Chloride	76-100	3-9
trans-1,2-Dichloroethene	110-210	0-2
cis-1,2-Dichloroethene	120-180	0-13
Trichloroethene	89-150	9-14
Tetrachloroethene	100-170	7-14
Benzene	90-120	2-10
Toluene	73-110	9-16
Ethylbenzene	92-120	0-8
m/p-Xylene	90-120	9-10
o-Xylene	91-120	0-18
USEPA Method 8010/8020	75-120	2-28

Notes:

RPD = Relative Percentage Difference

MS/MSD = Matrix Spike/Matrix Spike Duplicate

3.2.2 Off-Site Data Quality and Use All samples collected for off-site analysis were properly preserved, placed in coolers, and packed with ice immediately after collection. All samples remained in the custody of an investigation team member until delivery to the courier service providing overnight shipment to the laboratory. All samples requiring off-site analysis were shipped, complete with chain-of-custody forms, to the contract laboratory within 24 hours for analysis. Upon arrival at the laboratory, the chain-of-custody and preservation of the samples were checked with the contents of each cooler. After verification, the chain-of-custody form was signed and the samples accepted for analysis.

Review of the field notebook and chain-of-custody forms did not indicate any non-conformance relative to field instrument calibration or sample handling. Except for one sample delivery, all required field QC samples were collected in conformance with the requirements of the USEPA, 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, 1988) (Document 20.2-047B). These field QC samples included field duplicates, equipment rinsate blanks, source water blanks, and VOC trip blanks for each VOC sample shipment.

Analytical results for environmental samples collected during the investigation were evaluated and validated according to NEESA Level D QC criteria to establish data quality and useability. NEESA Level D documentation and validation requirements are equivalent to USEPA Level IV requirements. The data tables included in Appendix B reflect validation according to Level D criteria, which are described in Subsection 7.3.1 of NEESA Document 20.2-047B. The following subsections discuss analytical performance and the evaluation of field and laboratory QC samples.

3.2.2.1 Analytical Performance Data review and NEESA Level D validation were performed under subcontract. Review of analytical data indicated the laboratory generally met applicable analytical QC criteria for all chemical analyses. Appendix C of this report contains a detailed evaluation of each PARCC parameter and data tables summarizing analytical results for MS/MSD samples, initial and continuing calibration standards, field duplicate samples, and compounds detected in method blanks, trip blanks, rinsate blanks, and source water blanks (Appendix C). The following subsections summarize evaluations of each PARCC parameter.

For VOC analyses, all analytical holding times, tuning criteria, internal standard/surrogate recoveries, and MS/MSD criteria were met. Except for one equipment rinsate sample, BS126ER, no qualifications were required based on precision or accuracy criteria. The positive sample result for acetone in BS126ER was qualified as estimated and flagged with a J qualifier because an associated continuing calibration standard exceeded QC limits for acetone.

Field duplicate samples, analytical method blanks, trip blanks, equipment rinsate samples, and source water blanks were collected to give an indication of representativeness and to monitor method reproducibility. A total of four duplicate samples were collected and analyzed off site. Analytical results for duplicate samples are presented in Tables 4-2 and 4-3 in Section 4.0 of this document. In general, results for field duplicates show good agreement. However, one set of PIW replicate samples, PW-55/PW-55D, showed disagreement in results for one common laboratory contaminant, acetone (see Table 4-3 in Section 4.0). Acetone was detected in replicate samples PW-55 and PW-55D at 19 and 32

µg/l, respectively; however, the result for PW-55D was qualified as undetected due to method blank contamination. The poor replication of acetone in duplicate samples and the prevalence of acetone in several method blanks associated with this investigation and previous investigations at Site 11 indicate that the concentrations of acetone detected in PIW samples are most likely laboratory artifacts.

Four trip blanks, three equipment rinsate blanks, and two source water blanks were submitted for off-site VOC analysis. The equipment rinsate samples were collected during decontamination procedures involving hydropunch equipment. The source water blanks represented organic-free, deionized water used as a final rinse during equipment decontamination procedures (BS113FB) and potable water used to steam-clean hydropunch equipment (BS114FB). Trip blanks accompanied each VOC sample shipment to monitor contamination introduced during sample collection, shipment, and storage. However, one sample shipment including PIW samples PW-60, PW-61, PW-61D, PW-62, and PW-55D did not contain a trip blank. One common laboratory contaminant, 2-butanone, was detected in one sample associated with the shipment (PW-61D) but was not detected in the replicate sample (PW-61). The presence of 2-butanone in PW-61D is considered suspect and may be due to laboratory or sampling contamination.

Appendix B provides tables summarizing compounds detected in analytical method blanks, trip blanks, rinsate blanks, and source water blanks and an evaluation of the impact of contamination on data useability. In summary, the representativeness of the data was only affected by the prevalence of acetone, methylene chloride, and carbon disulfide in analytical method blanks and the prevalence of acetone in rinsate samples. The occurrence of acetone, methylene chloride, and carbon disulfide in method blanks and field blanks render data for these compounds suspect for groundwater and PIW samples containing these compounds at concentrations that could not be directly attributed to contamination.

Comparability could not be accurately measured for data collected during this investigation because environmental samples were not submitted to two different contract laboratories; however, the results of the on-site analyses were compared to those of the off-site results and are discussed in Subsection 3.2.3 of this document.

The completeness goal for laboratory analysis for this investigation was 95 percent useable data. Unusable data are those results reported by the laboratory but rejected during the validation process. For all samples collected during this investigation, the analytical completeness was established to be 100 percent.

3.2.2.2 Off-Site Data Use Overall, the data generated during this investigation meet Level D data quality objectives established for the ICMSI and are acceptable for use in site characterization and evaluation. Blank qualifications for VOCs resulted in elevated detection limits for the chemicals discussed earlier. The widespread occurrence of acetone, and methylene chloride and the unknown origin of carbon disulfide in method blanks and field blanks render data for these compounds suspect for groundwater and PIW samples containing these compounds at concentrations that could not be directly attributed to contamination. The source of these contaminants will be further investigated during future field programs at NSB Kings Bay.

3.2.3 Comparison of On-Site Laboratory Results and Off-Site Laboratory Results

Four groundwater samples that were analyzed on site were also analyzed by the off-site laboratory. A summary of analytical results for the 10 target VOCs analyzed by both laboratories, in units of $\mu\text{g}/\text{l}$, are as follows:

<u>Sample</u>	<u>Compound</u>	<u>On-site</u>	<u>Off-site</u>
G15030	(no target VOCs detected by either analysis)		
G15885	vinyl chloride	1.5	1 U
	cis-1,2-dichloroethene	7.0	1 U
	toluene	4.0	2
G15940/G15940D	vinyl chloride	4.6/4.3	1 U
	cis-1,2-dichloroethene	18/20	6
	ethylbenzene	16/22	15
	m/p-xylene	2 U/2 U	12 (total)
	o-xylene	4.6/1 U	12 (total)
G16035	vinyl chloride	6.9	1 U
	cis-1,2-dichloroethene	64 J	22
	trichloroethene	1 U	3
	benzene	12	5
	toluene	20	11
	ethyl benzene	8.4	6
	m/p-xylene	6.4	14 (total)
	o-xylene	8.6	14 (total)

Except for vinyl chloride and cis-1,2-dichloroethene, on-site laboratory results correlated well with off-site results when target compounds were detected in both on-site and off-site samples at concentrations greater than five times the quantitation limit. Comparison of vinyl chloride and cis-1,2-dichloroethene results for on-site and off-site samples indicated that the off-site laboratory may have experienced a loss of sensitivity for these compounds. The loss of sensitivity most likely occurred during shipment to the laboratory via air transport or during sample preparation at the analytical laboratory.

Based on the comparison of the on-site and off-site results, the on-site data can be used to augment the off-site data for site characterization.

4.0 RESULTS OF INVESTIGATIONS

4.1 ON-SITE GROUNDWATER CONTAMINATION. Analytical data from on-site analyses are presented in Table 4-1. Table 4-2 summarizes validated analytical data for the off-site analysis of groundwater samples collected using the hydropunch. Hydropunch sample locations are shown in Figure 2-2.

Figures 4-1 through 4-3 show the approximate horizontal extent of VOC contamination at various depth intervals. Figure 4-4 shows locations of cross-sections D-D' (Figure 4-5), E-E' (Figure 4-6), and F-F' (Figure 4-7). The interpreted plan views (Figures 4-1 through 4-3) and the cross-sections (Figures 4-5 through 4-7) are based on on-site laboratory GC data associated with the Phase I Interim Investigation, the initial ICMSI data, and the additional data provided in this addendum. The initial ICMSI provided data on off-site target VOC concentrations. This additional investigation provided information about the concentration of target VOCs beneath the landfill. Therefore, the western extent of the plume that was defined in the initial ICMSI Progress Report did not change as a result of this investigation.

The isoconcentration contours portrayed in Figures 4-1 through 4-3 and 4-5 through 4-7 are computer generated using GIS/KEY™ in combination with QUICKSURF™. The area representing the plume is approximated from data associated with actual sample locations. The actual presence of plume constituents at locations within the contoured areas and between sample locations can only be verified by actual sampling and analysis of groundwater at those locations.

Data collected during the March 1993 hydropunch groundwater sampling indicate that vinyl chloride and dichloroethene are the primary halogenated VOCs present, which is consistent with data from off-site locations collected during the initial ICMSI field program. The same five VOCs detected above Federal MCLs in the initial ICMSI were also the only five target VOCs to be detected above MCLs during this additional sampling effort. The five VOCs are vinyl chloride, trichloroethene, cis-1,2-dichloroethene, tetrachloroethene, and benzene. MCLs are included on analytical data tables for on-site and off-site analyses. Of these five VOCs, vinyl chloride concentrations were above its MCL of 2 µg/l more frequently than any other target VOC, just as was found in the initial ICMSI. Vinyl chloride was detected at concentrations above its MCL at 11 of 15 locations sampled, and in 27 out of 49 samples. Vinyl chloride was present at 85 feet bgs at location G158, and at 15 feet bgs at G158, G153, and G152.

The data indicate that the concentrations of target VOCs detected in samples collected from within the landfill are generally less than concentrations detected from locations along and downgradient of the western margin of the landfill (Figures 4-1 through 4-3 and 4-5 through 4-7). With the exception of data associated with sample G158 (50 feet bgs), concentrations of total target VOCs detected during March 1993 on-site analyses ranged from 1 µg/l at location G161 (17 feet bgs) on the north side of the landfill to 188 µg/l at location G158 (70 feet bgs) on the west side of the landfill (see Figure 2-2 and Table 4-1). One sample from location G158 (50 feet bgs) contained 1,537 µg/l total target VOCs. A sample from G152 (30 feet bgs) at the center of the landfill that was analyzed off site for TCL VOCs contained 2,153 µg/l total VOCs, 931 µg/l attributed to the 10 target VOCs analyzed in the on-site laboratory.

Table 4-1 On-site Analytical Data for Hydropunch Groundwater Samples

Compound	Sample ID Numbers ($\mu\text{g/l}$)										
	MCL	G14730	G14745	G14830	G14845	G14845D	G14930	G14945	G15030	G15045	G15125
Vinyl chloride	2	31	1.4 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-dichloroethene	70	8.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	5	1.3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
m/p-Xylene	¹ 10,000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	¹ 10,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Compound	Sample ID Numbers ($\mu\text{g/l}$)										
	MCL	G15145	G15215	G15245	G15260	G15275	G15290	G15290D	G15315	G15330	G15350
Vinyl chloride	2	1 U	56 J	14	4.7	2.6	10	11	2.0	1 U	10
trans-1,2-Dichloroethene	100	1 U	1 U	1.3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	3.0 U	24	2.9 U	3.7 U	11	12	3.8 U	11	9.5
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	5	1 U	2.7 U	6.4	1 U	1 U	1 U	1.2 U	2.1 U	3.0 U	5.9
Toluene	1,000	1 U	1.3 U	38 J	27	6.0	23	24	1 U	1 U	5.6
Ethylbenzene	700	1 U	26	17	1.2 U	1.1 U	3.1	3.2	1 U	2.7	1 U
m/p-Xylene	¹ 10,000	2 U	19	18	2 U	2 U	2.8	3.0	2 U	2 U	2 U
o-Xylene	¹ 10,000	1 U	11	5	1 U	1 U	2.1	2.2	1 U	1 U	1 U

See notes at end of table.

Table 4-1 (continued) On-site Analytical Data for Hydropunch Groundwater Samples

Compound	Sample ID Numbers (µg/L)										
	MCL	G15365	G15383	G15425	G15440	G15460	G15535	G15565	G15625	G15625D	G15645
Vinyl chloride	2	1 U	1.1	6.9	14	1.9	5.7	1 U	10.0	8.3	27
trans-1,2-dichloroethene	100	1 U	1 U	1.8 U	1.4 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-dichloroethene	70	2.1 U	1.4 U	35 J	76 J	63 J	23	2.0 U	40 J	28	100
Trichloroethene	5	1 U	1 U	1 U	5.9	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1.8 U	1 U	5.1	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	5	1 U	1 U	2.8 U	7.4	2.3 U	6.2	1 U	28	24	16
Toluene	1,000	1 U	1.1 U	1 U	13	16	1.1 U	1 U	1 U	1 U	1.5 U
Ethylbenzene	700	1 U	1 U	7.9	18	7.0	20	1.6 U	9.9	7.6	33
m/p-Xylene	110,000	2 U	2 U	2 U	7.0	2.1	2 U	2 U	2 U	2 U	7.6
o-Xylene	110,000	1 U	1 U	1 U	8.2	2.8 U	1 U	1 U	1.4 U	1 U	2.8

Compound	Sample ID Numbers (µg/L)										
	MCL	G15660	G15720	G15735	G15755	G15770	G15815	G15830	G15850	G15870	G15885
Vinyl chloride	2	1.9	8.2	15	7.8	1 U	1.5	1.8	30	14	1.5
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	12	1 U	1 U
cis-1,2-Dichloroethene	70	4.6	1 U	2.1	2.6	1 U	1.4	1.3	1100 J	140	7.0
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	2.0 U	1 U	1 U	1 U	1 U	1 U	1 U	24	1 U	1 U
Benzene	5	1.6 U	2.3 U	4.0	1.4 U	1 U	1.1 U	1.3 U	12	2.1	1.2 U
Toluene	1,000	1 U	1.2 U	2.9 U	1.9 U	1 U	1 U	1 U	150 J	34	4.0
Ethylbenzene	700	6.8	2.8	56 J	5.3	1 U	1 U	2.8	61	1 U	1.6 U
m/p-Xylene	110,000	4.7	2 U	8.4	2 U	2 U	2 U	2 U	73	2 U	2 U
o-Xylene	110,000	2.1	1 U	4.5	1.1 U	1 U	3.2	1 U	75	1 U	1.6 U

See notes at end of table.

Table 4-1 (continued) On-site Analytical Data for Hydropunch Groundwater Samples

Compound	Sample ID Numbers (µg/L)										
	MCL	G15915	G15940	G15940D	G15955	G16016	G16035	G16050	G16117	G16135	G16145
Vinyl chloride	2	1 U	4.6	4.3	1 U	1.1 U	6.9	1 U	1 U	13	1 U
trans-1,2-dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-dichloroethene	70	3.1 U	18	20	1 U	2.1 U	64 J	1 U	1 U	89 J	32 J
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	5	1 U	1 U	3.4	1 U	1 U	12	1 U	1.0	7.1	9.0
Toluene	1,000	1 U	1 U	1 U	1 U	1 U	20	1 U	1 U	1 U	28
Ethylbenzene	700	1 U	16	22	1 U	6.5	8.4	1 U	1 U	1 U	2.9
m/p-Xylene	¹ 10,000	2 U	2 U	2 U	2 U	2 U	6.4	2 U	2 U	10	2 U
o-Xylene	¹ 10,000	1 U	4.6	1 U	1 U	1 U	8.6	1 U	1 U	1 U	2.4

Compound	Sample ID Numbers (µg/L)				
	MCL	G16155	G16165	KBA-11-10 (12')	KBA-11-12 (18')
Vinyl chloride	2	1 U	1 U	1.4	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1.2 U	1 U	1 U	8.1
Trichloroethene	5	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U	1 U
Benzene	5	1 U	1 U	1.3	1 U
Toluene	1,000	1.4 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U
m/p-Xylene	¹ 10,000	2 U	2 U	2 U	2 U
o-Xylene	¹ 10,000	1 U	1 U	1 U	1 U

Notes: ¹ = total xylenes

J = sample result is considered estimated because concentration exceeded the linear range of the instrument

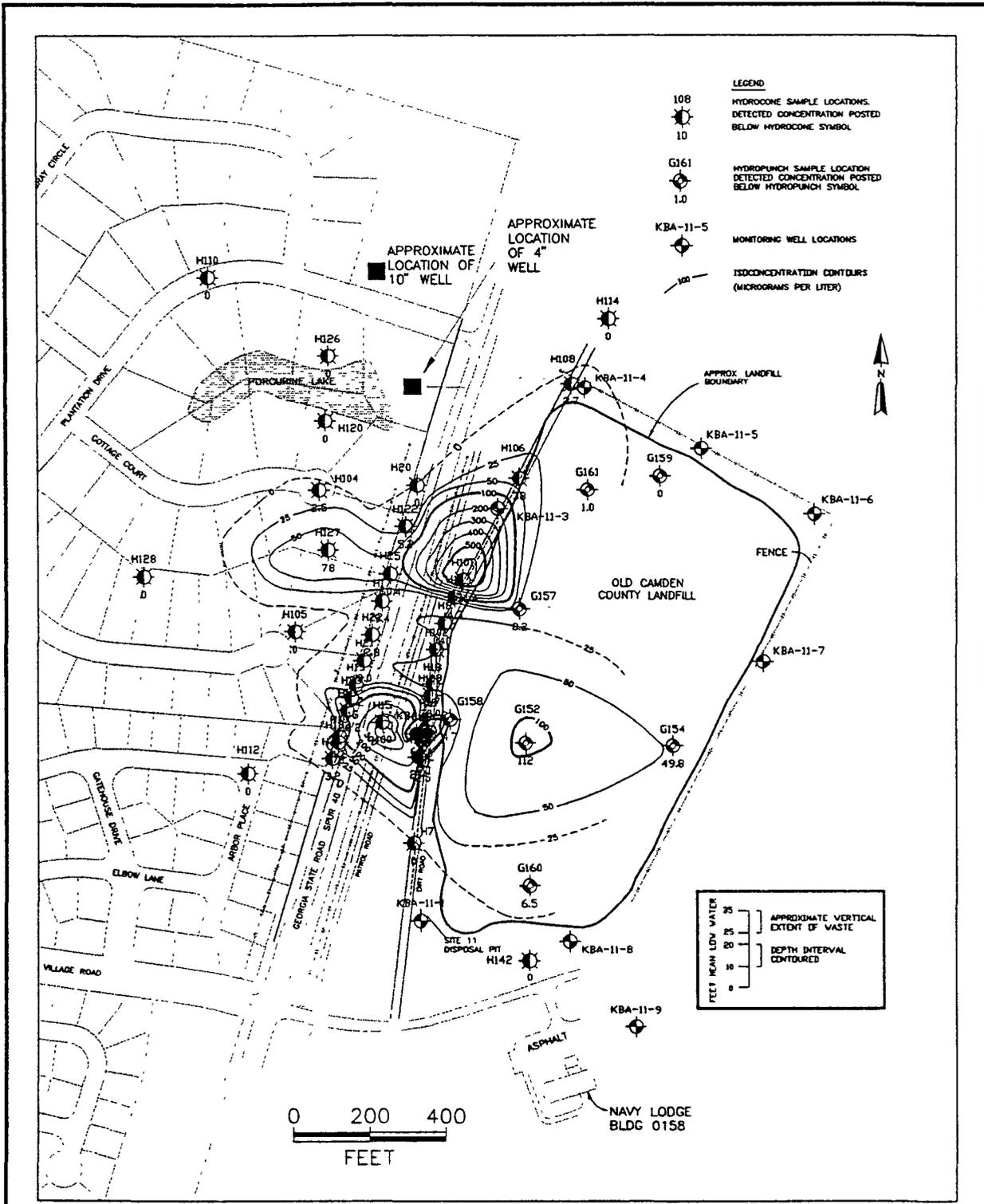
U = compounds not detected at the stated quantitation limit

MCL = Maximum Contaminant Level, USEPA Office of Water, December 1992; The Bureau of National Affairs, Inc., July 1992.

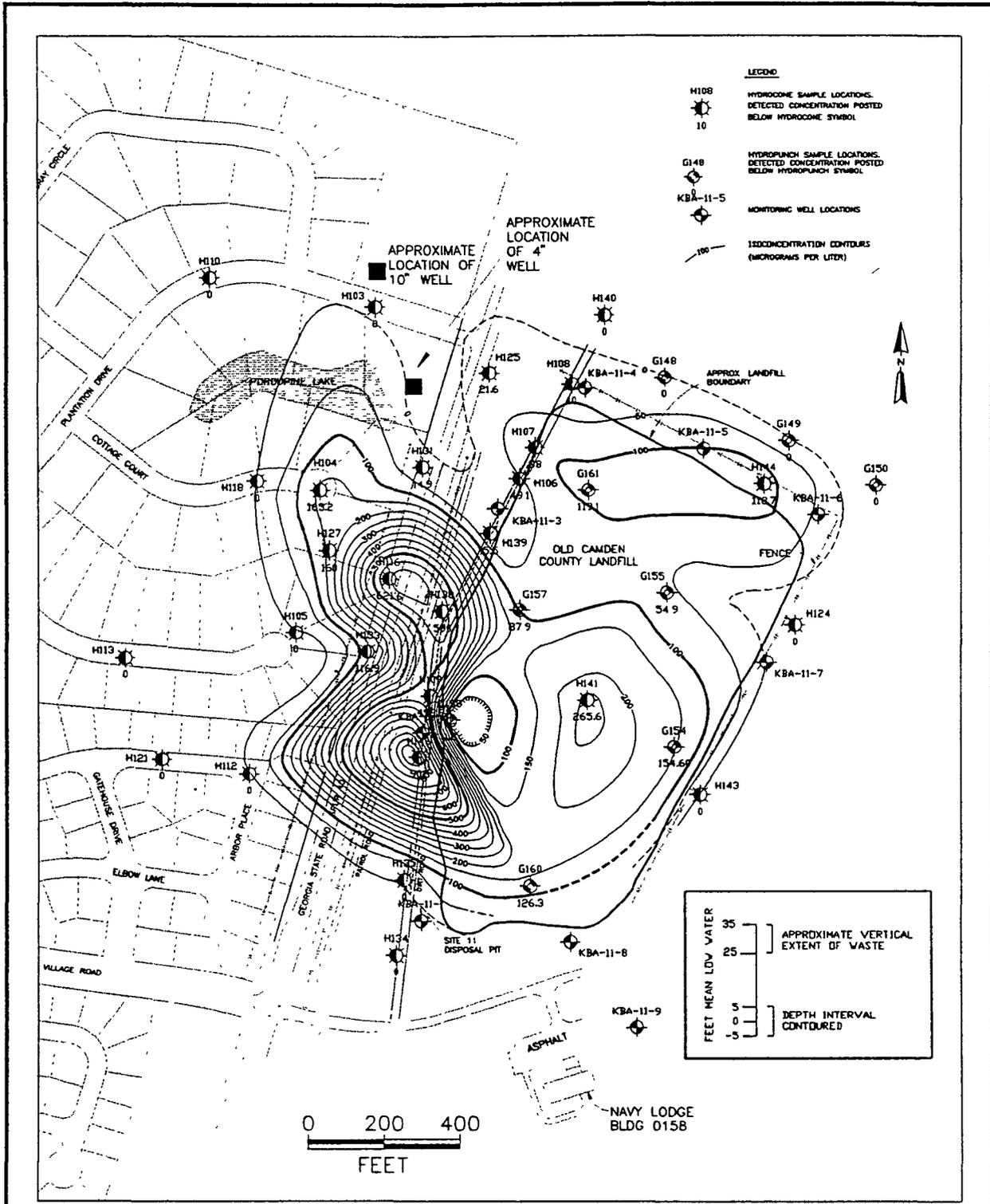
Table 4-2 Summary of Off-site Laboratory Analysis of Hydropunch Samples

Compound	Hydropunch Sampling Locations (µg/l)						
	MCL	G15030	G15230	G15230D	G15885	G15940	G16035
Methylene chloride	NA	2 U	37	41	2 U	2 U	3
Acetone	NA	5 U	280	310	800	5 U	24 U
2-Butanone	NA	5 U	440	480	5 U	5 U	5 U
2-Hexanone	NA	5 U	19	17	5 U	5 U	5 U
4-Methyl-2-pentanone	NA	5 U	100	110	5 U	5 U	5 U
Carbon disulfide	NA	3	200	250	1 U	1 U	3
Chloroform	100	1 U	1 U	1 U	3	1 U	1 U
1,1-Dichloroethane	NA	1 U	12	14	1 U	1 U	17
Trichloroethene	5	1 U	3	3	1 U	1 U	3
cis-1,2-dichloroethene	70	1 U	2	2	1 U	6	22
Benzene	5	1 U	1	1	1 U	1 U	5
Toluene	1,000	1 U	720	840	2	1 U	11
1,4-Dichlorobenzene	75	1 U	1 U	1 U	1 U	3	1 U
Ethyl benzene	70	1 U	16	18	1 U	15	6
Xylenes (total)	10,000	1 U	62	67	1 U	12	14

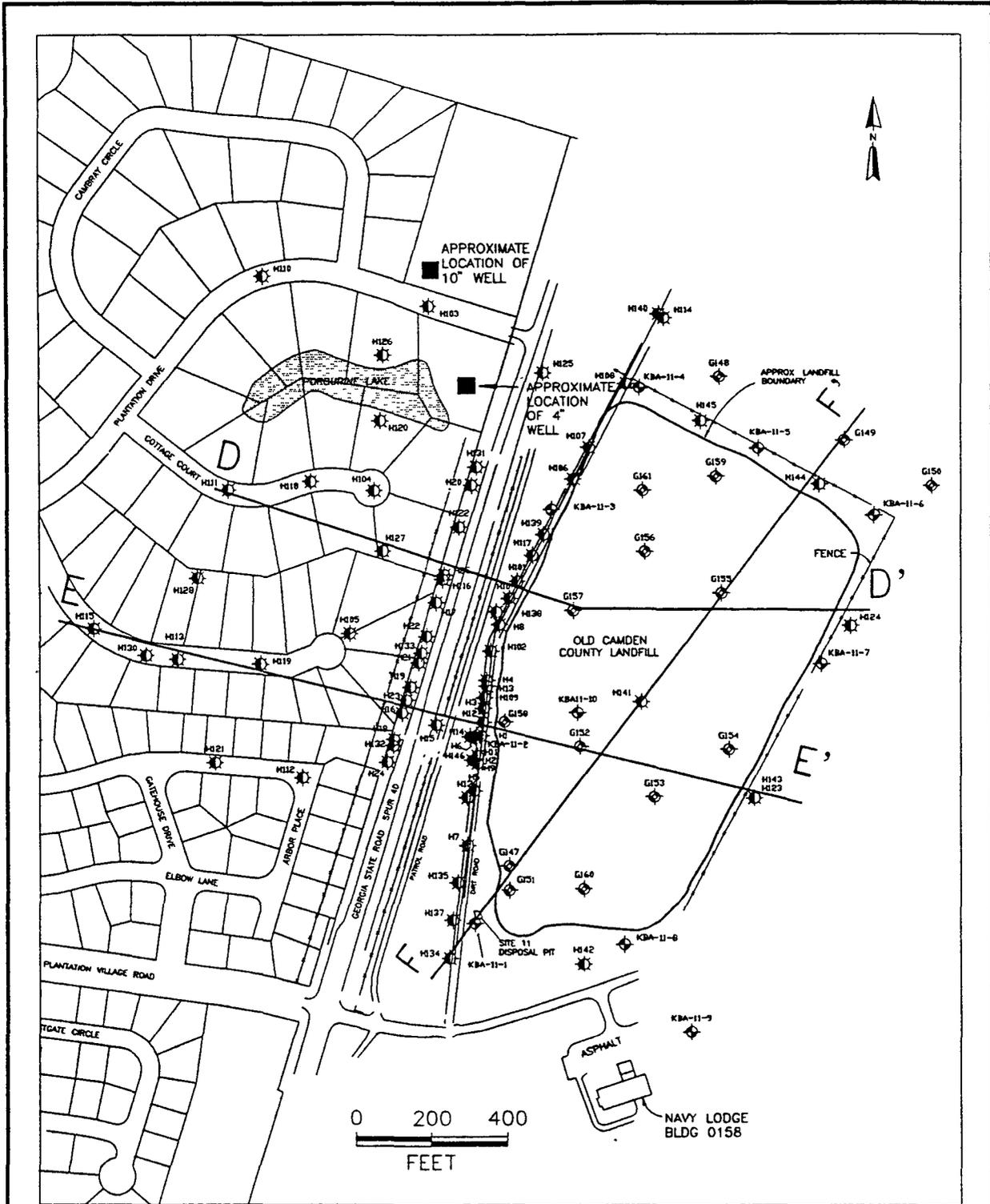
Notes: U = compound was not detected at the stated concentration
 NA = none applicable
 MCL = Maximum Contaminant Level, USEPA Office of Water, December 1992; The Bureau of National Affairs, Inc., July 1992.



DWN LGT		DES LGT	PROJECT NO	TITLE	 ICMS(Addendum) NAVAL SUBMARINE BASE KINGS BAY GEORGIA
CHKD LBH		APPD LBH	7553	INTERPRETED PLUME PLAN VIEW 20 TO 10 FT MEAN LOW WATER TOTAL TARGET VOCs	
DATE	REV	FIGURE NO			
6/23/93	1.1	4-1			

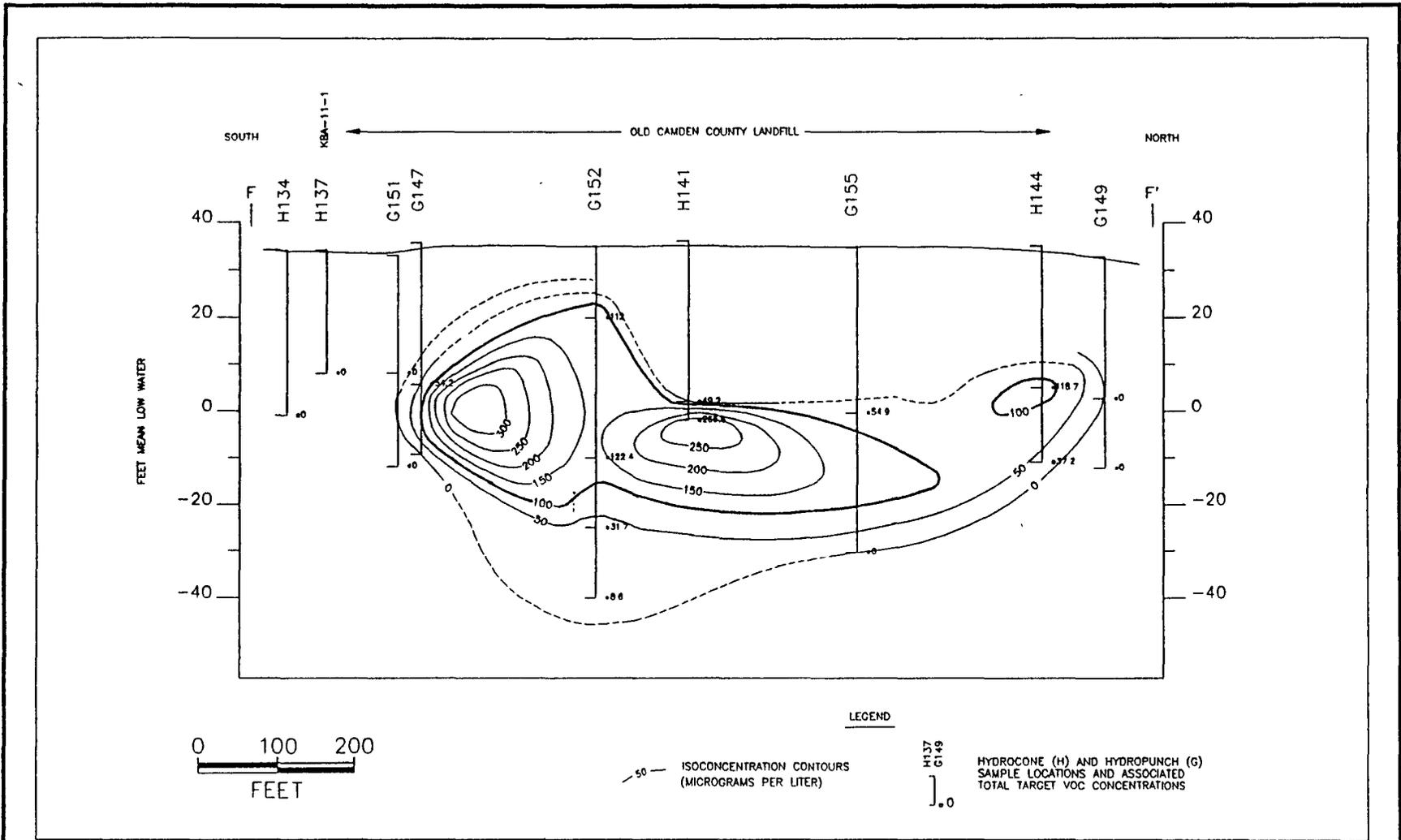


DWN		LGT	DES	LGT	PROJECT NO	TITLE	 ICMSI ADDENDUM NAVAL SUBMARINE BASE KINGS BAY, GEORGIA
CHKD		LBH	APPD	LBH	7553	INTERPRETED PLUME PLAN VIEW 5 TO -5 FT MEAN LOW WATER TOTAL TARGET VOCs	
DATE		6/23/93	REV	1.1	FIGURE NO		

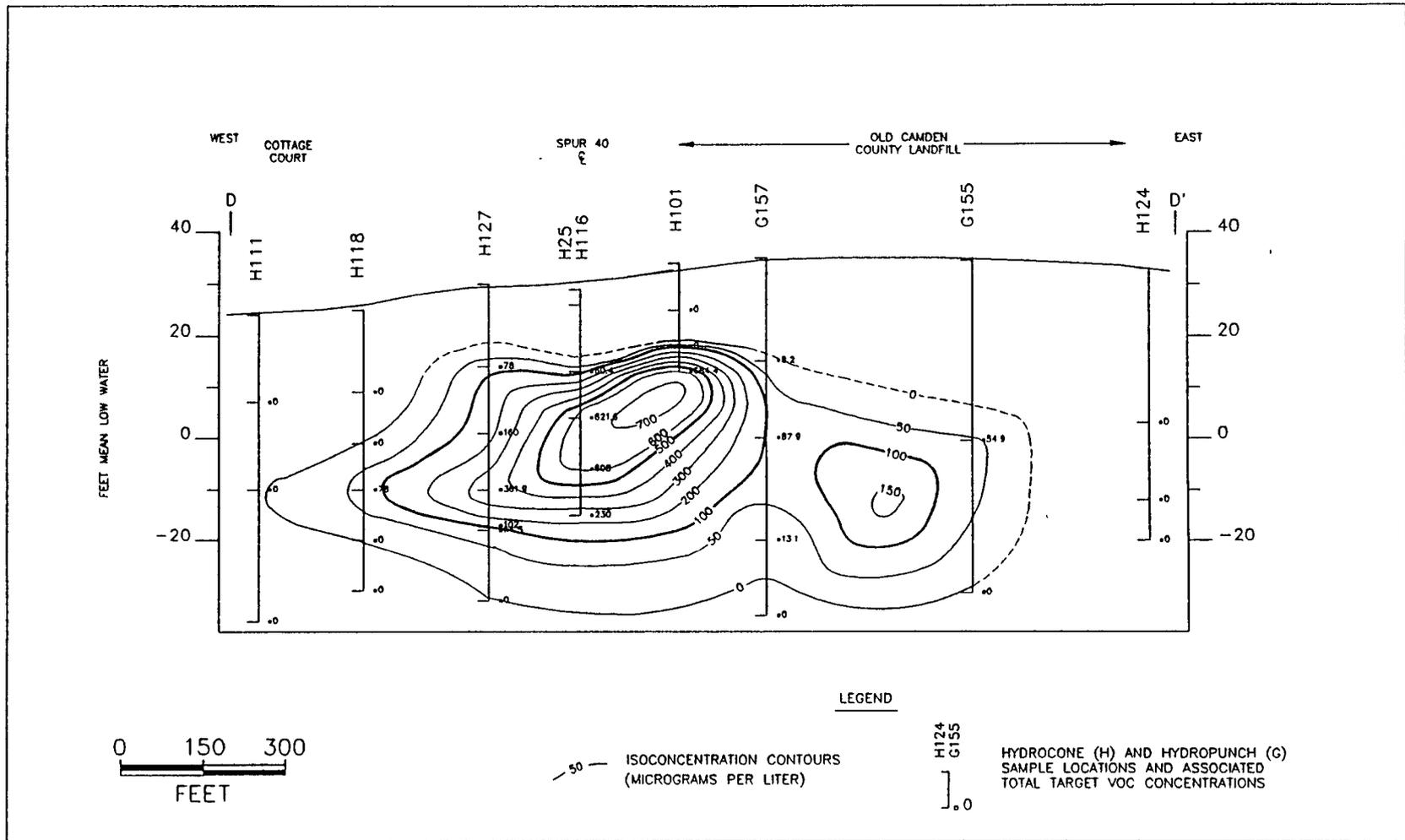


KINGSBAY\CHEM\MAPS\PROFLINE.dwg

DWN LGT	DES. LGT	PROJECT NO. 7553	TITLE PROFILE LINE LOCATIONS	 <p>ICMSI ADDENDUM NAVAL SUBMARINE BASE KINGS BAY GEORGIA</p>
CHKD LBH	APPD LBH	FIGURE NO 4-4		
DATE 6/23/93	REV 1.1			



KINGSBAY\CHEM\MAPS\CF SEC393.dwg				<p style="text-align: center;">CROSS SECTION F-F'</p> <p style="text-align: center;">TOTAL TARGET VOCs</p> <p style="text-align: center;">ON-SITE ANALYTICAL DATA</p>		 <p style="text-align: right;">ICMSI ADDENDUM</p> <p style="text-align: right;">NAVAL SUBMARINE BASE KINGS BAY, GEORGIA</p>
DWN:	DES:	PROJECT NO:	TITLE:			
LGT	LGT	7553				
CHKD:	APPD:	FIGURE NO:				
LBH	LBH	4-5				
DATE:	REV:					
6/23/93	1.1					



KINGSBAY\CHEN\MAPS\CDSEC393.dwg

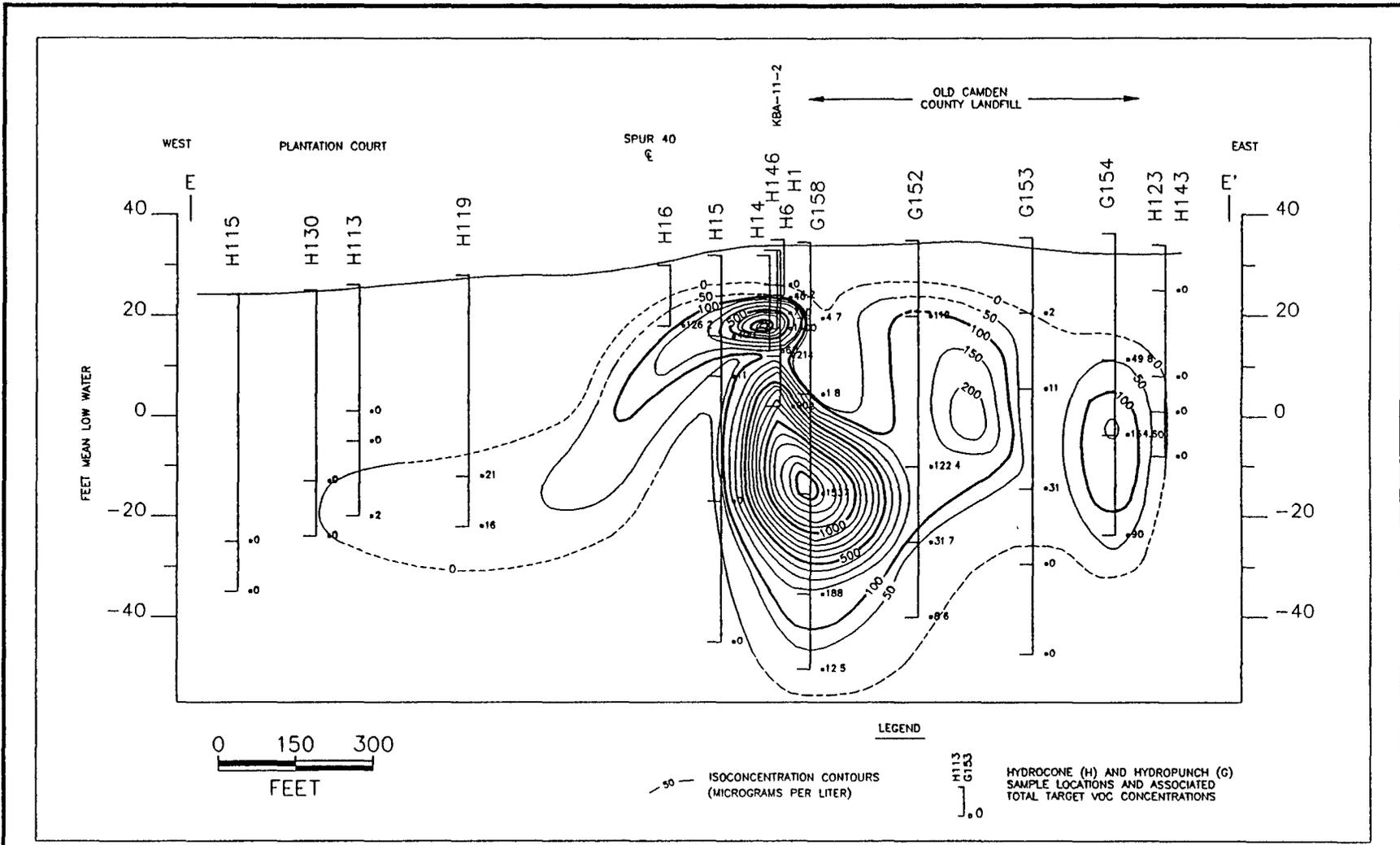
DWN	LGT	DES	LGT	PROJECT NO.	TITLE
CHKD	LBH	APPD	LBH	7553	
DATE	6/23/93	REV.	1.1	FIGURE NO.	

CROSS SECTION D-D'
TOTAL TARGET VOCs
ON-SITE ANALYTICAL DATA



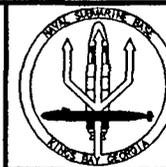
ICMSI ADDENDUM

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA



KINGSBAY\CHEM\MAPS\CESEC393.dwg

DWN	DES	PROJECT NO.	TITLE
LGT	LGT	7553	CROSS SECTION E-E' TOTAL TARGET VOCs ON-SITE ANALYTICAL DATA
CHKD	APPD	FIGURE NO.	
DATE	REV	4-7	
6/23/93	1.1		



ICMSI ADDENDUM

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

One sample from location G152 that was collected from 90 feet bgs contained 52.2 $\mu\text{g}/\text{l}$ total target VOCs. However, these concentrations are highly suspect because the hydropunch sampler met refusal after being advanced only 2 feet beyond the augers (advancement of 5 feet is typical). Therefore, once the sample collection chamber was opened (an 11-inch extension), the top of the chamber was only 13 inches below the augers, which is not far enough to isolate the chamber from the conduit formed by the auger. The chamber was not advanced far enough into the undisturbed formation to prevent cross-contamination from areas of higher concentration. This theory is supported by the data available from other elevations at G152. The most concentrated elevation detected at G152 was 122.4 $\mu\text{g}/\text{l}$ at 45 feet bgs. The samples from 60 and 75 feet, like samples from other locations, show a decrease in concentrations with increasing depth below 45 feet bgs. The target VOC concentration detected at 90 feet bgs shows an increase in concentration that is not consistent with this trend. The data for the lowermost sample from location G152 (90 feet bgs) was not used in preparing the plume plan views and cross-sections presented in Figures 4-1 through 4-3 and 4-5 through 4-7.

4.2 PRIVATE IRRIGATION WELL RESULTS. Groundwater samples were collected from 11 PIWs in the Crooked River Plantation Subdivision (see Figure 2-3) including two PIWs that were also sampled in the initial ICMSI. All PIW samples, and three duplicate samples, were analyzed at an off-site laboratory. Table 4-3 summarizes the analytical data for the PIW samples, providing the concentrations of all constituents that were detected.

The two PIWs that were resampled in January 1993, PW-54 and PW-55, are in locations underlain by the plume (see Figure 2-2). Sample PW-54 did not contain detectable concentrations of VOCs (see Table 4-3). Sample PW-55 contained a detectable concentration of acetone, which is discussed in the following paragraph. VOCs detected in other PIW samples include compounds suspected of being artifacts of laboratory or sampling procedures, compounds common in water treated for public drinking water supply, and solvents.

Two VOCs, acetone and 2-butanone, are common laboratory solvents that are frequently observed artifacts of laboratory procedures, and can be artifacts of sampling procedures when solvents are used in decontamination of sampling equipment. However, no decontamination was performed during sampling of PIWs because samples were collected directly from PIW plumbing fixtures. Acetone was detected in six PIW samples, PW-52, PW-53, PW-55, PW-56, PW-57, and PW-58 (see Table 4-3) at concentrations ranging from an estimated 3 J to 19 $\mu\text{g}/\text{l}$, which could not be qualified based on validation criteria. The occurrence of acetone in these PIWs is sporadic over the area investigated and no correlation to the area of the plume is evident. Therefore, the reported concentrations are either artifacts of laboratory procedures or have a source other than Site 11. 2-Butanone, also a common laboratory solvent, was detected in one PIW sample, PW-61D (see Table 4-3) at a concentration of 5 $\mu\text{g}/\text{l}$. However, because the analysis of replicate sample PW-61 did not contain detectable concentrations of 2-butanone, the concentration reported for duplicate sample PW-61D is suspected as being an artifact of laboratory procedures.

VOCs commonly found in chlorinated public water supplies include bromodichloromethane, dibromochloromethane, and bromoform. These compounds are generally classified as trihalomethanes and are formed in water as a result of chlorination. It is suspected that the occurrence of these VOCs in PIW samples

Table 4-3 Summary of Analytical Data for Private Irrigation Well Samples

Compound	Well ID Numbers ($\mu\text{g/L}$)										
	MCL	PW-52	PW-53	PW-54	PW-55	PW-55D	PW-56	PW-57	PW-58	PW-59	PW-59D
Acetone	NA	3 J	4 J	5 U	19	32 U	9	4 J	4 J	5 U	5 U
Carbon Disulfide	NA	130	1 U	1 U	1 U	1 U	4	1 U	1 U	1 U	1 U
2-Butanone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	16	16
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	60	1 U	1 U	1 U
Dibromochloromethane	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	14	14
Bromoform	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3	2
Toluene	1,000	1 U	1 U	1 U	1 U	1 U	1 U	1	1 U	1 U	1 U
Styrene	100	1 U	1 U	1 U	1 U	1 U	1 U	8	1 U	1 U	1 U

Compound	Sample ID Numbers ($\mu\text{g/L}$)				
	MCL	PW-60	PW-61	PW-61D	PW-62
Acetone	NA	21 U	14 U	16 U	5 U
Carbon Disulfide	NA	150	1 U	1 U	3
2- Butanone	NA	5 U	5 U	5	5 U
Bromodichloromethane	NA	1 U	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U
Dibromochloromethane	NA	1 U	1 U	1 U	1 U
Bromoform	100	1 U	1 U	1 U	1 U
Toluene	1,000	1 U	1 U	1 U	1 U
Styrene	100	1 U	1 U	1 U	1 U

Notes: J = sample result is considered estimated because concentration exceeded the linear range of the instrument
 U = compounds not detected at the stated quantitation limit
 MCL = Maximum Contaminant Level, USEPA Office of Water, December 1992; The Bureau of National Affairs, Inc., July 1992.

is related to land application of city water in the area of the PIW samples. The occurrence of these compounds in PIW samples is also sporadic and does not appear to be related to Site 11.

Sample PW-57 contained trichloroethene, styrene, and toluene, which are solvents. Sample PW-57 is from a PIW that was also sampled in the initial ICMSI (previously CRP-PW-36) when trichloroethene was also found at this location (toluene and styrene were not). However, this PIW is located approximately 1,600 feet southwest of the site and is not likely to be influenced by the plume from the landfill. The presence of trichloroethene at this location is not attributed to the site.

One other VOC was detected in PIW samples collected during the January 1993 sampling event. Carbon disulfide was detected in four PIW samples at concentrations ranging from 3 to 150 $\mu\text{g}/\text{l}$. The marsh deposits common to the Kings Bay area are a natural source of sulfur compounds that can be a food source for bacteria. The presence of carbon disulfide in groundwater is considered to be a by-product of the metabolism of sulfur compounds by indigenous bacteria (Verschueren, 1983).

5.0 SUMMARY

The follow-on ICMSI field activities reported in this addendum were conducted to evaluate groundwater VOC contamination beneath the Old Camden County Landfill. Additionally, 11 PIWs were sampled, including two PIWs previously sampled, to evaluate VOCs in irrigation water that are potentially related to groundwater contamination associated with releases from the landfill. The results of these follow-on investigations are summarized in the paragraphs below.

Data from on-site analysis of 10 target VOCs in groundwater samples collected from the landfill using hydropunch equipment indicate that the plume is similar in composition over its entire area. Vinyl chloride and cis-1,2-dichloroethene are the primary halogenated VOCs present, and benzene, toluene, ethylbenzene, and xylenes are characteristic fuel-related VOCs in the plume. The same five VOCs detected above Federal MCLs in the samples collected during the ICMSI were also detected in groundwater samples collected during follow-on sampling activities in the landfill. The five VOCs are vinyl chloride, trichloroethene, cis-1,2-dichloroethene, tetrachloroethene, and benzene. The MCLs for these compounds are 2, 70, 5, 5, and 5 $\mu\text{g}/\text{l}$, respectively.

The on-site laboratory data were compiled into the database developed from data collected during the initial ICMSI, which focused on VOC contamination in groundwater along and downgradient of the western margin of the landfill in the direction of groundwater flow. The plume plan views and cross-sections presented in Figures 4-1 through 4-3 and 4-5 through 4-7 were developed using data from the Phase I Interim Investigation (August 1992), the initial ICMSI (October and November 1992), and the data presented in this addendum. The isoconcentration contours in the plume plan views and cross-sections represent concentrations of total target VOCs. As can be seen in these figures, the concentrations of VOCs beneath the landfill are generally less than those detected from locations along the western margin of the landfill and extending to the western right of Spur 40. This may indicate the source of the VOCs is near the western margin of the landfill or that the source is depleted and the majority of VOCs have migrated away from the source.

One or more of the 11 PIW samples collected in January 1993 contained detectable concentrations of VOCs that are attributed to incidental contamination during laboratory procedures (acetone and 2-butanone), trihalomethanes that commonly result from the chlorination of drinking water supplies (bromoform, bromodichloromethane, and dibromochloromethane), and solvents (trichloroethene, toluene, and styrene). The occurrence of VOCs in the 11 PIW samples was sporadic, and with the exception of acetone detected in sample PW-55, none of these VOCs were detected in samples from locations known to be underlain by the plume. One sample also contained carbon disulfide, which is suspected of being naturally occurring. The analytical data indicates that plume contaminants were not present in the PIW samples.

REFERENCES

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- ABB Environmental Services, Inc. (ABB-ES), 1992. Technical Work Plan Interim Corrective Measure Screening Investigation - Site 11 RCRA Facility Investigation NSB, Kings Bay, Georgia. Contract Task Order No. 041 Navy CLEAN-District 1, Contract No. N62467-89-D-0317. October.
- Naval Energy and Environmental Support Activity (NEESA), 1988. Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, Naval Energy and Environment Support Activity. NEESA 20.2-047B. Port Hueneme, California.
- U.S. Environmental Protection Agency (USEPA), 1991a. Contract Laboratory Program - Statement of Work for Organic Analysis. USEPA Document No. OLM01.0.
- U.S. Environmental Protection Agency (USEPA), 1991b. Management of Investigation Derived Waste During Site Inspection. Office of Research and Development. Washington D.C. May, 1991.
- Verschuieren, Karel, 1983. Handbook of Environmental Data on Organic Chemicals, 2nd Edition, van Nostrand Reinhold.

Appendix A

Private Irrigation Well Survey Forms

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 2 years 7 months
 Do you own the house or rent it? own
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? shallow ground water
 Please describe it as best you can. (Location in yard, depth, type of pump).
Back yard, 24ft. suction

4. Do you know who installed your well? yes
 When? July 1990

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering	<u>APPROX. 2</u>	<u>normally 12-6 pm</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? yes
 For what kind of activities? watering lawn

7. Do you have a sprinkler system? yes How many sprinkler heads? 14
 What type and number of spigots do you have on each system? 1 hose type
 What are their positions in the yard? Backyard by Porch

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

RUSSELL

Richard D. Russell
Signature

309 Woodhewer Dr
Address

882-2213
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 4 YRS
 Do you own the house or rent it? OWN
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? YES
 (Any water source other than a metered, public water supply).

3. What kind of well is it? BACK YARD, 20 FOOT, 1/2 HP
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well? ME
 When? 1990

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering	<u>4-6</u>	<u>1700 - 1900</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? YES
 For what kind of activities? WASH PATIO

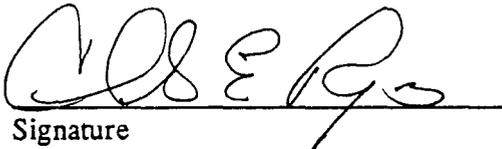
7. Do you have a sprinkler system? YES How many sprinkler heads? 12
 What type and number of spigots do you have on each system? PVC 3 VALVES
 What are their positions in the yard? BACK YARD / ALONG SIDE PUMP.

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.


Signature

213 PLANTATION COURT
Address

882-4015
Phone

Work 673-3810

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 4 1/2 yrs
 Do you own the house or rent it? own
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? shallow well
 Please describe it as best you can. (Location in yard, depth, type of pump).
close to house, one point 20' deep.

4. Do you know who installed your well? self
 When? 2 yrs ago.

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input checked="" type="checkbox"/> Filling Swimming Pool	<u>2 to 3</u>	<u>AM and PM</u>
<input checked="" type="checkbox"/> Garden Watering	<u>2</u>	<u>Evenings</u>
<input checked="" type="checkbox"/> Lawn Watering	<u>same</u>	<u>same</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input checked="" type="checkbox"/> Washing Cars and Yard Items	<u>1</u>	<u>afternoons</u>
<input type="checkbox"/> Other, please specify: _____ _____ _____		

6. Do you use a hose with your private well water? yes

For what kind of activities?

7. Do you have a sprinkler system? no How many sprinkler heads? _____
 What type and number of spigots do you have on each system? _____
 What are their positions in the yard?

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

Samuel C. Rodenhauer
Signature

106 Cherry Point Dr.
Address

882-6658
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 1 mth
 Do you own the house or rent it?
 If rented, who owns the house?
 Their mailing address? M^r

2. Do you have a private well? Yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? 1.5 ft
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well?
 When? N/A

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input checked="" type="checkbox"/> Garden Watering	3	
<input checked="" type="checkbox"/> Lawn Watering	3	<u>evening</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input checked="" type="checkbox"/> Washing Cars and Yard Items	1	
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? Yes
 For what kind of activities? Lawn

7. Do you have a sprinkler system? Yes How many sprinkler heads? 5
 What type and number of spigots do you have on each system? 1
 What are their positions in the yard? each corner of back yard
 none for front

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.


Signature

314 Surrency Lake
Address

892 - 3274
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? ≈ 1.5 years
 Do you own the house or rent it? OWN
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? Sho
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well? former owner
 When?

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering	<u>once/twice maybe</u>	<u>Evening</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? No
 For what kind of activities?

7. Do you have a sprinkler system? yes How many sprinkler heads? 215
 What type and number of spigots do you have on each system? Rainbird
 What are their positions in the yard?

WELL TEST CONSENT FORM

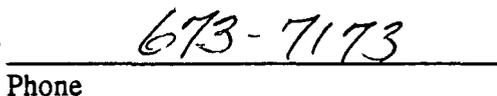
To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.


Signature


Address


Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 4 years
 Do you own the house or rent it? own
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? SHALLOW SPRINKLER, REAR OF YARD, 25' DEEP
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well? Self
 When? 1989

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input checked="" type="checkbox"/> Garden Watering	<u>5</u>	<u>AM + PM</u>
<input checked="" type="checkbox"/> Lawn Watering	<u>2</u>	<u>AM</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: _____ _____ _____		

6. Do you use a hose with your private well water? NO
 For what kind of activities?

7. Do you have a sprinkler system? Yes . How many sprinkler heads? 12
 What type and number of spigots do you have on each system? _____
 What are their positions in the yard?

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

Rodney J. Gibbens
Signature

301 C HERRY PT
Address

882 3149
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 2 yrs.
 Do you own the house or rent it? Own
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? Yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? Shallow, west side of house, 30', 1/2 horse pump
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well? Yes
 When? Oct 1990

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering	<u>3-4</u>	<u>morning & evening</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: _____ _____ _____		

6. Do you use a hose with your private well water? No
 For what kind of activities?

7. Do you have a sprinkler system? Yes How many sprinkler heads? 21
 What type and number of spigots do you have on each system? None
 What are their positions in the yard?

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

Joseph M Drury
Signature

204 Cottage Ct., St Marys, Ga. 31558
Address

882-4741
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subbase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 3 years
 Do you own the house or rent it? own
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? Hand-dug
 Please describe it as best you can. (Location in yard, depth, type of pump).
2.5 ft from house, 7 ft deep, small pump

4. Do you know who installed your well? yes
 When? 1971

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input checked="" type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering		
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? yes
 For what kind of activities? watering yard & garden

7. Do you have a sprinkler system? no How many sprinkler heads? _____
 What type and number of spigots do you have on each system? _____
 What are their positions in the yard?

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

- 1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

[Handwritten signature]
Signature

[Handwritten address]
Address

[Handwritten phone number]
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 2
 Do you own the house or rent it? OWN
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? YES
 (Any water source other than a metered, public water supply).

3. What kind of well is it? SHALLOW WELL
 Please describe it as best you can. (Location in yard, depth, type of pump).

4. Do you know who installed your well?
 When? I INSTALLED, 1989

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input checked="" type="checkbox"/> Garden Watering	<u>4 TO 5</u>	<u>EARLY MORNING</u>
<input checked="" type="checkbox"/> Lawn Watering	<u>4 TO 5</u>	<u>" "</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/> <hr style="border: none; border-top: 1px solid black; margin: 2px 0;"/>		

6. Do you use a hose with your private well water? NO
 For what kind of activities?

7. Do you have a sprinkler system? YES How many sprinkler heads? 27
 What type and number of spigots do you have on each system?
 What are their positions in the yard? COMPLETE BACK YARD COVERAGE, PARTIAL SIDE/FRONT

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

Larry W Wallace
Signature

204 PLANTATION CT.
Address

882-7887
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

PRIVATE WELL SURVEY

Thank you for participating in this brief survey. Your input will help identify potential problems associated with the use of groundwater in the area. Your responses will be held in confidence, only to be used by the project team working on the groundwater investigation. (See other side when complete)

1. How long have you lived in your current home? 4 yrs
 Do you own the house or rent it?
 If rented, who owns the house?
 Their mailing address?

2. Do you have a private well? yes
 (Any water source other than a metered, public water supply).

3. What kind of well is it? Shallow well | 25 feet | 1 HP Pump
 Please describe it as best you can. (Location in yard, depth, type of pump).
on North side of house

4. Do you know who installed your well? Self
 When? 3 yrs

5. Please use the chart below to indicate how you have used your well water, how often and when. Check the box if the activity applies to your home, then complete the line.

Activity	Times per Week	Time of Day
<input type="checkbox"/> Filling Swimming Pool		
<input type="checkbox"/> Garden Watering		
<input checked="" type="checkbox"/> Lawn Watering	<u>2</u>	<u>late afternoon</u>
<input type="checkbox"/> Drinking Water for Adults, Children, Animals		
<input type="checkbox"/> Washing Cars and Yard Items		
<input type="checkbox"/> Other, please specify: _____ _____ _____		

6. Do you use a hose with your private well water? yes
 For what kind of activities? sprinkler to water lawn

7. Do you have a sprinkler system? No How many sprinkler heads? _____
 What type and number of spigots do you have on each system? _____
 What are their positions in the yard?

WELL TEST CONSENT FORM

To gather information on the location and concentration of the plume, we are asking your permission to sample your private well. This sampling process will be conducted at no expense to you and the data will provide a better understanding of groundwater quality in your area. The process is as follows:

1. Upon receipt of this completed Consent Form, you will be contacted to establish a date and time for the sampling. (The sampling needs to take place by early November.)
2. An ABB Environmental Services, Inc. (ABB-ES) staff member will meet you at the agreed date and time to take 3-9 samples from your well. The sampling will require up to 2 hours time.
3. Results from your well test will be made available to you, through the U.S. Navy, after laboratory analysis and validation. This process can take several weeks.

With this understanding, I do allow the U.S. Navy, including its consultant, ABB-ES and their subcontractors, access my property and sample my well.

Nelda Yaguer
Signature

310 Fairchild Drive
Address St Marys Ga 31558

882-4173
Phone

Please return this form at the public meeting or mail it to Public Affairs Office, Subase King's Bay, GA 31547-5015 on or by October 15, 1992. Please keep one copy of this completed form for your records.

Property Owner Advisement

Federal law gives you the right to obtain a portion of any water or soil sample that the Navy may draw from your property. This is what is normally referred to as a "split sample." Should you request a split sample, you will be responsible for providing a container(s) for the split sample(s) and will be responsible for all costs associated with analyzing your portion of the sample(s). The Navy will be responsible for its portion of the sample(s) and will bear all costs associated with analyzing its portion. Federal law also gives you the right to obtain a copy of the results of the Navy's analysis of any samples it draws from your property. Unless you indicate to us that you do not desire to receive a copy of the results, a copy will be provided to you without charge.

Statutory Authority Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code Sec. 9604(4)(B).

Appendix B

Validated Analytical Data Tables

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 unusable 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.

**Hydropunch Groundwater Samples
March 1993**

PROJECT: NSB KINGSBAY, GEORGIA

VOLATILE AQUEOUS ANALYSES (ug/l)

VALIDATION SUMMARY TABLE

SAMPLE NUMBER:	11G15030	11G15230	11G15230D	11G15885	11G15940	11G16035
LAB NUMBER:	35388001	35388006	35388007	35433003	35442002	35442003
DATE SAMPLED:	03/17/93	03/17/93	03/17/93	03/22/93	03/23/93	03/23/93
DATE ANALYZED:	03/24/93	03/23/93	03/24/93	03/29/93	03/30/93	03/30/93
DILUTION FACTOR:	1	1	1	1	1	1

Compound	CRQL						
Chloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	1	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	2	2 U	37	41	2 U	2 U	3
Acetone	5	5 U	280	310	800	5 U	24 U
Carbon disulfide	1	3	200	250	1 U	1 U	3
1,1-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1	1 U	12	14	1 U	1 U	17
cis-1,2-Dichloroethene	1	1 U	2	2	1 U	6	22
trans-1,2-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1	1 U	1 U	1 U	3	1 U	1 U
1,2-Dichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	5	5 U	440	480	5 U	5 U	5 U
1,1,1-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1	1 U	3	3	1 U	1 U	3
Dibromochloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Benzen e	1	1 U	1	1	1 U	1 U	5
trans-1,3-Dichloropropene	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1	1 U	1 U	.1 U	1 U	1 U	1 U
2-Hexanone	5	5 U	19	17	5 U	5 U	5 U
4-Methyl-2-Pentanone	5	5 U	100	110	5 U	5 U	5 U
Tetrachloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1	1 U	720	840	2	1 U	11
Chlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1	1 U	16	18	1 U	15	6
Styrene	1	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1	1 U	62	67	1 U	12	14
1,3-Dichlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1	1 U	1 U	1 U	1 U	3	1 U
1,2-Dichlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U

**Private Irrigation Well Samples
January 1993**

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858001	CRPPW52	01/12/93	Chloromethane	1 U
34858001	CRPPW52	01/12/93	Bromomethane	1 U
34858001	CRPPW52	01/12/93	Vinyl chloride	1 U
34858001	CRPPW52	01/12/93	Chloroethane	1 U
34858001	CRPPW52	01/12/93	Methylene chloride	2 U
34858001	CRPPW52	01/12/93	Acetone	3 J
34858001	CRPPW52	01/12/93	Carbon disulfide	130
34858001	CRPPW52	01/12/93	1,1-Dichloroethene	1 U
34858001	CRPPW52	01/12/93	1,1-Dichloroethane	1 U
34858001	CRPPW52	01/12/93	cis-1,2-Dichloroethene	1 U
34858001	CRPPW52	01/12/93	trans-1,2-Dichloroethene	1 U
34858001	CRPPW52	01/12/93	Chloroform	1 U
34858001	CRPPW52	01/12/93	1,2-Dichloroethane	1 U
34858001	CRPPW52	01/12/93	2-Butanone	5 U
34858001	CRPPW52	01/12/93	1,1,1-Trichloroethane	1 U
34858001	CRPPW52	01/12/93	Carbon tetrachloride	1 U
34858001	CRPPW52	01/12/93	Bromodichloromethane	1 U
34858001	CRPPW52	01/12/93	1,2-Dichloropropane	1 U
34858001	CRPPW52	01/12/93	cis-1,3-Dichloropropane	1 U
34858001	CRPPW52	01/12/93	Trichloroethene	1 U
34858001	CRPPW52	01/12/93	Dibromochloromethane	1 U
34858001	CRPPW52	01/12/93	1,1,2-Trichloroethane	1 U
34858001	CRPPW52	01/12/93	Benzene	1 U
34858001	CRPPW52	01/12/93	trans-1,3-Dichloropropene	1 U
34858001	CRPPW52	01/12/93	Bromoform	1 U
34858001	CRPPW52	01/12/93	2-Hexanone	5 U
34858001	CRPPW52	01/12/93	4-Methyl-2-pentanone	5 U
34858001	CRPPW52	01/12/93	Tetrachloroethene	1 U
34858001	CRPPW52	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858001	CRPPW52	01/12/93	Toluene	1 U
34858001	CRPPW52	01/12/93	Chlorobenzene	1 U
34858001	CRPPW52	01/12/93	Ethylbenzene	1 U
34858001	CRPPW52	01/12/93	Styrene	1 U
34858001	CRPPW52	01/12/93	Xylenes (total)	1 U
34858001	CRPPW52	01/12/93	1,3-Dichlorobenzene	1 U
34858001	CRPPW52	01/12/93	1,4-Dichlorobenzene	1 U
34858001	CRPPW52	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858002	CRPPW53	01/12/93	Chloromethane	1 U
34858002	CRPPW53	01/12/93	Bromomethane	1 U
34858002	CRPPW53	01/12/93	Vinyl chloride	1 U
34858002	CRPPW53	01/12/93	Chloroethane	1 U
34858002	CRPPW53	01/12/93	Methylene chloride	2 U
34858002	CRPPW53	01/12/93	Acetone	4 J
34858002	CRPPW53	01/12/93	Carbon disulfide	1 U
34858002	CRPPW53	01/12/93	1,1-Dichloroethene	1 U
34858002	CRPPW53	01/12/93	1,1-Dichloroethane	1 U
34858002	CRPPW53	01/12/93	cis-1,2-Dichloroethene	1 U
34858002	CRPPW53	01/12/93	trans-1,2-Dichloroethene	1 U
34858002	CRPPW53	01/12/93	Chloroform	1 U
34858002	CRPPW53	01/12/93	1,2-Dichloroethane	1 U
34858002	CRPPW53	01/12/93	2-Butanone	5 U
34858002	CRPPW53	01/12/93	1,1,1-Trichloroethane	1 U
34858002	CRPPW53	01/12/93	Carbon tetrachloride	1 U
34858002	CRPPW53	01/12/93	Bromodichloromethane	1 U
34858002	CRPPW53	01/12/93	1,2-Dichloropropane	1 U
34858002	CRPPW53	01/12/93	cis-1,3-Dichloropropane	1 U
34858002	CRPPW53	01/12/93	Trichloroethene	1 U
34858002	CRPPW53	01/12/93	Dibromochloromethane	1 U
34858002	CRPPW53	01/12/93	1,1,2-Trichloroethane	1 U
34858002	CRPPW53	01/12/93	Benzene	1 U
34858002	CRPPW53	01/12/93	trans-1,3-Dichloropropene	1 U
34858002	CRPPW53	01/12/93	Bromoform	1 U
34858002	CRPPW53	01/12/93	2-Hexanone	5 U
34858002	CRPPW53	01/12/93	4-Methyl-2-pentanone	5 U
34858002	CRPPW53	01/12/93	Tetrachloroethene	1 U
34858002	CRPPW53	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858002	CRPPW53	01/12/93	Toluene	1 U
34858002	CRPPW53	01/12/93	Chlorobenzene	1 U
34858002	CRPPW53	01/12/93	Ethylbenzene	1 U
34858002	CRPPW53	01/12/93	Styrene	1 U
34858002	CRPPW53	01/12/93	Xylenes (total)	1 U
34858002	CRPPW53	01/12/93	1,3-Dichlorobenzene	1 U
34858002	CRPPW53	01/12/93	1,4-Dichlorobenzene	1 U
34858002	CRPPW53	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/14/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858003	CRPPW54	01/12/93	Chloromethane	1 U
34858003	CRPPW54	01/12/93	Bromomethane	1 U
34858003	CRPPW54	01/12/93	Vinyl chloride	1 U
34858003	CRPPW54	01/12/93	Chloroethane	1 U
34858003	CRPPW54	01/12/93	Methylene chloride	2 U
34858003	CRPPW54	01/12/93	Acetone	5 U
34858003	CRPPW54	01/12/93	Carbon disulfide	1 U
34858003	CRPPW54	01/12/93	1,1-Dichloroethene	1 U
34858003	CRPPW54	01/12/93	1,1-Dichloroethane	1 U
34858003	CRPPW54	01/12/93	cis-1,2-Dichloroethene	1 U
34858003	CRPPW54	01/12/93	trans-1,2-Dichloroethene	1 U
34858003	CRPPW54	01/12/93	Chloroform	1 U
34858003	CRPPW54	01/12/93	1,2-Dichloroethane	1 U
34858003	CRPPW54	01/12/93	2-Butanone	5 U
34858003	CRPPW54	01/12/93	1,1,1-Trichloroethane	1 U
34858003	CRPPW54	01/12/93	Carbon tetrachloride	1 U
34858003	CRPPW54	01/12/93	Bromodichloromethane	1 U
34858003	CRPPW54	01/12/93	1,2-Dichloropropane	1 U
34858003	CRPPW54	01/12/93	cis-1,3-Dichloropropane	1 U
34858003	CRPPW54	01/12/93	Trichloroethene	1 U
34858003	CRPPW54	01/12/93	Dibromochloromethane	1 U
34858003	CRPPW54	01/12/93	1,1,2-Trichloroethane	1 U
34858003	CRPPW54	01/12/93	Benzene	1 U
34858003	CRPPW54	01/12/93	trans-1,3-Dichloropropene	1 U
34858003	CRPPW54	01/12/93	Bromoform	1 U
34858003	CRPPW54	01/12/93	2-Hexanone	5 U
34858003	CRPPW54	01/12/93	4-Methyl-2-pentanone	5 U
34858003	CRPPW54	01/12/93	Tetrachloroethene	1 U
34858003	CRPPW54	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858003	CRPPW54	01/12/93	Toluene	1 U
34858003	CRPPW54	01/12/93	Chlorobenzene	1 U
34858003	CRPPW54	01/12/93	Ethylbenzene	1 U
34858003	CRPPW54	01/12/93	Styrene	1 U
34858003	CRPPW54	01/12/93	Xylenes (total)	1 U
34858003	CRPPW54	01/12/93	1,3-Dichlorobenzene	1 U
34858003	CRPPW54	01/12/93	1,4-Dichlorobenzene	1 U
34858003	CRPPW54	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858004	CRPPW55	01/12/93	Chloromethane	1 U
34858004	CRPPW55	01/12/93	Bromomethane	1 U
34858004	CRPPW55	01/12/93	Vinyl chloride	1 U
34858004	CRPPW55	01/12/93	Chloroethane	1 U
34858004	CRPPW55	01/12/93	Methylene chloride	2 U
34858004	CRPPW55	01/12/93	Acetone	19
34858004	CRPPW55	01/12/93	Carbon disulfide	1 U
34858004	CRPPW55	01/12/93	1,1-Dichloroethene	1 U
34858004	CRPPW55	01/12/93	1,1-Dichloroethane	1 U
34858004	CRPPW55	01/12/93	cis-1,2-Dichloroethene	1 U
34858004	CRPPW55	01/12/93	trans-1,2-Dichloroethene	1 U
34858004	CRPPW55	01/12/93	Chloroform	1 U
34858004	CRPPW55	01/12/93	1,2-Dichloroethane	1 U
34858004	CRPPW55	01/12/93	2-Butanone	5 U
34858004	CRPPW55	01/12/93	1,1,1-Trichloroethane	1 U
34858004	CRPPW55	01/12/93	Carbon tetrachloride	1 U
34858004	CRPPW55	01/12/93	Bromodichloromethane	1 U
34858004	CRPPW55	01/12/93	1,2-Dichloropropane	1 U
34858004	CRPPW55	01/12/93	cis-1,3-Dichloropropane	1 U
34858004	CRPPW55	01/12/93	Trichloroethene	1 U
34858004	CRPPW55	01/12/93	Dibromochloromethane	1 U
34858004	CRPPW55	01/12/93	1,1,2-Trichloroethane	1 U
34858004	CRPPW55	01/12/93	Benzene	1 U
34858004	CRPPW55	01/12/93	trans-1,3-Dichloropropene	1 U
34858004	CRPPW55	01/12/93	Bromoform	1 U
34858004	CRPPW55	01/12/93	2-Hexanone	5 U
34858004	CRPPW55	01/12/93	4-Methyl-2-pentanone	5 U
34858004	CRPPW55	01/12/93	Tetrachloroethene	1 U
34858004	CRPPW55	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858004	CRPPW55	01/12/93	Toluene	1 U
34858004	CRPPW55	01/12/93	Chlorobenzene	1 U
34858004	CRPPW55	01/12/93	Ethylbenzene	1 U
34858004	CRPPW55	01/12/93	Styrene	1 U
34858004	CRPPW55	01/12/93	Xylenes (total)	1 U
34858004	CRPPW55	01/12/93	1,3-Dichlorobenzene	1 U
34858004	CRPPW55	01/12/93	1,4-Dichlorobenzene	1 U
34858004	CRPPW55	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858005	CRPPW56	01/12/93	Chloromethane	1 U
34858005	CRPPW56	01/12/93	Bromomethane	1 U
34858005	CRPPW56	01/12/93	Vinyl chloride	1 U
34858005	CRPPW56	01/12/93	Chloroethane	1 U
34858005	CRPPW56	01/12/93	Methylene chloride	2 U
34858005	CRPPW56	01/12/93	Acetone	9
34858005	CRPPW56	01/12/93	Carbon disulfide	4
34858005	CRPPW56	01/12/93	1,1-Dichloroethene	1 U
34858005	CRPPW56	01/12/93	1,1-Dichloroethane	1 U
34858005	CRPPW56	01/12/93	cis-1,2-Dichloroethene	1 U
34858005	CRPPW56	01/12/93	trans-1,2-Dichloroethene	1 U
34858005	CRPPW56	01/12/93	Chloroform	1 U
34858005	CRPPW56	01/12/93	1,2-Dichloroethane	1 U
34858005	CRPPW56	01/12/93	2-Butanone	5 U
34858005	CRPPW56	01/12/93	1,1,1-Trichloroethane	1 U
34858005	CRPPW56	01/12/93	Carbon tetrachloride	1 U
34858005	CRPPW56	01/12/93	Bromodichloromethane	1 U
34858005	CRPPW56	01/12/93	1,2-Dichloropropane	1 U
34858005	CRPPW56	01/12/93	cis-1,3-Dichloropropane	1 U
34858005	CRPPW56	01/12/93	Trichloroethene	1 U
34858005	CRPPW56	01/12/93	Dibromochloromethane	1 U
34858005	CRPPW56	01/12/93	1,1,2-Trichloroethane	1 U
34858005	CRPPW56	01/12/93	Benzene	1 U
34858005	CRPPW56	01/12/93	trans-1,3-Dichloropropene	1 U
34858005	CRPPW56	01/12/93	Bromoform	1 U
34858005	CRPPW56	01/12/93	2-Hexanone	5 U
34858005	CRPPW56	01/12/93	4-Methyl-2-pentanone	5 U
34858005	CRPPW56	01/12/93	Tetrachloroethene	1 U
34858005	CRPPW56	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858005	CRPPW56	01/12/93	Toluene	1 U
34858005	CRPPW56	01/12/93	Chlorobenzene	1 U
34858005	CRPPW56	01/12/93	Ethylbenzene	1 U
34858005	CRPPW56	01/12/93	Styrene	1 U
34858005	CRPPW56	01/12/93	Xylenes (total)	1 U
34858005	CRPPW56	01/12/93	1,3-Dichlorobenzene	1 U
34858005	CRPPW56	01/12/93	1,4-Dichlorobenzene	1 U
34858005	CRPPW56	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858006	CRPPW57	01/12/93	Chloromethane	1 U
34858006	CRPPW57	01/12/93	Bromomethane	1 U
34858006	CRPPW57	01/12/93	Vinyl chloride	1 U
34858006	CRPPW57	01/12/93	Chloroethane	1 U
34858006	CRPPW57	01/12/93	Methylene chloride	2 U
34858006	CRPPW57	01/12/93	Acetone	4 J
34858006	CRPPW57	01/12/93	Carbon disulfide	1 U
34858006	CRPPW57	01/12/93	1,1-Dichloroethene	1 U
34858006	CRPPW57	01/12/93	1,1-Dichloroethane	1 U
34858006	CRPPW57	01/12/93	cis-1,2-Dichloroethene	1 U
34858006	CRPPW57	01/12/93	trans-1,2-Dichloroethene	1 U
34858006	CRPPW57	01/12/93	Chloroform	1 U
34858006	CRPPW57	01/12/93	1,2-Dichloroethane	1 U
34858006	CRPPW57	01/12/93	2-Butanone	5 U
34858006	CRPPW57	01/12/93	1,1,1-Trichloroethane	1 U
34858006	CRPPW57	01/12/93	Carbon tetrachloride	1 U
34858006	CRPPW57	01/12/93	Bromodichloromethane	1 U
34858006	CRPPW57	01/12/93	1,2-Dichloropropane	1 U
34858006	CRPPW57	01/12/93	cis-1,3-Dichloropropane	1 U
34858006	CRPPW57	01/12/93	Trichloroethene	60
34858006	CRPPW57	01/12/93	Dibromochloromethane	1 U
34858006	CRPPW57	01/12/93	1,1,2-Trichloroethane	1 U
34858006	CRPPW57	01/12/93	Benzene	1 U
34858006	CRPPW57	01/12/93	trans-1,3-Dichloropropene	1 U
34858006	CRPPW57	01/12/93	Bromoform	1 U
34858006	CRPPW57	01/12/93	2-Hexanone	5 U
34858006	CRPPW57	01/12/93	4-Methyl-2-pentanone	5 U
34858006	CRPPW57	01/12/93	Tetrachloroethene	1 U
34858006	CRPPW57	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858006	CRPPW57	01/12/93	Toluene	1
34858006	CRPPW57	01/12/93	Chlorobenzene	1 U
34858006	CRPPW57	01/12/93	Ethylbenzene	1 U
34858006	CRPPW57	01/12/93	Styrene	8
34858006	CRPPW57	01/12/93	Xylenes (total)	1 U
34858006	CRPPW57	01/12/93	1,3-Dichlorobenzene	1 U
34858006	CRPPW57	01/12/93	1,4-Dichlorobenzene	1 U
34858006	CRPPW57	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858007	CRPPW58	01/12/93	Chloromethane	1 U
34858007	CRPPW58	01/12/93	Bromomethane	1 U
34858007	CRPPW58	01/12/93	Vinyl chloride	1 U
34858007	CRPPW58	01/12/93	Chloroethane	1 U
34858007	CRPPW58	01/12/93	Methylene chloride	2 U
34858007	CRPPW58	01/12/93	Acetone	4 J
34858007	CRPPW58	01/12/93	Carbon disulfide	1 U
34858007	CRPPW58	01/12/93	1,1-Dichloroethene	1 U
34858007	CRPPW58	01/12/93	1,1-Dichloroethane	1 U
34858007	CRPPW58	01/12/93	cis-1,2-Dichloroethene	1 U
34858007	CRPPW58	01/12/93	trans-1,2-Dichloroethene	1 U
34858007	CRPPW58	01/12/93	Chloroform	1 U
34858007	CRPPW58	01/12/93	1,2-Dichloroethane	1 U
34858007	CRPPW58	01/12/93	2-Butanone	5 U
34858007	CRPPW58	01/12/93	1,1,1-Trichloroethane	1 U
34858007	CRPPW58	01/12/93	Carbon tetrachloride	1 U
34858007	CRPPW58	01/12/93	Bromodichloromethane	1 U
34858007	CRPPW58	01/12/93	1,2-Dichloropropane	1 U
34858007	CRPPW58	01/12/93	cis-1,3-Dichloropropane	1 U
34858007	CRPPW58	01/12/93	Trichloroethene	1 U
34858007	CRPPW58	01/12/93	Dibromochloromethane	1 U
34858007	CRPPW58	01/12/93	1,1,2-Trichloroethane	1 U
34858007	CRPPW58	01/12/93	Benzene	1 U
34858007	CRPPW58	01/12/93	trans-1,3-Dichloropropene	1 U
34858007	CRPPW58	01/12/93	Bromoform	1 U
34858007	CRPPW58	01/12/93	2-Hexanone	5 U
34858007	CRPPW58	01/12/93	4-Methyl-2-pentanone	5 U
34858007	CRPPW58	01/12/93	Tetrachloroethene	1 U
34858007	CRPPW58	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858007	CRPPW58	01/12/93	Toluene	1 U
34858007	CRPPW58	01/12/93	Chlorobenzene	1 U
34858007	CRPPW58	01/12/93	Ethylbenzene	1 U
34858007	CRPPW58	01/12/93	Styrene	1 U
34858007	CRPPW58	01/12/93	Xylenes (total)	1 U
34858007	CRPPW58	01/12/93	1,3-Dichlorobenzene	1 U
34858007	CRPPW58	01/12/93	1,4-Dichlorobenzene	1 U
34858007	CRPPW58	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858008	CRPPW59	01/12/93	Chloromethane	1 U
34858008	CRPPW59	01/12/93	Bromomethane	1 U
34858008	CRPPW59	01/12/93	Vinyl chloride	1 U
34858008	CRPPW59	01/12/93	Chloroethane	1 U
34858008	CRPPW59	01/12/93	Methylene chloride	2 U
34858008	CRPPW59	01/12/93	Acetone	5 U
34858008	CRPPW59	01/12/93	Carbon disulfide	1 U
34858008	CRPPW59	01/12/93	1,1-Dichloroethene	1 U
34858008	CRPPW59	01/12/93	1,1-Dichloroethane	1 U
34858008	CRPPW59	01/12/93	cis-1,2-Dichloroethene	1 U
34858008	CRPPW59	01/12/93	trans-1,2-Dichloroethene	1 U
34858008	CRPPW59	01/12/93	Chloroform	11 U
34858008	CRPPW59	01/12/93	1,2-Dichloroethane	1 U
34858008	CRPPW59	01/12/93	2-Butanone	5 U
34858008	CRPPW59	01/12/93	1,1,1-Trichloroethane	1 U
34858008	CRPPW59	01/12/93	Carbon tetrachloride	1 U
34858008	CRPPW59	01/12/93	Bromodichloromethane	16
34858008	CRPPW59	01/12/93	1,2-Dichloropropane	1 U
34858008	CRPPW59	01/12/93	cis-1,3-Dichloropropane	1 U
34858008	CRPPW59	01/12/93	Trichloroethene	1 U
34858008	CRPPW59	01/12/93	Dibromochloromethane	14
34858008	CRPPW59	01/12/93	1,1,2-Trichloroethane	1 U
34858008	CRPPW59	01/12/93	Benzene	1 U
34858008	CRPPW59	01/12/93	trans-1,3-Dichloropropene	1 U
34858008	CRPPW59	01/12/93	Bromoform	3
34858008	CRPPW59	01/12/93	2-Hexanone	5 U
34858008	CRPPW59	01/12/93	4-Methyl-2-pentanone	5 U
34858008	CRPPW59	01/12/93	Tetrachloroethene	1 U
34858008	CRPPW59	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858008	CRPPW59	01/12/93	Toluene	1 U
34858008	CRPPW59	01/12/93	Chlorobenzene	1 U
34858008	CRPPW59	01/12/93	Ethylbenzene	1 U
34858008	CRPPW59	01/12/93	Styrene	1 U
34858008	CRPPW59	01/12/93	Xylenes (total)	1 U
34858008	CRPPW59	01/12/93	1,3-Dichlorobenzene	1 U
34858008	CRPPW59	01/12/93	1,4-Dichlorobenzene	1 U
34858008	CRPPW59	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858009	CRPPW59D	01/12/93	Chloromethane	1 U
34858009	CRPPW59D	01/12/93	Bromomethane	1 U
34858009	CRPPW59D	01/12/93	Vinyl chloride	1 U
34858009	CRPPW59D	01/12/93	Chloroethane	1 U
34858009	CRPPW59D	01/12/93	Methylene chloride	2 U
34858009	CRPPW59D	01/12/93	Acetone	5 U
34858009	CRPPW59D	01/12/93	Carbon disulfide	1 U
34858009	CRPPW59D	01/12/93	1,1-Dichloroethene	1 U
34858009	CRPPW59D	01/12/93	1,1-Dichloroethane	1 U
34858009	CRPPW59D	01/12/93	cis-1,2-Dichloroethene	1 U
34858009	CRPPW59D	01/12/93	trans-1,2-Dichloroethene	1 U
34858009	CRPPW59D	01/12/93	Chloroform	12 U
34858009	CRPPW59D	01/12/93	1,2-Dichloroethane	1 U
34858009	CRPPW59D	01/12/93	2-Butanone	5 U
34858009	CRPPW59D	01/12/93	1,1,1-Trichloroethane	1 U
34858009	CRPPW59D	01/12/93	Carbon tetrachloride	1 U
34858009	CRPPW59D	01/12/93	Bromodichloromethane	16
34858009	CRPPW59D	01/12/93	1,2-Dichloropropane	1 U
34858009	CRPPW59D	01/12/93	cis-1,3-Dichloropropane	1 U
34858009	CRPPW59D	01/12/93	Trichloroethene	1 U
34858009	CRPPW59D	01/12/93	Dibromochloromethane	14
34858009	CRPPW59D	01/12/93	1,1,2-Trichloroethane	1 U
34858009	CRPPW59D	01/12/93	Benzene	1 U
34858009	CRPPW59D	01/12/93	trans-1,3-Dichloropropene	1 U
34858009	CRPPW59D	01/12/93	Bromoform	2
34858009	CRPPW59D	01/12/93	2-Hexanone	5 U
34858009	CRPPW59D	01/12/93	4-Methyl-2-pentanone	5 U
34858009	CRPPW59D	01/12/93	Tetrachloroethene	1 U
34858009	CRPPW59D	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858009	CRPPW59D	01/12/93	Toluene	1 U
34858009	CRPPW59D	01/12/93	Chlorobenzene	1 U
34858009	CRPPW59D	01/12/93	Ethylbenzene	1 U
34858009	CRPPW59D	01/12/93	Styrene	1 U
34858009	CRPPW59D	01/12/93	Xylenes (total)	1 U
34858009	CRPPW59D	01/12/93	1,3-Dichlorobenzene	1 U
34858009	CRPPW59D	01/12/93	1,4-Dichlorobenzene	1 U
34858009	CRPPW59D	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/15/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34874001	CRPPW60	01/13/93	Chloromethane	1 U
34874001	CRPPW60	01/13/93	Bromomethane	1 U
34874001	CRPPW60	01/13/93	Vinyl chloride	1 U
34874001	CRPPW60	01/13/93	Chloroethane	1 U
34874001	CRPPW60	01/13/93	Methylene chloride	2 U
34874001	CRPPW60	01/13/93	Acetone	21 U
34874001	CRPPW60	01/13/93	Carbon disulfide	150
34874001	CRPPW60	01/13/93	1,1-Dichloroethene	1 U
34874001	CRPPW60	01/13/93	1,1-Dichloroethane	1 U
34874001	CRPPW60	01/13/93	cis-1,2-Dichloroethene	1 U
34874001	CRPPW60	01/13/93	trans-1,2-Dichloroethene	1 U
34874001	CRPPW60	01/13/93	Chloroform	1 U
34874001	CRPPW60	01/13/93	1,2-Dichloroethane	1 U
34874001	CRPPW60	01/13/93	2-Butanone	5 U
34874001	CRPPW60	01/13/93	1,1,1-Trichloroethane	1 U
34874001	CRPPW60	01/13/93	Carbon tetrachloride	1 U
34874001	CRPPW60	01/13/93	Bromodichloromethane	1 U
34874001	CRPPW60	01/13/93	1,2-Dichloropropane	1 U
34874001	CRPPW60	01/13/93	cis-1,3-Dichloropropane	1 U
34874001	CRPPW60	01/13/93	Trichloroethene	1 U
34874001	CRPPW60	01/13/93	Dibromochloromethane	1 U
34874001	CRPPW60	01/13/93	1,1,2-Trichloroethane	1 U
34874001	CRPPW60	01/13/93	Benzene	1 U
34874001	CRPPW60	01/13/93	trans-1,3-Dichloropropene	1 U
34874001	CRPPW60	01/13/93	Bromoform	1 U
34874001	CRPPW60	01/13/93	2-Hexanone	5 U
34874001	CRPPW60	01/13/93	4-Methyl-2-pentanone	5 U
34874001	CRPPW60	01/13/93	Tetrachloroethene	1 U
34874001	CRPPW60	01/13/93	1,1,2,2-Tetrachloroethane	1 U
34874001	CRPPW60	01/13/93	Toluene	1 U
34874001	CRPPW60	01/13/93	Chlorobenzene	1 U
34874001	CRPPW60	01/13/93	Ethylbenzene	1 U
34874001	CRPPW60	01/13/93	Styrene	1 U
34874001	CRPPW60	01/13/93	Xylenes (total)	1 U
34874001	CRPPW60	01/13/93	1,3-Dichlorobenzene	1 U
34874001	CRPPW60	01/13/93	1,4-Dichlorobenzene	1 U
34874001	CRPPW60	01/13/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/25/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34874002	CRPPW55D	01/13/93	Chloromethane	1 U
34874002	CRPPW55D	01/13/93	Bromomethane	1 U
34874002	CRPPW55D	01/13/93	Vinyl chloride	1 U
34874002	CRPPW55D	01/13/93	Chloroethane	1 U
34874002	CRPPW55D	01/13/93	Methylene chloride	2 U
34874002	CRPPW55D	01/13/93	Acetone	32 U
34874002	CRPPW55D	01/13/93	Carbon disulfide	1 U
34874002	CRPPW55D	01/13/93	1,1-Dichloroethene	1 U
34874002	CRPPW55D	01/13/93	1,1-Dichloroethane	1 U
34874002	CRPPW55D	01/13/93	cis-1,2-Dichloroethene	1 U
34874002	CRPPW55D	01/13/93	trans-1,2-Dichloroethene	1 U
34874002	CRPPW55D	01/13/93	Chloroform	1 U
34874002	CRPPW55D	01/13/93	1,2-Dichloroethane	1 U
34874002	CRPPW55D	01/13/93	2-Butanone	5 U
34874002	CRPPW55D	01/13/93	1,1,1-Trichloroethane	1 U
34874002	CRPPW55D	01/13/93	Carbon tetrachloride	1 U
34874002	CRPPW55D	01/13/93	Bromodichloromethane	1 U
34874002	CRPPW55D	01/13/93	1,2-Dichloropropane	1 U
34874002	CRPPW55D	01/13/93	cis-1,3-Dichloropropane	1 U
34874002	CRPPW55D	01/13/93	Trichloroethene	1 U
34874002	CRPPW55D	01/13/93	Dibromochloromethane	1 U
34874002	CRPPW55D	01/13/93	1,1,2-Trichloroethane	1 U
34874002	CRPPW55D	01/13/93	Benzene	1 U
34874002	CRPPW55D	01/13/93	trans-1,3-Dichloropropene	1 U
34874002	CRPPW55D	01/13/93	Bromoform	1 U
34874002	CRPPW55D	01/13/93	2-Hexanone	5 U
34874002	CRPPW55D	01/13/93	4-Methyl-2-pentanone	5 U
34874002	CRPPW55D	01/13/93	Tetrachloroethene	1 U
34874002	CRPPW55D	01/13/93	1,1,2,2-Tetrachloroethane	1 U
34874002	CRPPW55D	01/13/93	Toluene	1 U
34874002	CRPPW55D	01/13/93	Chlorobenzene	1 U
34874002	CRPPW55D	01/13/93	Ethylbenzene	1 U
34874002	CRPPW55D	01/13/93	Styrene	1 U
34874002	CRPPW55D	01/13/93	Xylenes (total)	1 U
34874002	CRPPW55D	01/13/93	1,3-Dichlorobenzene	1 U
34874002	CRPPW55D	01/13/93	1,4-Dichlorobenzene	1 U
34874002	CRPPW55D	01/13/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/25/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34874003	CRPPW61	01/13/93	Chloromethane	1 U
34874003	CRPPW61	01/13/93	Bromomethane	1 U
34874003	CRPPW61	01/13/93	Vinyl chloride	1 U
34874003	CRPPW61	01/13/93	Chloroethane	1 U
34874003	CRPPW61	01/13/93	Methylene chloride	2 U
34874003	CRPPW61	01/13/93	Acetone	14 U
34874003	CRPPW61	01/13/93	Carbon disulfide	1 U
34874003	CRPPW61	01/13/93	1,1-Dichloroethene	1 U
34874003	CRPPW61	01/13/93	1,1-Dichloroethane	1 U
34874003	CRPPW61	01/13/93	cis-1,2-Dichloroethene	1 U
34874003	CRPPW61	01/13/93	trans-1,2-Dichloroethene	1 U
34874003	CRPPW61	01/13/93	Chloroform	1 U
34874003	CRPPW61	01/13/93	1,2-Dichloroethane	1 U
34874003	CRPPW61	01/13/93	2-Butanone	5 U
34874003	CRPPW61	01/13/93	1,1,1-Trichloroethane	1 U
34874003	CRPPW61	01/13/93	Carbon tetrachloride	1 U
34874003	CRPPW61	01/13/93	Bromodichloromethane	1 U
34874003	CRPPW61	01/13/93	1,2-Dichloropropane	1 U
34874003	CRPPW61	01/13/93	cis-1,3-Dichloropropane	1 U
34874003	CRPPW61	01/13/93	Trichloroethene	1 U
34874003	CRPPW61	01/13/93	Dibromochloromethane	1 U
34874003	CRPPW61	01/13/93	1,1,2-Trichloroethane	1 U
34874003	CRPPW61	01/13/93	Benzene	1 U
34874003	CRPPW61	01/13/93	trans-1,3-Dichloropropene	1 U
34874003	CRPPW61	01/13/93	Bromoform	1 U
34874003	CRPPW61	01/13/93	2-Hexanone	5 U
34874003	CRPPW61	01/13/93	4-Methyl-2-pentanone	5 U
34874003	CRPPW61	01/13/93	Tetrachloroethene	1 U
34874003	CRPPW61	01/13/93	1,1,2,2-Tetrachloroethane	1 U
34874003	CRPPW61	01/13/93	Toluene	1 U
34874003	CRPPW61	01/13/93	Chlorobenzene	1 U
34874003	CRPPW61	01/13/93	Ethylbenzene	1 U
34874003	CRPPW61	01/13/93	Styrene	1 U
34874003	CRPPW61	01/13/93	Xylenes (total)	1 U
34874003	CRPPW61	01/13/93	1,3-Dichlorobenzene	1 U
34874003	CRPPW61	01/13/93	1,4-Dichlorobenzene	1 U
34874003	CRPPW61	01/13/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/25/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34874004	CRPPW61D	01/13/93	Chloromethane	1 U
34874004	CRPPW61D	01/13/93	Bromomethane	1 U
34874004	CRPPW61D	01/13/93	Vinyl chloride	1 U
34874004	CRPPW61D	01/13/93	Chloroethane	1 U
34874004	CRPPW61D	01/13/93	Methylene chloride	2 U
34874004	CRPPW61D	01/13/93	Acetone	16 U
34874004	CRPPW61D	01/13/93	Carbon disulfide	1 U
34874004	CRPPW61D	01/13/93	1,1-Dichloroethene	1 U
34874004	CRPPW61D	01/13/93	1,1-Dichloroethane	1 U
34874004	CRPPW61D	01/13/93	cis-1,2-Dichloroethene	1 U
34874004	CRPPW61D	01/13/93	trans-1,2-Dichloroethene	1 U
34874004	CRPPW61D	01/13/93	Chloroform	1 U
34874004	CRPPW61D	01/13/93	1,2-Dichloroethane	1 U
34874004	CRPPW61D	01/13/93	2-Butanone	5
34874004	CRPPW61D	01/13/93	1,1,1-Trichloroethane	1 U
34874004	CRPPW61D	01/13/93	Carbon tetrachloride	1 U
34874004	CRPPW61D	01/13/93	Bromodichloromethane	1 U
34874004	CRPPW61D	01/13/93	1,2-Dichloropropane	1 U
34874004	CRPPW61D	01/13/93	cis-1,3-Dichloropropane	1 U
34874004	CRPPW61D	01/13/93	Trichloroethene	1 U
34874004	CRPPW61D	01/13/93	Dibromochloromethane	1 U
34874004	CRPPW61D	01/13/93	1,1,2-Trichloroethane	1 U
34874004	CRPPW61D	01/13/93	Benzene	1 U
34874004	CRPPW61D	01/13/93	trans-1,3-Dichloropropene	1 U
34874004	CRPPW61D	01/13/93	Bromoform	1 U
34874004	CRPPW61D	01/13/93	2-Hexanone	5 U
34874004	CRPPW61D	01/13/93	4-Methyl-2-pentanone	5 U
34874004	CRPPW61D	01/13/93	Tetrachloroethene	1 U
34874004	CRPPW61D	01/13/93	1,1,2,2-Tetrachloroethane	1 U
34874004	CRPPW61D	01/13/93	Toluene	1 U
34874004	CRPPW61D	01/13/93	Chlorobenzene	1 U
34874004	CRPPW61D	01/13/93	Ethylbenzene	1 U
34874004	CRPPW61D	01/13/93	Styrene	1 U
34874004	CRPPW61D	01/13/93	Xylenes (total)	1 U
34874004	CRPPW61D	01/13/93	1,3-Dichlorobenzene	1 U
34874004	CRPPW61D	01/13/93	1,4-Dichlorobenzene	1 U
34874004	CRPPW61D	01/13/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/25/93

Dilution Factor: 1.0

VALIDATED DATA FOR OFF-SITE PRIVATE IRRIGATION WELL SAMPLES

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34874005	CRPPW62	01/13/93	Chloromethane	1 U
34874005	CRPPW62	01/13/93	Bromomethane	1 U
34874005	CRPPW62	01/13/93	Vinyl chloride	1 U
34874005	CRPPW62	01/13/93	Chloroethane	1 U
34874005	CRPPW62	01/13/93	Methylene chloride	2 U
34874005	CRPPW62	01/13/93	Acetone	5 U
34874005	CRPPW62	01/13/93	Carbon disulfide	3
34874005	CRPPW62	01/13/93	1,1-Dichloroethene	1 U
34874005	CRPPW62	01/13/93	1,1-Dichloroethane	1 U
34874005	CRPPW62	01/13/93	cis-1,2-Dichloroethene	1 U
34874005	CRPPW62	01/13/93	trans-1,2-Dichloroethene	1 U
34874005	CRPPW62	01/13/93	Chloroform	1 U
34874005	CRPPW62	01/13/93	1,2-Dichloroethane	1 U
34874005	CRPPW62	01/13/93	2-Butanone	5 U
34874005	CRPPW62	01/13/93	1,1,1-Trichloroethane	1 U
34874005	CRPPW62	01/13/93	Carbon tetrachloride	1 U
34874005	CRPPW62	01/13/93	Bromodichloromethane	1 U
34874005	CRPPW62	01/13/93	1,2-Dichloropropane	1 U
34874005	CRPPW62	01/13/93	cis-1,3-Dichloropropane	1 U
34874005	CRPPW62	01/13/93	Trichloroethene	1 U
34874005	CRPPW62	01/13/93	Dibromochloromethane	1 U
34874005	CRPPW62	01/13/93	1,1,2-Trichloroethane	1 U
34874005	CRPPW62	01/13/93	Benzene	1 U
34874005	CRPPW62	01/13/93	trans-1,3-Dichloropropene	1 U
34874005	CRPPW62	01/13/93	Bromoform	1 U
34874005	CRPPW62	01/13/93	2-Hexanone	5 U
34874005	CRPPW62	01/13/93	4-Methyl-2-pentanone	5 U
34874005	CRPPW62	01/13/93	Tetrachloroethene	1 U
34874005	CRPPW62	01/13/93	1,1,2,2-Tetrachloroethane	1 U
34874005	CRPPW62	01/13/93	Toluene	1 U
34874005	CRPPW62	01/13/93	Chlorobenzene	1 U
34874005	CRPPW62	01/13/93	Ethylbenzene	1 U
34874005	CRPPW62	01/13/93	Styrene	1 U
34874005	CRPPW62	01/13/93	Xylenes (total)	1 U
34874005	CRPPW62	01/13/93	1,3-Dichlorobenzene	1 U
34874005	CRPPW62	01/13/93	1,4-Dichlorobenzene	1 U
34874005	CRPPW62	01/13/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/26/93

Dilution Factor: 1.0

**Trip Blanks
Rinsate Blanks
Source Water Blanks
March 1993**

PROJECT: NSB KINGSBAY, GEORGIA
 PARAMETER : VOLATILE AQUEOUS ANALYSES (ug/l)

VALIDATION SUMMARY TABLE

SAMPLE NUMBER:	BT118FB	BT119FB	BT120FB	BS126ER	BS130ER	BS131ER
LAB NUMBER:	35388K05	35433K01	35442K01	35388002	35433K02	35442K04
DATE SAMPLED:	03/17/93	03/22/93	03/23/93	03/17/93	03/22/93	03/23/93
DATE ANALYZED:	03/23/93	03/29/93	03/30/93	03/23/93	03/29/93	03/30/93
DILUTION FACTOR:	1	1	1	1	1	1

Compound	CRQL	BT118FB	BT119FB	BT120FB	BS126ER	BS130ER	BS131ER
Chloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	1	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	2	2 U	2 U	2 U	2 U	2 U	2 U
Acetone	5	5 U	5 U	5 U	33 J	5 U	13
Carbon disulfide	1	1 U	1 U	1 U	2 U	1 U	1 U
1,1-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	1	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	1	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1	1 U	1 U	1 U	1 U	1 U	1 U
2-Hexanone	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	5	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1	1 U	1 U	1 U	1 U	1	1 U
Ethylbenzene	1	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1	1 U	1 U	1 U	1 U	1 U	1 U

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PROJECT: NSB KINGSBAY, GEORGIA
 PARAMETER : VOLATILE AQUEOUS ANALYSES (ug/l)

VALIDATION SUMMARY TABLE

SAMPLE NUMBER:	BS113FB	BS114FB
LAB NUMBER:	35388003	35388004
DATE SAMPLED:	03/17/93	03/17/93
DATE ANALYZED:	03/23/93	03/23/93
DILUTION FACTOR:	1	1

Compound	CRQL		
Chloromethane	1	1 U	1 U
Bromomethane	1	1 U	1 U
Vinyl chloride	1	1 U	1 U
Chloroethane	1	1 U	1 U
Methylene chloride	2	2 U	2 U
Acetone	5	5 U	5 U
Carbon disulfide	1	1 U	1 U
1,1-Dichloroethene	1	1 U	1 U
1,1-Dichloroethane	1	1 U	1 U
cis-1,2-Dichloroethene	1	1 U	1 U
trans-1,2-Dichloroethene	1	1 U	1 U
Chloroform	1	1 U	34
1,2-Dichloroethane	1	1 U	1 U
2-Butanone	5	5 U	5 U
1,1,1-Trichloroethane	1	1 U	1 U
Carbon Tetrachloride	1	1 U	1 U
Bromodichloromethane	1	1 U	26
1,2-Dichloropropane	1	1 U	1 U
cis-1,3-Dichloropropene	1	1 U	1 U
Trichloroethene	1	1 U	1 U
Dibromochloromethane	1	1 U	15
1,1,2-Trichloroethane	1	1 U	1 U
Benzene	1	1 U	1 U
trans-1,3-Dichloropropene	1	1 U	1 U
Bromoform	1	1 U	2
2-Hexanone	5	5 U	5 U
4-Methyl-2-Pentanone	5	5 U	5 U
Tetrachloroethene	1	1 U	1 U
1,1,2,2-Tetrachloroethane	1	1 U	1 U
Toluene	1	1 U	1 U
Chlorobenzene	1	1 U	1 U
Ethylbenzene	1	1 U	1 U
Styrene	1	1 U	1 U
Xylene (total)	1	1 U	1 U
1,3-Dichlorobenzene	1	1 U	1 U
1,4-Dichlorobenzene	1	1 U	1 U
1,2-Dichlorobenzene	1	1 U	1 U

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**Trip Blank
January 1993**

VALIDATED DATA FOR OFF-SITE TRIP BLANK SAMPLE

Lab Number	Location	Date Collected	Parameter	Concentration (ug/l)
34858K10	TRIP BLANK	01/12/93	Chloromethane	1 U
34858K10	TRIP BLANK	01/12/93	Bromomethane	1 U
34858K10	TRIP BLANK	01/12/93	Vinyl chloride	1 U
34858K10	TRIP BLANK	01/12/93	Chloroethane	1 U
34858K10	TRIP BLANK	01/12/93	Methylene chloride	2 U
34858K10	TRIP BLANK	01/12/93	Acetone	5 U
34858K10	TRIP BLANK	01/12/93	Carbon disulfide	1 U
34858K10	TRIP BLANK	01/12/93	1,1-Dichloroethene	1 U
34858K10	TRIP BLANK	01/12/93	1,1-Dichloroethane	1 U
34858K10	TRIP BLANK	01/12/93	cis-1,2-Dichloroethene	1 U
34858K10	TRIP BLANK	01/12/93	trans-1,2-Dichloroethene	1 U
34858K10	TRIP BLANK	01/12/93	Chloroform	22
34858K10	TRIP BLANK	01/12/93	1,2-Dichloroethane	1 U
34858K10	TRIP BLANK	01/12/93	2-Butanone	5 U
34858K10	TRIP BLANK	01/12/93	1,1,1-Trichloroethane	1 U
34858K10	TRIP BLANK	01/12/93	Carbon tetrachloride	1 U
34858K10	TRIP BLANK	01/12/93	Bromodichloromethane	1 U
34858K10	TRIP BLANK	01/12/93	1,2-Dichloropropane	1 U
34858K10	TRIP BLANK	01/12/93	cis-1,3-Dichloropropane	1 U
34858K10	TRIP BLANK	01/12/93	Trichloroethene	1 U
34858K10	TRIP BLANK	01/12/93	Dibromochloromethane	1 U
34858K10	TRIP BLANK	01/12/93	1,1,2-Trichloroethane	1 U
34858K10	TRIP BLANK	01/12/93	Benzene	1 U
34858K10	TRIP BLANK	01/12/93	trans-1,3-Dichloropropene	1 U
34858K10	TRIP BLANK	01/12/93	Bromoform	1 U
34858K10	TRIP BLANK	01/12/93	2-Hexanone	5 U
34858K10	TRIP BLANK	01/12/93	4-Methyl-2-pentanone	5 U
34858K10	TRIP BLANK	01/12/93	Tetrachloroethene	1 U
34858K10	TRIP BLANK	01/12/93	1,1,2,2-Tetrachloroethane	1 U
34858K10	TRIP BLANK	01/12/93	Toluene	1 U
34858K10	TRIP BLANK	01/12/93	Chlorobenzene	1 U
34858K10	TRIP BLANK	01/12/93	Ethylbenzene	1 U
34858K10	TRIP BLANK	01/12/93	Styrene	1 U
34858K10	TRIP BLANK	01/12/93	Xylenes (total)	1 U
34858K10	TRIP BLANK	01/12/93	1,3-Dichlorobenzene	1 U
34858K10	TRIP BLANK	01/12/93	1,4-Dichlorobenzene	1 U
34858K10	TRIP BLANK	01/12/93	1,2-Dichlorobenzene	1 U

Date Analyzed: 01/14/93

Dilution Factor: 1.0