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QUARTERLY GROUNDWATER MONITORING REPORT JULY - SEPTEMBER 1999 AT SITE 11 NSB KINGS BAY GA

9/1/1999

BECHTEL ENVIRONMENTAL

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QUARTERLY GROUNDWATER MONITORING REPORT
JULY–SEPTEMBER 1999

SITE 11, OLD CAMDEN COUNTY LANDFILL
NAVAL SUBMARINE BASE KINGS BAY, GEORGIA

Prepared for

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

Under Contract No. N62467-93-D-0936

Bechtel Job No. 22567

Prepared by

BECHTEL ENVIRONMENTAL, INC.
151 LAFAYETTE DR.
OAK RIDGE, TENNESSEE

September 1999

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BUILDING A CENTURY 1898 BECHTEL 1998

September 20, 1999

Mr. Anthony Robinson
Project Manager
Naval Facilities Command Southern Division
2155 Eagle Drive
North Charleston, South Carolina 29406

Subject: Quarterly Groundwater Monitoring Report July - September 1999, Site 11, Old Camden County Landfill, Naval Submarine Base Kings Bay, Kings Bay Georgia. Delivery Order No. 109, Bechtel Job No. 22567-625

Dear Mr. Robinson;

Enclosed please find one bound copy of the Quarterly Groundwater Monitoring Report for the above referenced site. As a reminder, Dr. Francis Chapelle of the U.S. Geological Survey should be providing the Navy the accompanying report on monitoring for natural attenuation parameters at Site 11.

It has been a pleasure assisting you and the Navy on this project. If you have any questions, please call me at 904-779-8900.

Respectfully,

M Stanley Moore

for Hermann Bauer
Project Manager

Navy cc: R. Bath
C. Casey

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JULY – SEPTEMBER 1999

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SEPTEMBER 1999

REVISION 0

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The work described and professional opinions rendered in this document, *Quarterly Groundwater Monitoring Report July - September 1999, Site 11, Old Camden County Landfill, Naval Submarine Base Kings Bay, Georgia, September 1999, Revision 0,* were conducted and developed using commonly accepted procedures consistent with applicable standards of practice. The scope of services and activities described in this document were developed under the supervision of a professional geologist registered in the State of Georgia.

MARK A. GAGE
GEORGIA REGISTERED PROFFESSIONAL GEOLOGIST
No. 001167

Mark A. Gage
Professional Geologist
State of Georgia License No. 001167
Expires December 31, 1999

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A. WELL COMPLETION DIAGRAM
B. ANALYTICAL REPORTS

1.0 INTRODUCTION

Bechtel Environmental, Inc. (Bechtel) has been contracted by the Department of the Navy, Naval Facilities Command, Southern Division, to provide remedial services as the Navy's Environmental Response Action Contractor (RAC). Under Delivery Order (DO) 109, Task 1, of the Prime Contract N62467-93-D-0936, Bechtel has been contracted to conduct Interim Measures for remediation of source area contaminated groundwater and groundwater monitoring at Site 11, Old Camden County Landfill at the Naval Submarine Base (NSB) Kings Bay.

This quarterly groundwater monitoring report documents the activities, inspections, and groundwater sampling and analyses results for the period from July 1, 1999 through September 30, 1999. Section 1 of this report summarizes the field activities, inspections and results, any unusual occurrences during sampling, and actions or measures taken to resolve any problems. Section 2 presents details of the quarters activity and includes a tabulation of both field measurements and analytical results. Section 3 includes observations and provides recommendations of any changes, repairs, or maintenance for the upcoming quarter.

1.1 SUMMARY OF ACTIVITIES

Activities performed this quarter included well inspections, groundwater monitoring, groundwater sampling and analyses, monitoring well installation and abandonment, and site surveying. Weather conditions during this period were hot and humid, with temperatures ranging from low to mid 70s in the morning and to the upper 90s in the afternoon. Scattered thunderstorms were common during this period. A site map is provided as Figure 1.

Well Inspections – All wells were inspected for above ground damage or well deterioration. Generally, all wells were structurally sound with no aboveground damage. For most wells, the expandable plug located at the top of well casing was deteriorated and did not provide a good seal. New expandable plugs were installed at all monitoring wells.

During inspection of piezometer PS-2 a Grundfos submersible pump was observed suspended in the piezometer. The well cap used to suspend the pump was open to the atmosphere and did not provide a seal to prevent rainwater from cascading into the well. Additionally, the presence of the pump interfered with placement of the Teflon™ tube used for groundwater sampling. The pump and connecting discharge tube, cable, and electrical wiring were removed from PS-2, placed into a heavy-duty trash bag, and stored in the trailer at the site 11 compound. The well was refitted with a 2-inch diameter piece of PVC pipe and expandable plug.

Well Measurements – Well measurements included headspace readings, depth to water, and total depth measurements. Headspace readings were collected using a Foxboro Model TVA-1000 and water level and well depth measurements were collected using an electronic water level probe.

Groundwater Sampling – Groundwater samples were collected from wells in order of least contaminated to most contaminated. Prior to collecting groundwater samples, each well sampled was fitted with a dedicated piece of Teflon™ tubing (3/16-inch OD by ¼-inch ID) installed to the bottom of the well. A 2-ft piece of silicon tubing was fitted to the top of the Teflon™ tube. Prior to purging, the tubing intake was positioned near the center of the well screen. Groundwater was then purged through the tube using a peristaltic pump. The pump used was a Geotech Model Geopump 2. Water quality parameters measured while purging included temperature, pH, conductivity, oxygen-reduction potential, turbidity, and dissolved oxygen. Once these parameters stabilized within 10 percent, a sample was collected and containerized for chemical analyses. Samples for groundwater protection standard analyses were collected by, stopping the pump, removing the tubing from the well, and reversing the flow of the pump and gently filling the container. Samples for Appendix IX constituent analyses were collected by filling the appropriate container through the dedicated silicon tube.

Well Installation – Bechtel, under existing subcontract with Partridge Well Drilling of Jacksonville, FL, provided for the drilling, well installation, and development of offsite well KBA-11-37. Groundwater monitoring well KBA-11-37 is located at the culdesac of Cottage Court. The borehole was drilled and the well was installed to a depth of 38.5 ft below grade on August 4, 1999. Well development was accomplished on August 5, 1999. A well construction diagram of KBA-11-37 is provided in Appendix A.

Well Abandonment – Thirty-six wells, including piezometers, monitoring, and recovery wells were abandoned during August 17, through August 24, 1999. Well abandonment services were performed under existing subcontract with Partridge Well Drilling of Jacksonville, FL. All wells were abandoned by pressure grouting through a tremie pipe positioned at the bottom of the well. Above grade well covers, protective post, vaults, and concrete pads from abandoned wells located on base were removed and disposed at the Clay County landfill as construction debris. Well vaults of abandoned wells located offsite were left inplace. A summary of the wells abandoned and is provided Table 1.

Site Survey - On August 20, 1999, existing subcontractor L.D. Bradley Surveyors of Jacksonville, FL, surveyed the horizontal and vertical locations of newly installed well KBA-11-37 and resurveyed the top of casing elevation at PS-2.

2.0 DATA PRESENTATION

This section provides a summation and tabulation of all field data and analytical results. This includes headspace readings, monitoring well measurements, well purging data, and analytical results.

2.1 HEADSPACE READINGS

Table 2 presents a summary of headspace readings. Headspace readings were measured using a Foxboro Model TVA-1000 combination photoionization detection (PID) and flame ionization detection (FID) meter. PID measurements ranged from 0 to 3600 parts per million (ppm). There appears to be no correlation between headspace readings and dissolved volatile organic concentrations (VOCs) in the groundwater. For example, offsite wells KBA-11-15, KBA-11-16, KBA-11-17, KBA-11-18 showed PID readings of 2600 to 3600 ppm and historically have VOC concentrations below the detection limit. The high PID readings observed at these wells most likely occurred from the PID lamp being fogged with moisture from the well casing. These wells with the highest PID readings coincidently are completed below grade in vaults and generally contained several inches of water at the base of the vault. The lowest readings were observed in wells with above grade completions with protective covers. Most of the expandable plugs in these wells were worn and did not provide an adequate seal to contain any potential vapors within the well casing.

2.2 WELL MEASUREMENTS

Water level and well depth measurements were collected using an electronic meter level meter. All measurements were made from a surveyed referenced point located at the top of the well casing. Depth to water ranged from approximately 14 ft below top of the well casing (btoc) [24 ft mean sea level (msl)] at the source area to approximately 3 ft btoc [20 ft msl] offsite at the Crooked River Plantation subdivision. Apparent groundwater flow is to the northwest toward the subdivision. Table 3 provides a summary of the well measurements.

2.3 WELL PURGING PARAMETERS

Water quality parameters temperature, pH, conductivity, oxygen-reduction potential, turbidity, and dissolved oxygen were measured and recorded during purging. These parameters generally stabilized after 6 to 8 gallons of groundwater were purged from the well. Table 4 provides a summary of the stabilized parameters at the time of sample collection.

2.4 ANALYTICAL RESULTS

Eleven wells were sampled for Groundwater Protection Standard constituent and two wells were sampled for Appendix IX constituent analyses. Groundwater samples collected for the Groundwater Protection Standard analyses were submitted to Environmental Conservation Laboratories, Inc of Jacksonville, FL. The samples were analyzed using EPA method 8260. Table 5 shows a summary of the results for the Groundwater Protection Standard. Samples for Appendix IX analyses were collected from background well KBA-11-11A and down gradient well KBA-11-13A and submitted to General Engineering Laboratory, Inc of Charleston, SC. Table 6 shows a summary of the results of the Appendix IX analyses. Complete analytical data reports are provided in Appendix B.

Groundwater Protection Standard Analyses – Five (KBA-11-10B, KBA-11-13A, KBA-11-34, KBA-11-37, and PS-2) of the eleven wells sampled and submitted for Groundwater Protection Standard analyses exceeded one or more of the constituent standards. The following exceedences were observed; chlorobenzene was exceeded in KBA-11-10B; trichloroethylene, cis-1,2 dichloroethylene, vinyl chloride, and chlorobenzene were exceeded in KBA-11-13A; tetrachloroethylene was exceeded in well KBA-11-34; vinyl chloride and chorobenzene were exceeded in KBA-11-37; and 1,1-dichlorothane, vinyl chloride, and benzene were exceeded in PS-2.

Appendix IX Analyses – Two wells, background well KBA-11-11A and downgradient well KBA-11-13A, were sampled for Appendix IX analyses. Appendix IX analyses included volatile, semivolatile, pesticides and PCBs, herbicides, dioxins and furans, metals, and cyanide and sulfides compounds. Table 6 summarizes the results of Appendix IX analyses.

Results for background well KBA-11-11A showed all organic compounds below the detection limit.

Results for downgradient well KAB-11-13A showed volatile, semivolatile, metals, and sulfide compounds above the detection limit. Volatile compounds detected were vinyl chloride, trichloroethene, toluene, chlorobenzene, ethylbenzene, total xylenes, trans-1,2-dichloroethene, and cis-1,2-dichloroethene. Naphthalene was the only semivolatile compound detected.

2.5 INITIAL SAMPLE EVENT DUPLICATION

To ensure comparability of results from changing purging and sampling techniques from bailing to, low-flow (minimal drawdown) method, duplicate samples were collected from wells KBA-11-13A and PS-3. These wells were selected based on minimal concentrations (PS-3) and maximum concentrations (KBA-11-13A). Results, as shown in Table 7, are almost identical. This clearly demonstrates comparability between the two methods.

2.6 GROUNDWATER RECOVERY AND TREATMENT SYSTEM

The groundwater recovery and treatment system was not operational during this quarter. Therefore no sampling and analyses of the effluent was required.

3.0 OBSERVATIONS AND RECOMMENDATIONS

Observations – (1) Wells are in good condition and are functioning adequately for evaluating the hydrologic conditions and groundwater quality at site 11, and the Crooked River Plantation Subdivision down gradient of the site. (2) Headspace readings measured at the top of the well casing were affected by moisture on the lamp of the PID meter. The value of these measurements is questionable. (3) Water quality parameters observed during well purging stabilized after 6 to 8 gallons of water was removed from the well. (4) Source area wells KBA-11-13A and KBA-11-34 showed the highest concentration of dissolved VOCs, and only one down gradient well, KBA-11-37, showed dissolved VOC concentrations for two analytes slightly above the criteria.

Recommendations – (1) Continue quarterly groundwater monitoring as scheduled in the groundwater monitoring plan. The next sampling event is scheduled for November 1999. Wells scheduled for sampling, as stated in the groundwater monitoring plan include; KBA-11-2; KBA-11-13A; KBA-11-16; KBA-11-34; KBA-11-37; and PS-2. (2) Issue draft semi-annual report to the Navy by September 30, 1999. Final semi-annual report is due to the Navy by October 23, 1999.

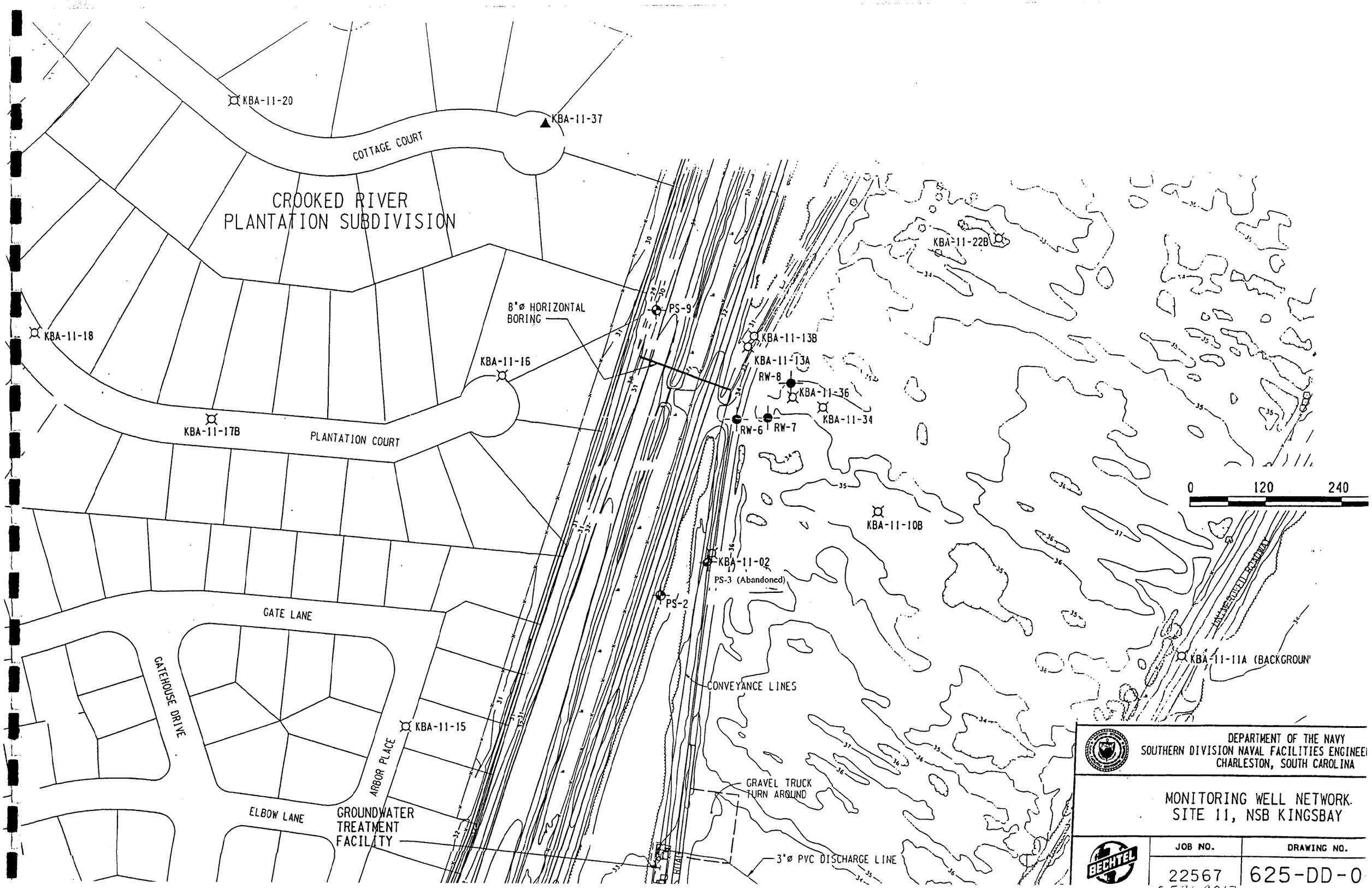

KBA-11-20
KBA-11-37
COTTAGE COURT
CROOKED RIVER
PLANTATION SUBDIVISION
KBA-11-22B
8"ø HORIZONTAL
BORING
PS-9
KBA-11-18
KBA-11-16
KBA-11-13B
KBA-11-13A
RW-8
KBA-11-36
KBA-11-34
RW-6
RW-7
KBA-11-17B
PLANTATION COURT
0
120
240
KBA-11-10B
KBA-11-02
PS-3 (Abandoned)
PS-2
GATE LANE
KBA-11-11A (BACKGROUN
CONVEYANCE LINES
GATEHOUSE DRIVE
KBA-11-15
ARBOR PLACE
GRAVEL TRUCK
TURN AROUND
ELBOW LANE
GROUNDWATER
TREATMENT
FACILITY
3"ø PVC DISCHARGE LINE
DEPARTMENT OF THE NAVY
SOUTHERN DIVISION NAVAL FACILITIES ENGINEE
CHARLESTON, SOUTH CAROLINA
MONITORING WELL NETWORK.
SITE 11, NSB KINGSBAY
BECHTEL
JOB NO.
22567
DRAWING NO.
625-DD-0

Table 1 Well Abandonment Summary

Well ID	Date	Measured Depth (ft btoc)	Well ID	Date	Measured Depth (ft btoc)
KBA-11-1	8-17-99	15.6	KBA-11-31	8-18-99	37
KBA-11-3A	8-17-99	15	KBA-11-32	8-18-99	37
KBA-11-3C	8-17-99	98	KBA-11-33	8-18-99	37
KBA-11-4	8-17-99	15	KBA-11-35	8-18-99	37
KBA-11-5	8-17-99	15	PS-1	8-18-99	32
KBA-11-6	8-17-99	16	PS-3	8-18-99	33
KBA-11-7	8-17-99	16	RW-1	8-18-99	66
KBA-11-8A	8-17-99	16	RW-2	8-18-99	74
KBA-11-8C	8-17-99	65	KBA-11-17A	8-19-99	32
KBA-11-11B	8-17-99	55	KBA-11-17C	8-19-99	80
KBA-11-11C	8-17-99	80	KBA-11-19A	8-19-99	20
KBA-11-14	8-17-99	37	KBA-11-19B	8-19-99	70
KBA-11-22A	8-17-99	21	PS-4	8-19-99	36
PS-5	8-17-99	15	PS-7	8-19-99	36
PS-6	8-17-99	32	PS-8	8-19-99	35
KBA-11-9	8-18-99	13	PS-10	8-19-99	36
KBA-11-10C	8-18-99	92	RW-3	8-19-99	75
KBA-11-12	8-18-99	37	RW-4	8-19-99	72

Ft = feet
Btoc = below top of casing

Table 2 Headspace Readings

Well Identification	Date	Photoionization Detection Measurement (ppm)
KBA-11-02		NM
KBA-11-03B	8-3-99	0.2
KBA-11-08B	8-3-99	0.0
KBA-11-10B	8-2-99	1.9
KBA-11-11A	8-3-99	0.3
KBA-11-13A	8-3-99	13
KBA-11-13B	8-3-99	0
KBA-11-15	8-17-99	2200
KBA-11-16	8-17-99	3500
KBA-11-17B	8-17-99	2700
KBA-11-18	8-17-99	3600
KBA-11-21	8-3-99	3
KBA-11-22B	8-3-99	7
KBA-11-34	8-3-99	1400
KBA-11-36	8-3-99	10
KBA-11-37	8-16-99	400
PS-2		NM
PS-9		NM

NM = not measured

Table 3 Well Measurements

Well Identification	Date	Top of Casing Elevation (ft msl)	Depth to Water (ft btoc)	Water Elevation (ft msl)	Constructed Depth (ft btoc)	Measured Depth (ft btoc)
KBA-11-02	8-2-99	36.02	11.37	24.65	15.00	15.42
KBA-11-03B	8-2-99	33.49	10.01	23.48	47.00	47.82
KBA-11-08B	8-2-99	38.20	13.74	24.46	43.00	43.77
KBA-11-10B	8-2-99	38.03	13.90	24.13	51.50	51.67
KBA-11-11A	8-2-99	35.85	11.40	24.45	37.00	37.12
KBA-11-13A	8-2-99	34.20	10.77	23.43	42.50	42.52
KBA-11-13B	8-2-99	34.86	14.27	20.59	90.70	90.77
KBA-11-15	8-2-99	28.49	5.60	22.89	39.00	39.22
KBA-11-16	8-2-99	28.66	6.17	22.49	44.90	44.77
KBA-11-17B	8-2-99	25.41	4.61	20.80	44.80	44.72
KBA-11-18	8-2-99	22.81	3.67	19.14	45.80	45.82
KBA-11-20	8-2-99	23.07	3.22	19.85	40.00	40.12
KBA-11-21	8-2-99	23.56	3.75	19.81	40.40	40.57
KBA-11-22B	8-2-99	36.13	11.92	24.21	52.60	52.62
KBA-11-34	8-2-99	37.51	13.75	23.76	40 est	41.07
KBA-11-36	8-2-99	37.91	14.34	23.57	40 est	41.67
KBA-11-37	8-16-99	26.26	4.15	22.11	38.50	38.57
PS-2	8-17-99	32.71	9.6	23.11	40 67	39.6est
PS-9	8-20-99	28.72	5.89	22.83	35.45	34.82

Ft = feet
Msl – mean sea level
Btoc – below top of casing

Table 4 Well Purging Parameters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	PH	Oxygen Reduction Potential (mv)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-02	8-3-99	7	25.2	5.63	-199	0.713	0	11.58
KBA-11-10B	8-2-99	6	25.6	5.14	-221	0.304	2	12.20
KBA-11-11A	8-2-99	6	24.4	5.07	-165	0.061	17	12.95
KBA-11-13A	8-3-99	6	24.3	5.50	-210	0.463	17	13.19
KBA-11-13B	8-3-99	8	24.9	7.15	-43	0.267	0	12.70
KBA-11-15	8-3-99	6	25	4.90	-182	0.677	9	15.47
KBA-11-16	8-3-99	7	26.8	4.76	-111	0.171	35	12.61
KBA-11-17B	8-3-99	8	24.7	4.48	-112	0.118	6	11.91
KBA-11-34	8-3-99	6	30.5	3.20	300	2.36	13	11.92
KBA-11-37	8-16-99	9	25.5	5.52	-227	0.517	15	5.76
PS-2	8-18-99	7	23.2	4.95	-213	0.381	10	11.02

°C = degrees centigrade
mv = millivolts
mS/cm = microseimens per centimeter
NTU = nephelometric turbidity units
mg/L = milligrams per liter

Table 5 Analytical Summary, Groundwater Protection Standard

Groundwater Protection Standard	Criteria (µg/L)	KBA-11-02	**KBA-11-10B**	KBA-11-11A	**KBA-11-13A**	KBA-11-13B	KBA-11-15	KBA-11-16	KBA-11-17B	**KBA-11-34**	**KBA-11-37**	PS-2
Date		8-3-99	8-2-99	8-2-99	8-3-99	8-3-99	8-3-99	8-3-99	8-3-99	8-3-99	8-16-99	8-17-99
Tetrachloroethylene	5.0	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	**17**	3.0U	3.0U
Trichloroethylene	5.0	1.0U	1.0U	1.0U	**19**	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.3I
Cis -1,2-dichloroethylene	70	1.0U	1.6I	1.0U	**190**	1.0U	1.0U	1.0U	1.0U	1.0U	24	41
Trans-1,2 dichloroethylene	100	1.0U	1.0U	1.0U	7.4	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
1,1-dichloroethylene	7.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
1,1-dichloroethane	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.6
1,2-dichloroethane	5.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Vinyl Chloride	2.0	1.0U	1.0U	1.0U	**48**	1.0U	1.0U	1.0U	1.0U	1.0U	**2.5I**	**3.2I**
Chloroethane	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Benzene	5.0	1.0U	1.6	1.0U	1.1I	1.0U	1.0U	1.0U	1.0U	1.0U	2.1	9.1
Ethylbenzene	700	1.0U	10	1.0U	66	1.0U	1.0U	1.0U	1.0U	1.0U	15	10
Toluene	1,000	1.0U	1.0U	1.0U	2.7	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	43
Total xylenes	10,000	3.0U	3.0U	3.0U	14.4	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	29
Chlorobenzene	1.0	1.0U	**2.5**	1.0U	**6.2**	1.0U	1.0U	1.0U	1.0U	1.0U	**2.9**	1.0U
1,4-dichlorobenzene	75	1.0U	1.5	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	1.0U	3.6	1.0U

Notes: I = analyte detected; value is between the method detection level (MDL) and the practical quantitation level (PQL).
U = compound was analyzed for but not detected to the level shown.
BOLD indicates result exceeds the groundwater protection standard.

Table 6 Appendix IX Analyses Summary

Appendix IX Constituents	KBA-11-11A Background Well Sample ID KB20015 GWT	KBA-11-13A Downgradient Well Sample ID KB20010 GWT
Date Collected	8-19-99	8-3-99
Volatile Organic (µg/L) (only detectable compounds shown)		
Vinyl Chloride	1.0U	49.6
Trichlororethene	1.0U	22.7
Toluene	1.0U	3.5
Chlorobenzene	1.0U	5.8
Ethylbenzene	1.0U	79.6
Xylenes (total)	3.0U	19.5
Trans-1,2-dichloroethene	1.0U	4.7
Cis-1,2-dichloroethene	1.0U	234 E
Semivolatile Organic (µg/L)		
Naphthalene	10.4U	18.3
Dioxins/furans (NG/L)		
All below detection limit	10.0 U	10.0U
Pesticide/PCBs/Herbicides Organics (µg/L)		
All below detection limit		
Inorganics (µg/L)		
Antimony	2.9	2.9
Arsenic	2.7	2.7
Barium	8.2	15.8
Berylium	0.32	0.09
Cadmiun	0.36	0.36
Chromium	1.3	2.5
Cobalt	0.84	0.84
Copper	1.7	6.2
Lead	1.9	2.8
Mercury	0.04	0.04
Nickel	1.0	12.7
Selenium	2.9	2.9
Silver	0.9	3.1
Thallium	4.4	3.9
Tin	2.0	2.0
Vanadium	1.1	5.5
Zinc	4.9	18.3
General Chemistry (mg/L)		
Cyanides	0.00	0.00
Sulfides	0.45	1.1

Notes: U = compound was analyzed for but not detected to the level shown.
E = estimated value.
NG/L = nanograms per liter; µg/L = micro grams per liter;
mg/L = milli grams per liter

Table 7 Initial Sample Event Duplication and Comparison

Groundwater Protection Standard	Criteria (µg/L)	KBA-11-13A Low Flow Method	KBA-11-13A Bail Method	PS-3 Low Flow Method	PS-3 Bail Method
Date		8-3-99	8-5-99	8-3-99	8-5-99
Tetrachloroethylene	5.0	3.0U	3.0U	3.0I	3.0I
Trichloroethylene	5.0	**19**	**20**	**5.0**	**5.0**
Cis -1,2-dichloroethylene	70	**190**	**190**	**4.0**	**3.9**
Trans-1,2 dichloroethylene	100	**7.4**	**6.7**	1.0U	1.0U
1,1-dichloroethylene	7.0	1.0U	1.0U	1.0U	1.0U
1,1-dichloroethane	1.0	1.0U	1.0U	1.6I	1.8I
1,2-dichloroethane	5.0	1.0U	1.0U	1.0U	1.0U
Vinyl Chloride	2.0	**48**	**44**	**4.4**	**4.2**
Chloroethane	1.0	2.0U	2.0U	2.0U	2.0U
Benzene	5.0	**1.1I**	**1.2I**	1.0U	1.0U
Ethylbenzene	700	**66**	**70**	**14**	**17**
Toluene	1,000	**2.7**	**3.2**	1.0U	1.0U
Total xylenes	10,000	**14.4**	**14.4**	3.0U	3.2I
Chlorobenzene	1.0	**6.2**	**6.9**	1.0U	1.0U
1,4-dichlorobenzene	75	**4.0**	**4.9**	1.0U	1.0U

Notes: I = analyte detected; value is between the method detection level (MDL) and the practical quantitation level (PQL).
U = compound was analyzed for but not detected to the level shown.

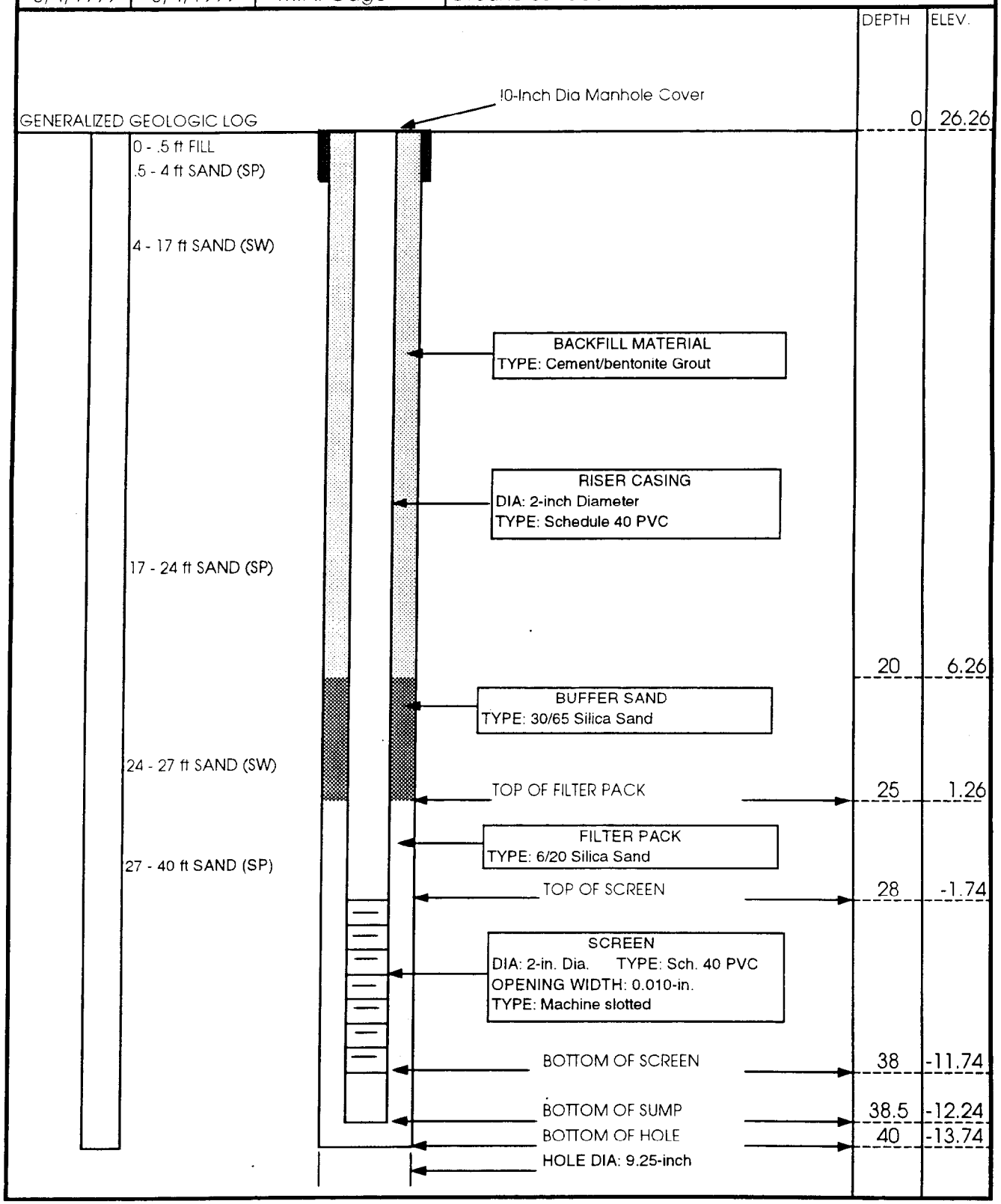
APPENDIX A

WELL COMPLETION DIAGRAM FOR KBA-11-37

MONITORING WELL	PROJECT: Site 11, Naval Submarine Base Kings Bay	WELL NO.: KBA-11-37

JOB NO.	SITE	COORDINATES
22567-625	Site 11	

BEGUN	COMPLETED	PREPARED BY	REFERENCE POINT FOR MEASUREMENTS
8/4/1999	8/4/1999	M.A. Gage	Ground Surface



APPENDIX B

ANALYTICAL REPORTS

B-1 Groundwater Protection Standard Analyses

CLIENT : Bechtel Environmental, Inc.
ADDRESS: NAS Cecil Field
P.O. Box 171
Jacksonville, FL 32215

REPORT # : JR7916
DATE SUBMITTED: August 2, 1999
DATE REPORTED : August 3, 1999

ATTENTION: Mr. Mark Gage

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: WO# TBA

Kings Bay

08/02/99

#1 - KBA-11-11A
#2 - KBA-11-10B

PROJECT MANAGER _____
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 - VOLATILE ORGANICS	**KBA-11-11A**	**KBA-11-10B**	**Units**
chlorodifluoromethane	2.0 U	2.0 U	µg/L
loromethane	1.0 U	1.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
omomethane	2.0 U	2.0 U	µg/L
loroethane	1.0 U	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
etone	50 U	50 U	µg/L
arbon Disulfide	50 U	50 U	µg/L
Methylene Chloride	5.0 U	5.0 U	µg/L
2-Dichloroethene	1.0 U	1.0 U	µg/L
thyl tert-butyl ether	6.0 U	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
2-Dichloropropane	2.0 U	2.0 U	µg/L
1,2-Dichloroethene	1.0 U	**1.6** I	µg/L
2-Butanone	20 U	20 U	µg/L
hloroform	1.0 U	1.0 U	µg/L
1,1-Trichloroethane	1.0 U	1.0 U	µg/L
arbon tetrachloride	1.0 U	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	1.0 U	µg/L
nzene	1.0 U	**1.6**	µg/L
2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
2-Dichloropropane	1.0 U	1.0 U	µg/L
bromomethane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - VOLATILE ORGANICS	KBA-11-11A	KBA-11-10B	Units
hloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
etrachloroethene	3.0 U	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
-Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	**2.5**	µg/L
1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
ylbenzene	1.0 U	**10**	µg/L
ylene & p-Xylene	2.0 U	2.0 U	µg/L
-Xylene	1.0 U	1.0 U	µg/L
tyrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	**4.1**	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
-Propylbenzene	1.0 U	**4.0**	µg/L
Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	1.0 U	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	**KBA-11-11A**	**KBA-11-10B**	**Units**
ert-Butylbenzene	1.0 U	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	1.0 U	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
-Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	**1.5**	µg/L
n-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1 ,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
achlorobutadiene	1.0 U	1.0 U	µg/L
aphthalene	2.0 U	**2.5**	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
romochloromethane	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Dibromofluoromethane	106	108	38-143
3-Toluene	96	95	78-126
romofluorobenzene	92	96	72-132
Date Analyzed	08/03/99	08/03/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 - VOLATILE ORGANICS	**LAB BLANK**	**Units**
chlorodifluoromethane	2.0 U	µg/L
loromethane	1.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
omomethane	2.0 U	µg/L
loroethane	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	µg/L
1-Dichloroethene	1.0 U	µg/L
etone	50 U	µg/L
arbon Disulfide	50 U	µg/L
Methylene Chloride	5.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
ethyl tert-butyl ether	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
2-Dichloropropane	2.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
2-Butanone	20 U	µg/L
Chloroform	1.0 U	µg/L
1,1-Trichloroethane	1.0 U	µg/L
arbon tetrachloride	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	µg/L
enzene	1.0 U	µg/L
2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
2-Dichloropropane	1.0 U	µg/L
ibromomethane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - OLATILE ORGANICS	**LAB BLANK**	**Units**
Chloroethyl vinyl ether	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	µg/L
luene	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
trachloroethene	3.0 U	µg/L
3-Dichloropropane	1.0 U	µg/L
Hexanone	20 U	µg/L
omochloromethane	1.0 U	µg/L
Dibromoethane	1.0 U	µg/L
lorobenzene	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	µg/L
hylbenzene	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
Styrene	1.0 U	µg/L
omoform	1.0 U	µg/L
opropylbenzene	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
omobenzene	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	µg/L
n-Propylbenzene	1.0 U	µg/L
Chlorotoluene	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	µg/L
4-Chlorotoluene	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 (cont.) - VOLATILE ORGANICS	LAB BLANK	Units
rt-Butylbenzene	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	µg/L
s-Butylbenzene	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	µg/L
Isopropyltoluene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
n-Butylbenzene	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	µg/L
xachlorobutadiene	1.0 U	µg/L
phthalene	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	µg/L
omochloromethane	1.0 U	µg/L

Surrogate:	% RECOV	LIMITS
Dibromofluoromethane	102	38-143
-Toluene	95	78-126
omofluorobenzene	76	72-132
Date Analyzed	08/03/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7916
DATE REPORTED: August 3, 1999
REFERENCE : WO# JX127
PROJECT NAME : Kings Bay

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
PA Method 624/8260				
1,1-Dichloroethene	106/114/105	45-167	7	30
Benzene	104/107/ 99	60-130	3	23
richloroethene	93/ 99/ 91	50-122	6	10
oluene	106/113/102	57-136	6	12
Chlorobenzene	104/110/102	59-126	6	11

nvironmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
S = Matrix Spike
SD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
PD = Relative Percent Difference

T. report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to he samples as submitted.

CLIENT : Bechtel Environmental, Inc.
ADDRESS: NAS Cecil Field
P.O. Box 171
Jacksonville, FL 32215

REPORT # : JR7946
DATE SUBMITTED: August 4, 1999
DATE REPORTED : August 5, 1999
DATE AMENDED : September 7, 1999

ATTENTION: Mr. C.J. Rewolinski

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

Kings Bay

08/03/99

#1 - PS-3 @ 10:20
#2 - KBA-11-2 @ 10:35
#3 - KBA-11-17B @ 11:55
#4 - KBA-11-16 @ 13:05
#5 - KBA-11-15 @ 14:05
#6 - KBA-11-34 @ 15:20
#7 - FDP-1 @ 15:30 (KBA-11-34)
#8 - KBA-11-13A @ 16:35
#9 - KBA-11-13B @ 16:55
#10 - FDP-2 @ 16:50 (KBA-11-13A)

PROJECT MANAGER _____
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay
DATE AMENDED : September 7, 1999

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - OLATILE ORGANICS	**PS-3**	**KBA-11-2**	**Units**
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	**3.0** I	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
thylbenzene	**14**	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	2.0 U	µg/L
-Xylene	1.0 U	1.0 U	µg/L
Styrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	**1.3** I	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
n-Propylbenzene	1.0 U	1.0 U	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	**1.5**	1.0 U	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L

ompound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay
DATE AMENDED : September 7, 1999

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	PS-3	KBA-11-2	Units
ert-Butylbenzene	1.0 U	1.0 U	µg/L
,2,4-Trimethylbenzene	1.0 U	1.0 U	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
-Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
,2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
exachlorobutadiene	1.0 U	1.0 U	µg/L
aphthalene	2.0 U	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
romochloromethane	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
ibromofluoromethane	104	107	38-143
8-Toluene	97	92	78-126
romofluorobenzene	94	90	72-132
Date Analyzed	08/04/99	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 - VOLATILE ORGANICS	**KBA-11-17B**	**KBA-11-16**	**Units**
chlorodifluoromethane	2.0 U	2.0 U	µg/L
loromethane	1.0 U	1.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
omomethane	2.0 U	2.0 U	µg/L
loroethane	1.0 U	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
etone	50 U	50 U	µg/L
arbon Disulfide	50 U	50 U	µg/L
Methylene Chloride	5.0 U	5.0 U	µg/L
-Dichloroethene	1.0 U	1.0 U	µg/L
thyl tert-butyl ether	6.0 U	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
2-Dichloropropane	2.0 U	2.0 U	µg/L
1,2-Dichloroethene	1.0 U	1.0 U	µg/L
2-Butanone	20 U	20 U	µg/L
hloroform	1.0 U	1.0 U	µg/L
1,1-Trichloroethane	1.0 U	1.0 U	µg/L
arbon tetrachloride	1.0 U	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	1.0 U	µg/L
nzene	1.0 U	1.0 U	µg/L
2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
2-Dichloropropane	1.0 U	1.0 U	µg/L
bromomethane	1.0 U	1.0 U	µg/L
romodichloromethane	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - OLATILE ORGANICS	KBA-11-17B	KBA-11-16	Units
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
etrachloroethene	3.0 U	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
hylbenzene	1.0 U	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	2.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
tyrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
n-Propylbenzene	1.0 U	1.0 U	µg/L
Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	1.0 U	µg/L
4-Chlorotoluene	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - OLATILE ORGANICS	KBA-11-17B	KBA-11-16	Units
rt-Butylbenzene	1.0 U	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	1.0 U	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
n-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,^ 4-Trichlorobenzene	1.0 U	1.0 U	µg/L
chlorobutadiene	1.0 U	1.0 U	µg/L
phthalene	2.0 U	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
romochloromethane	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Dibromofluoromethane	102	108	38-143
-Toluene	86	95	78-126
omofluorobenzene	85	90	72-132
Date Analyzed	08/04/99	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 - VOLATILE ORGANICS	KBA-11-15	KBA-11-34	Units
Dichlorodifluoromethane	2.0 U	2.0 U	µg/L
Chloromethane	1.0 U	1.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	2.0 U	2.0 U	µg/L
Chloroethane	1.0 U	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Acetone	50 U	**93**	µg/L
Carbon Disulfide	50 U	50 U	µg/L
Methylene Chloride	5.0 U	5.0 U	µg/L
trans-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Methyl tert-butyl ether	6.0 U	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
2,2-Dichloropropane	2.0 U	2.0 U	µg/L
cis-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
2-Butanone	20 U	20 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon tetrachloride	1.0 U	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	1.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Dibromomethane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - OLATILE ORGANICS	**KBA-11-15**	**KBA-11-34**	**Units**
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	3.0 U	**17**	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
hylbenzene	1.0 U	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	2.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
Styrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
n-Propylbenzene	1.0 U	1.0 U	µg/L
2-Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	1.0 U	µg/L
4-Chlorotoluene	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - OLATILE ORGANICS	**KBA-11-15**	**KBA-11-34**	**Units**
rt-Butylbenzene	1.0 U	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	1.0 U	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
xachlorobutadiene	1.0 U	1.0 U	µg/L
phthalene	2.0 U	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
omochloromethane	1.0 U	1.0 U	µg/L
urrogate:	**% RECOV**	**% RECOV**	**LIMITS**
ibromofluoromethane	107	109	38-143
-Toluene	91	96	78-126
omofluorobenzene	90	92	72-132
Date Analyzed	08/04/99	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 - VOLATILE ORGANICS	**FDP-1**	**KBA-11-13A**		**Units**
Dichlorodifluoromethane	2.0 U	2.0 U		µg/L
Chloromethane	1.0 U	1.0 U		µg/L
Vinyl Chloride	1.0 U	**48**		µg/L
Bromomethane	2.0 U	2.0 U		µg/L
Chloroethane	1.0 U	1.0 U		µg/L
Trichlorofluoromethane	1.0 U	1.0 U		µg/L
1,1-Dichloroethene	1.0 U	1.0 U		µg/L
Acetone	**110**	50 U		µg/L
Carbon Disulfide	50 U	50 U		µg/L
Methylene Chloride	5.0 U	5.0 U		µg/L
[illegible],2-Dichloroethene	1.0 U	**7.4**		µg/L
Methyl tert-butyl ether	6.0 U	6.0 U		µg/L
1,1-Dichloroethane	1.0 U	1.0 U		µg/L
2,2-Dichloropropane	2.0 U	2.0 U		µg/L
[illegible]-1,2-Dichloroethene	1.0 U	**190**	D1	µg/L
2-Butanone	20 U	20 U		µg/L
Chloroform	1.0 U	1.0 U		µg/L
[illegible],1,1-Trichloroethane	1.0 U	1.0 U		µg/L
Carbon tetrachloride	1.0 U	1.0 U		µg/L
1,1-Dichloropropene	1.0 U	1.0 U		µg/L
Benzene	1.0 U	**1.1** I		µg/L
[illegible],2-Dichloroethane	1.0 U	1.0 U		µg/L
Trichloroethene	1.0 U	**19**		µg/L
1,2-Dichloropropane	1.0 U	1.0 U		µg/L
Dibromomethane	1.0 U	1.0 U		µg/L
Bromodichloromethane	1.0 U	1.0 U		µg/L

[illegible] = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).
D1 = Analyte value determined from a 1:5 dilution.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 (cont.) - VOLATILE ORGANICS	**FDP-1**	**KBA-11-13A**	**Units**
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	**2.7**	µg/L
,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	**18**	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
-Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	**6.2**	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
hylbenzene	1.0 U	**66**	µg/L
-Xylene & p-Xylene	2.0 U	**10**	µg/L
o-Xylene	1.0 U	**4.4**	µg/L
Styrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	**2.5** I	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
n-Propylbenzene	1.0 U	**2.9**	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	**4.4**	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 (cont.) - VOLATILE ORGANICS	**FDP-1**	**KBA-11-13A**	**Units**
tert-Butylbenzene	1.0 U	1.0 U	µg/L
1,2,4-Trimethylbenzene	1.0 U	**7.0**	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
-Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	**4.0**	µg/L
n-Butylbenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
chlorobutadiene	1.0 U	1.0 U	µg/L
aphthalene	2.0 U	**37**	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
Bromochloromethane	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Dibromofluoromethane	108	112	38-143
8-Toluene	81	98	78-126
romofluorobenzene	92	101	72-132
Date Analyzed	08/04/99	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 - VOLATILE ORGANICS	**KBA-11-13B**	**FDP-2**		**Units**
Dichlorodifluoromethane	2.0 U	2.0 U		µg/L
Chloromethane	1.0 U	1.0 U		µg/L
Vinyl Chloride	1.0 U	**45**		µg/L
Bromomethane	2.0 U	2.0 U		µg/L
Chloroethane	1.0 U	1.0 U		µg/L
Trichlorofluoromethane	1.0 U	1.0 U		µg/L
1,1-Dichloroethene	1.0 U	1.0 U		µg/L
Acetone	50 U	50 U		µg/L
Carbon Disulfide	50 U	50 U		µg/L
Methylene Chloride	5.0 U	5.0 U		µg/L
1,2-Dichloroethene	1.0 U	**6.6**		µg/L
Methyl tert-butyl ether	6.0 U	6.0 U		µg/L
1,1-Dichloroethane	1.0 U	1.0 U		µg/L
2,2-Dichloropropane	2.0 U	2.0 U		µg/L
cis-1,2-Dichloroethene	1.0 U	**190**	D1	µg/L
2-Butanone	20 U	20 U		µg/L
Chloroform	1.0 U	1.0 U		µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U		µg/L
Carbon tetrachloride	1.0 U	1.0 U		µg/L
1,1-Dichloropropene	1.0 U	1.0 U		µg/L
Benzene	1.0 U	**1.2** I		µg/L
1,2-Dichloroethane	1.0 U	1.0 U		µg/L
Trichloroethene	1.0 U	**17**		µg/L
1,2-Dichloropropane	1.0 U	1.0 U		µg/L
Dibromomethane	1.0 U	1.0 U		µg/L
Bromodichloromethane	1.0 U	1.0 U		µg/L

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).
D1 = Analyte value determined from a 1:5 dilution.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - LATILE ORGANICS	**KBA-11-13B**	**FDP-2**	**Units**
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
oluene	1.0 U	**2.3**	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	3.0 U	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	1.0 U	**6.0**	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
thylbenzene	1.0 U	**56**	µg/L
Xylene & p-Xylene	2.0 U	**7.9**	µg/L
Xylene	1.0 U	**3.5**	µg/L
Styrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	**2.2** I	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
-Propylbenzene	1.0 U	**2.3**	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	**2.7**	µg/L
Chlorotoluene	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	**KBA-11-13B**	**FDP-2**	**Units**
ert-Butylbenzene	1.0 U	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	**4.6**	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	**3.6**	µg/L
n-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
chlorobutadiene	1.0 U	1.0 U	µg/L
phthalene	2.0 U	**30**	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
romochloromethane	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Dibromofluoromethane	108	104	38-143
-Toluene	94	95	78-126
romofluorobenzene	90	95	72-132
Date Analyzed	08/04/99	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 - OLATILE ORGANICS	**LAB BLANK**	**Units**
chlorodifluoromethane	2.0 U	µg/L
loromethane	1.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
omomethane	2.0 U	µg/L
loroethane	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
etone	50 U	µg/L
rbon Disulfide	50 U	µg/L
Methylene Chloride	5.0 U	µg/L
1,2-Dichloroethene	1.0 U	µg/L
thyl tert-butyl ether	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
2-Dichloropropane	2.0 U	µg/L
1,2-Dichloroethene	1.0 U	µg/L
2-Butanone	20 U	µg/L
Chloroform	1.0 U	µg/L
1,1-Trichloroethane	1.0 U	µg/L
rbon tetrachloride	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	µg/L
nzene	1.0 U	µg/L
2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
2-Dichloropropane	1.0 U	µg/L
bromomethane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	**LAB BLANK**	**Units**
-Chloroethyl vinyl ether	6.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	µg/L
oluene	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	3.0 U	µg/L
3-Dichloropropane	1.0 U	µg/L
-Hexanone	20 U	µg/L
D omochloromethane	1.0 U	µg/L
-Dibromoethane	1.0 U	µg/L
lorobenzene	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	µg/L
thylbenzene	1.0 U	µg/L
-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
Styrene	1.0 U	µg/L
romoform	1.0 U	µg/L
sopropylbenzene	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
romobenzene	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	µg/L
n-Propylbenzene	1.0 U	µg/L
-Chlorotoluene	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	µg/L
4-Chlorotoluene	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - OLATILE ORGANICS	LAB BLANK	Units
ert-Butylbenzene	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	µg/L
s-Butylbenzene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
-Isopropyltoluene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
n-Butylbenzene	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	µg/L
exachlorobutadiene	1.0 U	µg/L
aphthalene	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	µg/L
Bromochloromethane	1.0 U	µg/L
urrogate:	**% RECOV**	**LIMITS**
Dibromofluoromethane	110	38-143
8-Toluene	99	78-126
romofluorobenzene	100	72-132
Date Analyzed	08/04/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7946
DATE REPORTED: August 5, 1999
PROJECT NAME : Kings Bay

QUALITY CONTROL DATA

rameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
A Method 624/8260				
1-Dichloroethene	106/114/105	45-167	7	30
Benzene	104/107/ 99	60-130	3	23
richloroethene	93/ 99/ 91	50-122	6	10
luene	106/113/102	57-136	6	12
Chlorobenzene	104/110/102	59-126	6	11

vironmental Conservation Laboratories Comprehensive QA Plan #960038

= Less Than
= Matrix Spike
= Matrix Spike Duplicate
= Laboratory Control Standard
= Relative Percent Difference

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CLIENT : Bechtel Environmental, Inc.
ADDRESS: NAS Cecil Field
P.O. Box 171
Jacksonville, FL 32215

REPORT # : JR7954
DATE SUBMITTED: August 5, 1999
DATE REPORTED : August 16, 1999
DATE AMENDED : September 7, 1999

ATTENTION: Mr. Mark Gage

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: WO# JX128

Kings Bay

08/05/99

#1 - PS-3 @ 12:40
#2 - KBA-11-13A @ 13:30

PROJECT MANAGER _____
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay
DATE AMENDED : September 7, 1999

RESULTS OF ANALYSIS

EPA METHOD 8260 - VOLATILE ORGANICS	PS-3	KBA-11-13A		Units
Dichlorodifluoromethane	2.0 U	2.0 U		µg/L
Chloromethane	1.0 U	1.0 U		µg/L
Vinyl Chloride	**4.2**	**44**		µg/L
Bromomethane	2.0 U	2.0 U		µg/L
Chloroethane	1.0 U	1.0 U		µg/L
Trichlorofluoromethane	1.0 U	1.0 U		µg/L
1,1-Dichloroethene	1.0 U	1.0 U		µg/L
Acetone	50 U	50 U		µg/L
Carbon Disulfide	50 U	50 U		µg/L
Methylene Chloride	5.0 U	5.0 U		µg/L
1,2-Dichloroethene	1.0 U	**6.7**		µg/L
Methyl tert-butyl ether	6.0 U	6.0 U		µg/L
1,1-Dichloroethane	**1.8** I	1.0 U		µg/L
1,2-Dichloropropane	2.0 U	2.0 U		µg/L
c-1,2-Dichloroethene	**3.9**	**190**	D1	µg/L
2-Butanone	20 U	20 U		µg/L
Chloroform	1.0 U	1.0 U		µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U		µg/L
Carbon tetrachloride	1.0 U	1.0 U		µg/L
1,1-Dichloropropene	1.0 U	1.0 U		µg/L
Benzene	1.0 U	**1.2** I		µg/L
1,2-Dichloroethane	1.0 U	1.0 U		µg/L
Trichloroethene	**5.0**	**20**		µg/L
1,2-Dichloropropane	1.0 U	1.0 U		µg/L
Dibromomethane	1.0 U	1.0 U		µg/L
Bromodichloromethane	1.0 U	1.0 U		µg/L

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).
D1 = Analyte value determined from a 1:5 dilution.

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay
DATE AMENDED : September 7, 1999

RESULTS OF ANALYSIS

EPA METHOD 8260 (cont.) - VOLATILE ORGANICS	PS-3	KBA-11-13A	Units
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	**3.2**	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
rachloroethene	**3.0** I	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
2-Hexanone	20 U	20 U	µg/L
bromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
hlorobenzene	1.0 U	**6.9**	µg/L
1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
hylbenzene	**17**	**70**	µg/L
n-Xylene & p-Xylene	**2.2** I	**10**	µg/L
o-Xylene	1.0 U	**4.4**	µg/L
yrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
Isopropylbenzene	**1.7** I	**3.0** I	µg/L
1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
1,2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
Propylbenzene	**1.4**	**3.6**	µg/L
Chlorotoluene	1.0 U	1.0 U	µg/L
1,3,5-Trimethylbenzene	**2.2**	**4.6**	µg/L
4-Chlorotoluene	1.0 U	1.0 U	µg/L

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay
DATE AMENDED : September 7, 1999

RESULTS OF ANALYSIS

EPA METHOD 8260 (cont.) - VOLATILE ORGANICS	**PS-3**	**KBA-11-13A**	**Units**
ert-Butylbenzene	1.0 U	1.0 U	µg/L
1,2,4-Trimethylbenzene	**1.5** I	**7.0**	µg/L
Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
p-Isopropyltoluene	1.0 U	1.0 U	µg/L
4-Dichlorobenzene	1.0 U	**4.9**	µg/L
Butylbenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
1 Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
xachlorobutadiene	1.0 U	1.0 U	µg/L
Naphthalene	2.0 U	**42**	µg/L
2,3-Trichloropropane	1.0 U	1.0 U	µg/L
omochloromethane	1.0 U	1.0 U	µg/L
urrogate:	**% RECOV**	**% RECOV**	**LIMITS**
bromofluoromethane	114	110	38-143
8-Toluene	96	95	78-126
Bromofluorobenzene	100	98	72-132
ate Analyzed	08/13/99	08/13/99	

U Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

EPA METHOD 8260 - VOLATILE ORGANICS	**LAB BLANK**	**Units**
Dichlorodifluoromethane	2.0 U	µg/L
Chloromethane	1.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
Bromomethane	2.0 U	µg/L
Chloroethane	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
Acetone	50 U	µg/L
Carbon Disulfide	50 U	µg/L
Methylene Chloride	5.0 U	µg/L
trans-1,2-Dichloroethene	1.0 U	µg/L
Methyl tert-butyl ether	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
2,2-Dichloropropane	2.0 U	µg/L
cis-1,2-Dichloroethene	1.0 U	µg/L
2-Butanone	20 U	µg/L
Chloroform	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	µg/L
Carbon tetrachloride	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	µg/L
Benzene	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Dibromomethane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - LATILE ORGANICS	**LAB BLANK**	**Units**
Chloroethyl vinyl ether	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	µg/L
luene	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
etrachloroethene	3.0 U	µg/L
3-Dichloropropane	1.0 U	µg/L
Hexanone	20 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Dibromoethane	1.0 U	µg/L
lorobenzene	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	µg/L
thylbenzene	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	µg/L
Xylene	1.0 U	µg/L
Styrene	1.0 U	µg/L
omoform	1.0 U	µg/L
opropylbenzene	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
omobenzene	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	µg/L
-Propylbenzene	1.0 U	µg/L
-Chlorotoluene	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	µg/L
Chlorotoluene	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	**LAB BLANK**	**Units**
rt-Butylbenzene	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	µg/L
s-Butylbenzene	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	µg/L
Isopropyltoluene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
n-Butylbenzene	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	µg/L
xachlorobutadiene	1.0 U	µg/L
phthalene	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	µg/L
romochloromethane	1.0 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Dibromofluoromethane	112	38-143
-Toluene	97	78-126
romofluorobenzene	91	72-132
Date Analyzed	08/13/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR7954
DATE REPORTED: August 16, 1999
REFERENCE : WO# JX128
PROJECT NAME : Kings Bay

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
PA Method 624/8260				
1,1-Dichloroethene	110/104/114	45-167	6	30
Benzene	103/ 98/106	60-130	5	23
Trichloroethene	95/ 93/100	50-122	2	10
Toluene	102/ 95/109	57-136	7	12
Chlorobenzene	102/102/110	59-126	<1	11

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

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CLIENT : Bechtel Environmental, Inc.
ADDRESS: NAS Cecil Field
P.O. Box 171
Jacksonville, FL 32215

REPORT # : JR8126
DATE SUBMITTED: August 18, 1999
DATE REPORTED : August 19, 1999

ATTENTION: Mr. Mark Gage

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

Kings Bay Site 11

08/17/99

#1 - KBA-11-37 @ 16:00

PROJECT MANAGER _____
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR8126
DATE REPORTED: August 19, 1999
PROJECT NAME : Kings Bay Site 11

RESULTS OF ANALYSIS

A METHOD 8260 - VOLATILE ORGANICS	**KBA-11-37**	**LAB BLANK**	**Units**
chlorodifluoromethane	2.0 U	2.0 U	µg/L
loromethane	1.0 U	1.0 U	µg/L
Vinyl Chloride	**2.5** I	1.0 U	µg/L
omomethane	2.0 U	2.0 U	µg/L
loroethane	1.0 U	1.0 U	µg/L
Trichlorofluoromethane	1.0 U	1.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
etone	50 U	50 U	µg/L
rbon Disulfide	50 U	50 U	µg/L
Me' vlene Chloride	5.0 U	5.0 U	µg/L
2-Dichloroethene	1.0 U	1.0 U	µg/L
thyl tert-butyl ether	6.0 U	6.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
2-Dichloropropane	2.0 U	2.0 U	µg/L
1,2-Dichloroethene	**24**	1.0 U	µg/L
2-Butanone	20 U	20 U	µg/L
hloroform	1.0 U	1.0 U	µg/L
1,1-Trichloroethane	1.0 U	1.0 U	µg/L
rbon tetrachloride	1.0 U	1.0 U	µg/L
1,1-Dichloropropene	1.0 U	1.0 U	µg/L
nzene	**2.1**	1.0 U	µg/L
2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
2-Dichloropropane	1.0 U	1.0 U	µg/L
bromomethane	1.0 U	1.0 U	µg/L
romodichloromethane	1.0 U	1.0 U	µg/L

ompound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR8126
DATE REPORTED: August 19, 1999
PROJECT NAME : Kings Bay Site 11

RESULTS OF ANALYSIS

A METHOD 8260 (cont.) - VOLATILE ORGANICS	**KBA-11-37**	**LAB BLANK**	**Units**
Chloroethyl vinyl ether	6.0 U	6.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
4-Methyl-2-pentanone	20 U	20 U	µg/L
luene	1.0 U	1.0 U	µg/L
1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	3.0 U	3.0 U	µg/L
3-Dichloropropane	1.0 U	1.0 U	µg/L
Hexanone	20 U	20 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
2-Dibromoethane	1.0 U	1.0 U	µg/L
lorobenzene	**2.9**	1.0 U	µg/L
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
hylbenzene	**15**	1.0 U	µg/L
Xylene & p-Xylene	2.0 U	2.0 U	µg/L
-Xylene	1.0 U	1.0 U	µg/L
tyrene	1.0 U	1.0 U	µg/L
omoform	1.0 U	1.0 U	µg/L
opropylbenzene	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
omobenzene	1.0 U	1.0 U	µg/L
2,3-Trichlorobenzene	1.0 U	1.0 U	µg/L
n-Propylbenzene	1.0 U	1.0 U	µg/L
Chlorotoluene	1.0 U	1.0 U	µg/L
3,5-Trimethylbenzene	1.0 U	1.0 U	µg/L
-Chlorotoluene	1.0 U	1.0 U	µg/L

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR8126
DATE REPORTED: August 19, 1999
PROJECT NAME : Kings Bay Site 11

RESULTS OF ANALYSIS

PA METHOD 8260 (cont.) - VOLATILE ORGANICS	**KBA-11-37**	**LAB BLANK**	**Units**
rt-Butylbenzene	1.0 U	1.0 U	µg/L
2,4-Trimethylbenzene	1.0 U	1.0 U	µg/L
s-Butylbenzene	1.0 U	1.0 U	µg/L
3-Dichlorobenzene	1.0 U	1.0 U	µg/L
Isopropyltoluene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	**3.6**	1.0 U	µg/L
n-Butylbenzene	1.0 U	1.0 U	µg/L
2-Dichlorobenzene	1.0 U	1.0 U	µg/L
2-Dibromo-3-chloropropane	1.0 U	1.0 U	µg/L
1,2,4-Trichlorobenzene	1.0 U	1.0 U	µg/L
chlorobutadiene	1.0 U	1.0 U	µg/L
phthalene	**12**	2.0 U	µg/L
1,2,3-Trichloropropane	1.0 U	1.0 U	µg/L
romochloromethane	1.0 U	1.0 U	µg/L
urrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Dibromofluoromethane	109	110	38-143
-Toluene	92	97	78-126
romofluorobenzene	90	90	72-132
Date Analyzed	08/18/99	08/18/99	

= Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR8126
DATE REPORTED: August 19, 1999
PROJECT NAME : Kings Bay Site 11

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 624/8260				
1,1-Dichloroethene	116/112/109	45-167	4	30
Benzene	115/112/104	60-130	3	23
Trichloroethene	98/ 98/ 94	50-122	<1	10
Toluene	115/109/108	57-136	5	12
Chlorobenzene	116/113/105	59-126	3	11

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

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B-2 Appendix IX Analyses

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) WATER Lab Sample ID: 9908172-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2V514

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: not dec. _____ Date Analyzed: 08/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	chloromethane	1.0	U
74-83-9	bromomethane	1.0	U
75-01-4	vinyl chloride	49.6	
75-00-3	chloroethane	1.0	U
75-09-2	methylene chloride	1.0	JB
67-64-1	acetone	2.2	JB
75-15-0	carbon disulfide	4.6	J
75-35-4	1,1-dichloroethene	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
67-66-3	chloroform	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
78-93-3	2-butanone	10.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbon tetrachloride	1.0	U
75-27-4	bromodichloromethane	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
10061-01-5	cis-1,3-dichloropropene	1.0	U
79-01-6	trichloroethene	22.7	
124-48-1	dibromochloromethane	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
71-43-2	benzene	0.97	J
10061-02-6	trans-1,3-dichloropropene	1.0	U
75-25-2	bromoform	1.0	U
108-10-1	4-methyl-2-pentanone	5.0	U
591-78-6	2-hexanone	5.0	U
127-18-4	tetrachloroethene	1.0	U
79-34-5	1,1,2,2-tetrachloroethane	1.0	U
108-88-3	toluene	3.5	
108-90-7	chlorobenzene	5.8	
100-41-4	ethylbenzene	79.6	
100-42-5	styrene	1.0	U
75-71-8	Dichlorodifluoromethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) WATER Lab Sample ID: 9908172-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2V514

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: not dec. _____ Date Analyzed: 08/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-13-1	Acrylonitrile	10.0	U
108-05-4	Vinyl Acetate	5.0	U
107-02-8	Acrolein	10.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
74-88-4	Iodomethane	10.0	U
75-05-8	Acetonitrile	25.0	U
107-05-1	Allyl Chloride	5.0	U
126-99-8	2-Chloro-1,3-butadiene	20.0	U
126-98-7	Methacrylonitrile	5.0	U
78-83-1	Isobutyl Alcohol	50.0	U
107-12-0	Propionitrile	10.0	U
74-95-3	Dibromomethane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
106-93-4	1,2-Dibromoethane	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U
108-60-1	bis(2-Chloro-isopropyl)ether	10.0	U
96-12-8	1,2-dibromo-3-chloropropane	1.0	U
1330-20-7	xylenes (total)	19.5	
156-60-5	trans-1,2-dichloroethene	4.7	
156-59-2	cis-1,2-Dichloroethene	234	E

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWTDL

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) WATER Lab Sample ID: 9908172-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2W107

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: not dec. _____ Date Analyzed: 08/16/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	chloromethane	5.0	U
74-83-9	bromomethane	5.0	U
75-01-4	vinyl chloride	32.2	D
75-00-3	chloroethane	5.0	U
75-09-2	methylene chloride	25.0	U
67-64-1	acetone	11.0	DJB
75-15-0	carbon disulfide	25.0	U
75-35-4	1,1-dichloroethene	5.0	U
75-34-3	1,1-dichloroethane	5.0	U
67-66-3	chloroform	5.0	U
107-06-2	1,2-dichloroethane	5.0	U
78-93-3	2-butanone	50.0	U
71-55-6	1,1,1-trichloroethane	5.0	U
56-23-5	carbon tetrachloride	5.0	U
75-27-4	bromodichloromethane	5.0	U
78-87-5	1,2-dichloropropane	5.0	U
10061-01-5	cis-1,3-dichloropropene	5.0	U
79-01-6	trichloroethene	20.4	D
124-48-1	dibromochloromethane	5.0	U
79-00-5	1,1,2-trichloroethane	5.0	U
71-43-2	benzene	5.0	U
10061-02-6	trans-1,3-dichloropropene	5.0	U
75-25-2	bromoform	5.0	U
108-10-1	4-methyl-2-pentanone	25.0	U
591-78-6	2-hexanone	25.0	U
127-18-4	tetrachloroethene	5.0	U
79-34-5	1,1,2,2-tetrachloroethane	5.0	U
108-88-3	toluene	3.5	DJ
108-90-7	chlorobenzene	5.4	D
100-41-4	ethylbenzene	67.7	D
100-42-5	styrene	5.0	U
75-71-8	Dichlorodifluoromethane	25.0	U
75-69-4	Trichlorofluoromethane	25.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWTDL

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) WATER Lab Sample ID: 9908172-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2W107

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: not dec. _____ Date Analyzed: 08/16/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-13-1	Acrylonitrile	50.0	U
108-05-4	Vinyl Acetate	25.0	U
107-02-8	Acrolein	50.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
74-88-4	Iodomethane	50.0	U
75-05-8	Acetonitrile	40.7	DJB
107-05-1	Allyl Chloride	25.0	U
126-99-8	2-Chloro-1,3-butadiene	100	U
126-98-7	Methacrylonitrile	25.0	U
78-83-1	Isobutyl Alcohol	250	U
107-12-0	Propionitrile	50.0	U
74-95-3	Dibromomethane	5.0	U
80-62-6	Methyl methacrylate	25.0	U
106-93-4	1,2-Dibromoethane	5.0	U
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U
96-18-4	1,2,3-Trichloropropane	5.0	U
110-57-6	trans-1,4-Dichloro-2-butene	25.0	U
108-60-1	bis(2-Chloro-isopropyl)ether	50.0	U
96-12-8	1,2-dibromo-3-chloropropane	5.0	U
1330-20-7	xylenes (total)	17.6	D
156-60-5	trans-1,2-dichloroethene	3.9	DJ
156-59-2	cis-1,2-Dichloroethene	219	D

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: 2G214

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/10/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
62-75-9	N-methyl-N-nitrosomethylamin	11.9	U
110-86-1	pyridine	11.9	U
62-53-3	aniline	11.9	U
108-95-2	phenol	11.9	U
111-44-4	bis(2-chloroethyl)ether	11.9	U
95-57-8	2-chlorophenol	11.9	U
541-73-1	1,3-dichlorobenzene	11.9	U
106-46-7	1,4-dichlorobenzene	11.9	U
100-51-6	benzyl alcohol	11.9	U
95-50-1	1,2-dichlorobenzene	11.9	U
108-60-1	bis(2-chloroisopropyl)ether	11.9	U
95-48-7	o-cresol	11.9	U
98-86-2	acetophenone	11.9	U
621-64-7	N-nitroso-di-n-propylamine	11.9	U
106-44-5	m,p-cresol	11.9	U
67-72-1	hexachloroethane	11.9	U
98-95-3	nitrobenzene	11.9	U
78-59-1	isophorone	11.9	U
88-75-5	2-nitrophenol	11.9	U
105-67-9	2,4-dimethylphenol	11.9	U
111-91-1	bis(2-chloroethoxy)methane	11.9	U
120-83-2	2,4-dichlorophenol	11.9	U
120-82-1	1,2,4-trichlorobenzene	11.9	U
91-20-3	naphthalene	18.3	
106-47-8	4-chloroaniline	11.9	U
87-68-3	hexachlorobutadiene	11.9	U
59-50-7	4-chloro-3-methylphenol	11.9	U
91-57-6	2-methylnaphthalene	11.9	U
77-47-4	hexachlorocyclopentadiene	11.9	U
88-06-2	2,4,6-trichlorophenol	11.9	U
95-95-4	2,4,5-trichlorophenol	11.9	U
91-58-7	2-chloronaphthalene	11.9	U
99-09-2	3-nitroaniline	11.9	U

FORM I SV-1 OLM03.0

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: 2G214

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/10/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
88-74-4	2-nitroaniline	11.9	U
131-11-3	dimethylphthalate	11.9	U
606-20-2	2,6-dinitrotoluene	11.9	U
208-96-8	acenaphthylene	11.9	U
83-32-9	acenaphthene	11.9	U
51-28-5	2,4-dinitrophenol	23.8	U
132-64-9	dibenzofuran	11.9	U
121-14-2	2,4-dinitrotoluene	11.9	U
84-66-2	diethylphthalate	11.9	U
100-02-7	4-nitrophenol	11.9	U
86-73-7	fluorene	11.9	U
7005-72-3	4-chlorophenylphenylether	11.9	U
534-52-1	4,6-dinitro-2-methylphenol	23.8	U
100-01-6	4-nitroaniline	11.9	U
122-39-4	diphenylamine	11.9	U
101-55-3	4-bromophenylphenylether	11.9	U
118-74-1	hexachlorobenzene	11.9	U
87-86-5	pentachlorophenol	23.8	U
85-01-8	phenanthrene	11.9	U
120-12-7	anthracene	11.9	U
84-74-2	di-n-butylphthalate	11.9	U
206-44-0	fluoranthene	11.9	U
129-00-0	pyrene	11.9	U
85-68-7	butylbenzylphthalate	11.9	U
56-55-3	benzo(a)anthracene	11.9	U
91-94-1	3,3'-dichlorobenzidine	23.8	U
218-01-9	chrysene	11.9	U
117-81-7	bis(2-ethylhexyl)phthalate	11.9	U
117-84-0	di-n-octylphthalate	11.9	U
205-99-2	benzo(b)fluoranthene	11.9	U
207-08-9	benzo(k)fluoranthene	11.9	U
50-32-8	benzo(a)pyrene	11.9	U
193-39-5	indeno(1,2,3-cd)pyrene	11.9	U

FORM I SV-2 OLM03.0

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: 2G214

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/10/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
53-70-3	dibenz(a,h)anthracene	11.9	U
191-24-2	benzo(g,h,i)perylene	11.9	U
123-91-1	1,4-dioxane	11.9	U
109-06-8	2-picoline	11.9	U
10595-95-6	n-nitrosomethylethylamine	11.9	U
66-27-3	methyl methanesulfonate	11.9	U
55-18-5	n-nitrosodiethylamine	11.9	U
62-50-0	ethyl methanesulfonate	11.9	U
930-55-2	n-nitrosopyrrolidine	11.9	U
59-89-2	n-nitrosomorpholine	11.9	U
95-53-4	o-toluidine	11.9	U
100-75-4	n-nitrosopiperidine	11.9	U
122-09-8	a,a-dimethylphenethylamine	11.9	U
126-68-1	triethylphosphorothioate	11.9	U
87-65-0	2,6-dichlorophenol	11.9	U
1888-71-7	hexachloropropene	11.9	U
106-50-3	p-phenylenediamine	23.8	U
924-16-3	n-nitroso-di-n-butylamine	11.9	U
94-59-7	safrole	11.9	U
634-90-2	1,2,4,5-tetrachlorobenzene	11.9	U
120-58-1	isosafrole	11.9	U
130-15-4	1,4-naphthoquinone	11.9	U
99-65-0	m-dinitrobenzene	11.9	U
608-93-5	pentachlorobenzene	11.9	U
134-32-7	1-naphthylamine	11.9	U
91-59-8	2-naphthylamine	11.9	U
58-90-2	2,3,4,6-tetrachlorophenol	11.9	U
99-55-8	5-nitro-o-toluidine	11.9	U
297-97-2	thionazin	11.9	U
99-35-4	sym-trinitrobenzene	59.5	U
62-44-2	phenacetin	11.9	U
2303-16-4	diallate	11.9	U
60-51-5	dimethoate	11.9	U

FORM I SV-3 OLM03.0

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: 2G214

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/10/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
92-67-1	4-aminobiphenyl	11.9	U
82-68-8	pentachloronitrobenzene	11.9	U
23950-58-5	pronamide	11.9	U
56-57-5	4-nitroquinoline-1-oxide	11.9	U
91-80-5	methapyrilene	11.9	U
465-73-6	isodrin	11.9	U
140-57-8	aramite	11.9	U
143-50-0	kepone	11.9	U
60-11-7	p-(dimethylamino)azobenzene	11.9	U
510-15-6	chlorobenzilate	11.9	U
119-93-7	3,3'-dimethylbenzidine	23.8	U
52-85-7	famphur	11.9	U
53-96-3	2-acetylaminofluorene	11.9	U
57-97-6	7,12-dimethylbenz(a)anthrace	11.9	U
59-49-5	3-methylcholanthrene	11.9	U
70-30-4	hexachlorophene	595	U
56-38-2	Parathion	11.9	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: 2G214

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/10/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 10544-50-0	CYCLIC OCTAATOMIC SULFUR	14.14	121	NJ
2.				
3.				
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FORM I SV-TIC OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 6G305

Level: (low/med) LOW Date Received: 08/05/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/10/99

Concentrated Extract Volume: 0.10(ml) Date Analyzed: 08/11/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ng/Kg) NG/L	Q
51207-31-9	2,3,7,8-TCDF	10.0	U
1746-01-6	2,3,7,8-TCDD	10.0	U
57117-41-6	1,2,3,7,8-PCDF	10.0	U
40321-76-4	1,2,3,7,8-PCDD	10.0	U
39227-28-6	1,2,3,4,7,8-HxCDD	10.0	U
70648-26-9	1,2,3,4,7,8-HxCDF	10.0	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	10.0	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	10.0	U
3268-87-9	OCDD	10.0	U
39001-02-0	OCDF	10.0	U

FORM I SV-1

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 500.0 (g/mL) ML Lab File ID: 016B1601

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/05/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/09/99

Concentrated Extract Volume: 0.50(uL) Date Analyzed: 08/17/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.020	U
319-85-7	beta-BHC	0.020	U
319-86-8	delta-BHC	0.020	U
58-89-9	gamma-BHC (Lindane)	0.020	U
76-44-8	Heptachlor	0.020	U
309-00-2	Aldrin	0.020	U
1024-57-3	Heptachlor epoxide	0.020	U
959-98-8	Endosulfan I	0.020	U
60-57-1	Dieldrin	0.040	U
72-55-9	4,4'-DDE	0.040	U
72-20-8	Endrin	0.040	U
33213-65-9	Endosulfan II	0.040	U
72-54-8	4,4'-DDD	0.040	U
1031-07-8	Endosulfan sulfate	0.040	U
50-29-3	4,4'-DDT	0.040	U
72-43-5	Methoxychlor	0.20	U
53494-70-5	Endrin ketone	0.040	U
7421-93-4	Endrin aldehyde	0.040	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.12	U
11104-28-2	Aroclor-1221	0.12	U
1114-16-5	Aroclor-1232	0.12	U
53469-21-9	Aroclor-1242	0.12	U
12672-29-6	Aroclor-1248	0.12	U
11097-69-1	Aroclor-1254	0.12	U
11096-82-5	Aroclor-1260	0.12	U
57-74-9	Chlordane (tech.)	0.25	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20010 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98172W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908172-01

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 029B2901

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/05/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/09/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/11/99

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1928-38-7	2,4-D	0.10	U
95-76-5	2,4,5-T	0.10	U
93-72-1	2,4,5-TP	0.10	U
6597-78-0	DICAMBA	0.10	U
94-82-6	2,4-DB	0.10	U

Client:	Bechtel PO Box 350 Oak Ridge, Tennessee 37831-0350
Contact:	Ms. Robin Crabtree
Project Description:	Cecil Field/JX

cc: BECH00394 Report Date: August 19, 1999

Sample ID	: KB20010 GWT
Lab ID	: 9908172-01
Matrix	: Water
Date Collected	: 08/03/99
Date Received	: 08/05/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
CYANIDES	U	0.00	0.00	0.01	mg/l	1.0	HSC	08/10/99	2039	155638	1
Sulfides		1.1	0.02	0.20	mg/l	2.0	JBK	08/09/99	1600	155505	2

M = Method	Method-Description
M 1	EPA 335.3
M 2	EPA 376.2

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte between DL (Detect Limit) and RL (Report Limit)
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Valerie Davis at (843) 769-7391.

Reviewed By

Form 1: Inorganic Analyses Data Sheet

DG No.: 98172W

Method Type: Total Metals

Sample ID: 9908172-01

Client ID: KB20010 GWT

Contract: BECH00394 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 8/5/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-36-0	Antimony	2.9	µg/L	U		P	2.9	TJA61 Trace ICPAES	990816-2
7440-38-2	Arsenic	2.7	µg/L	U		P	2.7	TJA61 Trace ICPAES	990816-2
7440-39-3	Barium	15.8	µg/L			P	0.19	TJA61 Trace ICPAES	990816-2
7440-41-7	Beryllium	0.09	µg/L	U		P	0.09	TJA61 Trace ICPAES	990816-2
7440-43-9	Cadmium	0.36	µg/L	U		P	0.36	TJA61 Trace ICPAES	990816-2
7440-47-3	Chromium	2.5	µg/L	B		P	0.80	TJA61 Trace ICPAES	990816-2
7440-48-4	Cobalt	0.84	µg/L	U		P	0.84	TJA61 Trace ICPAES	990816-2
7440-50-8	Copper	6.2	µg/L			P	1.5	TJA61 Trace ICPAES	990816-2
7439-92-1	Lead	2.8	µg/L	B		P	1.6	TJA61 Trace ICPAES	990816-2
7439-97-6	Mercury	0.04	µg/L	B		AV	0.04	PE CVAA	990810wp-
7440-02-0	Nickel	12.7	µg/L			P	1.0	TJA61 Trace ICPAES	990816-2
7782-49-2	Selenium	2.9	µg/L	U		P	2.9	TJA61 Trace ICPAES	990816-2
7440-22-4	Silver	3.1	µg/L	B		P	0.90	TJA61 Trace ICPAES	990816-2
0-28-0	Thallium	3.9	µg/L	U		P	3.9	TJA61 Trace ICPAES	990816-2
/440-31-5	Tin	2.0	µg/L	U		P	2.0	TJA61 Trace ICPAES	990816-2
7440-62-2	Vanadium	5.5	µg/L			P	0.77	TJA61 Trace ICPAES	990816-2
7440-66-6	Zinc	18.3	µg/L			P	0.56	TJA61 Trace ICPAES	990816-2

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWI

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) WATER Lab Sample ID: 9908655-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2X133

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: not dec. _____ Date Analyzed: 08/24/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	chloromethane	1.0	U
74-83-9	bromomethane	1.0	U
75-01-4	vinyl chloride	1.0	U
75-00-3	chloroethane	1.0	U
75-09-2	methylene chloride	2.8	JB
67-64-1	acetone	1.6	JB
75-15-0	carbon disulfide	5.0	U
75-35-4	1,1-dichloroethene	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
67-66-3	chloroform	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
78-93-3	2-butanone	10.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbon tetrachloride	1.0	U
75-27-4	bromodichloromethane	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
10061-01-5	cis-1,3-dichloropropene	1.0	U
79-01-6	trichloroethene	1.0	U
124-48-1	dibromochloromethane	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
71-43-2	benzene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
75-25-2	bromoform	1.0	U
108-10-1	4-methyl-2-pentanone	5.0	U
591-78-6	2-hexanone	5.0	U
127-18-4	tetrachloroethene	1.0	U
79-34-5	1,1,2,2-tetrachloroethane	1.0	U
108-88-3	toluene	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U
100-42-5	styrene	1.0	U
75-71-8	Dichlorodifluoromethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) WATER Lab Sample ID: 9908655-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2X133

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: not dec. _____ Date Analyzed: 08/24/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-13-1	Acrylonitrile	10.0	U
108-05-4	Vinyl Acetate	5.0	U
107-02-8	Acrolein	10.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
74-88-4	Iodomethane	10.0	U
75-05-8	Acetonitrile	25.0	U
107-05-1	Allyl Chloride	5.0	U
126-99-8	2-Chloro-1,3-butadiene	20.0	U
126-98-7	Methacrylonitrile	5.0	U
78-83-1	Isobutyl Alcohol	50.0	U
107-12-0	Propionitrile	10.0	U
74-95-3	Dibromomethane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
106-93-4	1,2-Dibromoethane	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U
108-60-1	bis(2-Chloro-isopropyl)ether	10.0	U
96-12-8	1,2-dibromo-3-chloropropane	1.0	U
1330-20-7	xylenes (total)	3.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1E

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 2I310

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/25/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
62-75-9	N-methyl-N-nitrosomethylamin	10.4	U
110-86-1	pyridine	10.4	U
62-53-3	aniline	10.4	U
108-95-2	phenol	10.4	U
111-44-4	bis(2-chloroethyl)ether	10.4	U
95-57-8	2-chlorophenol	10.4	U
541-73-1	1,3-dichlorobenzene	10.4	U
106-46-7	1,4-dichlorobenzene	10.4	U
100-51-6	benzyl alcohol	10.4	U
95-50-1	1,2-dichlorobenzene	10.4	U
108-60-1	bis(2-chloroisopropyl)ether	10.4	U
95-48-7	o-cresol	10.4	U
98-86-2	acetophenone	10.4	U
621-64-7	N-nitroso-di-n-propylamine	10.4	U
106-44-5	m,p-cresol	10.4	U
67-72-1	hexachloroethane	10.4	U
98-95-3	nitrobenzene	10.4	U
78-59-1	isophorone	10.4	U
88-75-5	2-nitrophenol	10.4	U
105-67-9	2,4-dimethylphenol	10.4	U
111-91-1	bis(2-chloroethoxy)methane	10.4	U
120-83-2	2,4-dichlorophenol	10.4	U
120-82-1	1,2,4-trichlorobenzene	10.4	U
91-20-3	naphthalene	10.4	U
106-47-8	4-chloroaniline	10.4	U
87-68-3	hexachlorobutadiene	10.4	U
59-50-7	4-chloro-3-methylphenol	10.4	U
91-57-6	2-methylnaphthalene	10.4	U
77-47-4	hexachlorocyclopentadiene	10.4	U
88-06-2	2,4,6-trichlorophenol	10.4	U
95-95-4	2,4,5-trichlorophenol	10.4	U
91-58-7	2-chloronaphthalene	10.4	U
99-09-2	3-nitroaniline	10.4	U

FORM I SV-1 OLM03.0

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 2I310

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/25/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
88-74-4	2-nitroaniline	10.4	U
131-11-3	dimethylphthalate	10.4	U
606-20-2	2,6-dinitrotoluene	10.4	U
208-96-8	acenaphthylene	10.4	U
83-32-9	acenaphthene	10.4	U
51-28-5	2,4-dinitrophenol	20.8	U
132-64-9	dibenzofuran	10.4	U
121-14-2	2,4-dinitrotoluene	10.4	U
84-66-2	diethylphthalate	10.4	U
100-02-7	4-nitrophenol	10.4	U
86-73-7	fluorene	10.4	U
7005-72-3	4-chlorophenylphenylether	10.4	U
534-52-1	4,6-dinitro-2-methylphenol	20.8	U
100-01-6	4-nitroaniline	10.4	U
122-39-4	diphenylamine	10.4	U
101-55-3	4-bromophenylphenylether	10.4	U
118-74-1	hexachlorobenzene	10.4	U
87-86-5	pentachlorophenol	20.8	U
85-01-8	phenanthrene	10.4	U
120-12-7	anthracene	10.4	U
84-74-2	di-n-butylphthalate	10.4	U
206-44-0	fluoranthene	10.4	U
129-00-0	pyrene	10.4	U
85-68-7	butylbenzylphthalate	10.4	U
56-55-3	benzo(a)anthracene	10.4	U
91-94-1	3,3'-dichlorobenzidine	20.8	U
218-01-9	chrysene	10.4	U
117-81-7	bis(2-ethylhexyl)phthalate	10.4	U
117-84-0	di-n-octylphthalate	10.4	U
205-99-2	benzo(b)fluoranthene	10.4	U
207-08-9	benzo(k)fluoranthene	10.4	U
50-32-8	benzo(a)pyrene	10.4	U
193-39-5	indeno(1,2,3-cd)pyrene	10.4	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 2I310

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/25/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
53-70-3	dibenz(a,h)anthracene	10.4	U
191-24-2	benzo(g,h,i)perylene	10.4	U
123-91-1	1,4-dioxane	10.4	U
109-06-8	2-picoline	10.4	U
10595-95-6	n-nitrosomethylethylamine	10.4	U
66-27-3	methyl methanesulfonate	10.4	U
55-18-5	n-nitrosodiethylamine	10.4	U
62-50-0	ethyl methanesulfonate	10.4	U
930-55-2	n-nitrosopyrrolidine	10.4	U
59-89-2	n-nitrosomorpholine	10.4	U
95-53-4	o-toluidine	10.4	U
100-75-4	n-nitrosopiperidine	10.4	U
122-09-8	a,a-dimethylphenethylamine	10.4	U
126-68-1	triethylphosphorothioate	10.4	U
87-65-0	2,6-dichlorophenol	10.4	U
1888-71-7	hexachloropropene	10.4	U
106-50-3	p-phenylenediamine	20.8	U
924-16-3	n-nitroso-di-n-butylamine	10.4	U
94-59-7	safrole	10.4	U
634-90-2	1,2,4,5-tetrachlorobenzene	10.4	U
120-58-1	isosafrole	10.4	U
130-15-4	1,4-naphthoquinone	10.4	U
99-65-0	m-dinitrobenzene	10.4	U
608-93-5	pentachlorobenzene	10.4	U
134-32-7	1-naphthylamine	10.4	U
91-59-8	2-naphthylamine	10.4	U
58-90-2	2,3,4,6-tetrachlorophenol	10.4	U
99-55-8	5-nitro-o-toluidine	10.4	U
297-97-2	thionazin	10.4	U
99-35-4	sym-trinitrobenzene	52.1	U
62-44-2	phenacetin	10.4	U
2303-16-4	diallate	10.4	U
60-51-5	dimethoate	10.4	U

FORM I SV-3 OLM03.0

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 2I310

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/25/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
92-67-1	4-aminobiphenyl	10.4	U
82-68-8	pentachloronitrobenzene	10.4	U
23950-58-5	pronamide	10.4	U
56-57-5	4-nitroquinoline-1-oxide	10.4	U
91-80-5	methapyrilene	10.4	U
465-73-6	isodrin	10.4	U
140-57-8	aramite	10.4	U
143-50-0	kepone	10.4	U
60-11-7	p-(dimethylamino)azobenzene	10.4	U
510-15-6	chlorobenzilate	10.4	U
119-93-7	3,3'-dimethylbenzidine	20.8	U
52-85-7	famphur	10.4	U
53-96-3	2-acetylaminofluorene	10.4	U
57-97-6	7,12-dimethylbenz(a)anthrace	10.4	U
59-49-5	3-methylcholanthrene	10.4	U
70-30-4	hexachlorophene	521	U
56-38-2	Parathion	10.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWI

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 6I105

Level: (low/med) LOW Date Received: 08/19/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/20/99

Concentrated Extract Volume: 0.10(ml) Date Analyzed: 08/23/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ng/Kg) NG/L	Q
51207-31-9	2,3,7,8-TCDF	10.0	U
1746-01-6	2,3,7,8-TCDD	10.0	U
57117-41-6	1,2,3,7,8-PCDF	10.0	U
40321-76-4	1,2,3,7,8-PCDD	10.0	U
39227-28-6	1,2,3,4,7,8-HxCDD	10.0	U
70648-26-9	1,2,3,4,7,8-HxCDF	10.0	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	10.0	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	10.0	U
3268-87-9	OCDD	10.0	U
39001-02-0	OCDF	10.0	U

FORM I SV-1

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 SWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 025B2501

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/19/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/19/99

Concentrated Extract Volume: 1.00(uL) Date Analyzed: 08/26/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.020	U
319-85-7	beta-BHC	0.020	U
319-86-8	delta-BHC	0.020	U
58-89-9	gamma-BHC (Lindane)	0.020	U
76-44-8	Heptachlor	0.020	U
309-00-2	Aldrin	0.020	U
1024-57-3	Heptachlor epoxide	0.020	U
959-98-8	Endosulfan I	0.020	U
60-57-1	Dieldrin	0.040	U
72-55-9	4,4'-DDE	0.040	U
72-20-8	Endrin	0.040	U
33213-65-9	Endosulfan II	0.040	U
72-54-8	4,4'-DDD	0.040	U
1031-07-8	Endosulfan sulfate	0.040	U
50-29-3	4,4'-DDT	0.040	U
72-43-5	Methoxychlor	0.20	U
53494-70-5	Endrin ketone	0.040	U
7421-93-4	Endrin aldehyde	0.040	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.12	U
11104-28-2	Aroclor-1221	0.12	U
1114-16-5	Aroclor-1232	0.12	U
53469-21-9	Aroclor-1242	0.12	U
12672-29-6	Aroclor-1248	0.12	U
11097-69-1	Aroclor-1254	0.12	U
11096-82-5	Aroclor-1260	0.12	U
5103-74-2	Gamma-chlordane	0.020	U
5103-71-9	Alpha-chlordane	0.020	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWT

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 003b0301

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/19/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/23/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1928-38-7	2,4-D	0.10	U
95-76-5	2,4,5-T	0.10	U
93-72-1	2,4,5-TP	0.10	U
6597-78-0	DICAMBA	0.10	U
94-82-6	2,4-DB	0.10	U

FORM I PEST OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

KB20015 GWTRE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 98655W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9908655-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 009b0901

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/19/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/31/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 09/01/99

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1928-38-7	2,4-D	0.10	U
95-76-5	2,4,5-T	0.10	U
93-72-1	2,4,5-TP	0.10	U
6597-78-0	DICAMBA	0.10	U
94-82-6	2,4-DB	0.10	U

Form 1: Inorganic Analyses Data Sheet

DG No.: 98655W

Method Type: Total Metals

Sample ID: 9908655-01

Client ID: KB20015 GWT

Contract: BECH00394 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 8/19/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-36-0	Antimony	2.9	µg/L	U		P	2.9	TJA61 Trace2 ICPAES	990825-2
7440-38-2	Arsenic	2.7	µg/L	U		P	2.7	TJA61 Trace2 ICPAES	990825-2
7440-39-3	Barium	8.2	µg/L			P	0.19	TJA61 Trace2 ICPAES	990825-2
7440-41-7	Beryllium	0.32	µg/L	B		P	0.08	TJA61 Trace2 ICPAES	990825-2
7440-43-9	Cadmium	0.36	µg/L	U		P	0.36	TJA61 Trace2 ICPAES	990825-2
7440-47-3	Chromium	1.3	µg/L	B		P	0.80	TJA61 Trace2 ICPAES	990825-2
7440-48-4	Cobalt	0.84	µg/L	U		P	0.84	TJA61 Trace2 ICPAES	990825-2
7440-50-8	Copper	1.7	µg/L	B		P	1.5	TJA61 Trace2 ICPAES	990825-2
7439-92-1	Lead	1.9	µg/L	B		P	1.6	TJA61 Trace2 ICPAES	990825-2
7439-97-6	Mercury	0.04	µg/L	U		AV	0.04	PE CVAA	990823wp-
7440-02-0	Nickel	1.0	µg/L	U		P	1.0	TJA61 Trace2 ICPAES	990825-2
7782-49-2	Selenium	2.9	µg/L	U		P	2.9	TJA61 Trace2 ICPAES	990825-2
7440-22-4	Silver	0.90	µg/L	U		P	0.90	TJA61 Trace2 ICPAES	990825-2
7440-28-0	Thallium	4.4	µg/L	B		P	3.9	TJA61 Trace2 ICPAES	990825-2
7440-31-5	Tin	2.0	µg/L	U		P	2.0	TJA61 Trace2 ICPAES	990825-2
7440-62-2	Vanadium	1.1	µg/L	B		P	0.77	TJA61 Trace2 ICPAES	990825-2
7440-66-6	Zinc	4.9	µg/L	B		P	0.56	TJA61 Trace2 ICPAES	990825-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Client:	Bechtel PO Box 350 Oak Ridge, Tennessee 37831-0350
Contact:	Ms. Robin Crabtree
Project Description:	Cecil Field/JX

cc: BECH00394 Report Date: August 27, 1999

Sample ID	: KB20015 GWT
Lab ID	: 9908655-01
Matrix	: Water
Date Collected	: 08/18/99
Date Received	: 08/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
CYANIDES	U	0.00	0.00	0.01	mg/l	1.0	HSC	08/24/99	2144	156766	1
SULFIDES		0.45	0.01	0.10	mg/l	1.0	JBK	08/25/99	0945	156563	2

M = Method	Method-Description
M 1	EPA 335.3
M 2	EPA 376.2

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte between DL (Detect Limit) and RL (Report Limit)
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Valerie Davis at (843) 769-7391.

Reviewed By