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SEMI-ANNUAL CORRECTIVE ACTION REPORT FOR SITE 11 APRIL - SEPTEMBER 2009

NSB KINGS BAY GA

10/1/2009

VT GROUP

DEPARTMENT OF THE NAVY
NAVAL SUBMARINE BASE
1063 USS TENNESSEE AVENUE
KINGS BAY, GEORGIA 31547-2608

IN REPLY REFER TO:
5090
Ser PRKB4/2034
30 OCT 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Amy Potter
Georgia Department of Natural Resources
Environmental Protection Division
DOD Remediation Unit
Floyd Towers East, Suite 1162
2 Martin Luther King, Jr. Drive, SE
Atlanta, GA 30334-9000

Dear Ms. Potter:

Per Naval Submarine Base (SUBASE) Kings Bay's Hazardous Waste Permit HW-014 (S&T)-3, the April - September 2009 Semi-Annual Groundwater Monitoring Report for Site 11, Old Camden County Landfill, enclosures (1) and (2) are submitted for your review.

Provided as enclosure (3) is a Portable Document Format (PDF) copy of this submittal on compact disk (CD) as requested.

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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30 OCT 2009

The SUBASE Kings Bay point of contact for this submittal is Mr. Tom Stofflet, (912) 573-4646. Please address all correspondence to "Commanding Officer (Attn: N45), Naval Submarine Base, Kings Bay, 1063 USS TENNESSEE Avenue, Kings Bay, GA 31547-2606."

Sincerely,

Wayne H. McKenzie

WAYNE H. MCKENZIE
Installation Environmental
Program Director
By direction of the
Commanding Officer

Enclosures:
1. April 2009 - September 2009 Semi-Annual Corrective Action Report
2. Monitoring the Efficiency of Natural Attenuation at the Old Camden County Landfill, Kings Bay Naval Submarine Base, Georgia, October, 2009
3. Compact Disk (CD), October 2009 Submittal of Semi-Annual Corrective Action Report (includes U.S. Geological Survey Report, Monitoring the Efficiency of Natural Attenuation at the Old Camden County Landfill, Kings Bay Naval Submarine Base, Georgia, 2009)

Copy to: GAEPD (Mr. William Powell)

Copy to: (w/o encls 1 and 2)
NAVFAC SE (Dana Hayworth)
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USGS (Dr. Frank Chapelle)

SEMI-ANNUAL CORRECTIVE ACTION REPORT
APRIL – SEPTEMBER 2009

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

Contract No. N69272-00-D-3170

Prepared for:

NAVAL SUBMARINE BASE
KINGS BAY, GEORGIA

Prepared by:

P.O. Box 47248
930 USS Hunley Avenue
Kings Bay, Georgia 31547

OCTOBER 2009

Encl (1)

The work described and professional opinions rendered in this document, *Semi-Annual Corrective Action Report, April – September 2009, Site 11, Old Camden County Landfill, Naval Submarine Base Kings Bay, Georgia* 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 engineer registered in the State of Georgia.

10/27/09

Samuel M. Ross
Professional Engineer
State of Georgia License No. 024706
Expires December 31, 2010

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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
Bechtel	Bechtel Environmental, Inc.
CCI	CH2MHill Constructors, Inc
DCA	Dichloroethane
DCE	Dichloroethene
DO	dissolved oxygen
EPA	United States Environmental Protection Agency
GADNR	Georgia Department of Natural Resources
GCI	Geo-Cleanse International, Inc.
GWMP	Groundwater Monitoring Plan
GWPS	Groundwater Protection Standard
ID	inner diameter
IM	Interim Measures
MCL	maximum contaminant level
MDL	method detection limit
MEK	2-butanone
MLW	Mean Low Water
NELAC	National Environmental Laboratory Accreditation Conference
OD	outer diameter
ORP	oxygen reduction potential
PCE	tetrachloroethene
PID	photoionization detector
PQL	practical quantitation limit
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SUBASE	Naval Submarine Base
TCE	trichloroethene
TCLE	total chlorinated ethenes
USGS	United States Geological Survey
VC	vinyl chloride
VOC	volatile organic compound

UNITS OF MEASURE

°C	degrees Centigrade
ft bgs	feet below ground surface
ft btoc	feet below top of casing
ft msl	ft above mean sea level
gal	gallon
in	inch
mg/l	milligrams per liter
mS/cm	microsiemens per centimeter
mV	millivolts
ntu	nephelometric turbidity units
ppm	parts per million
ug/l	micrograms per liter

1.0 INTRODUCTION

VT Group has been contracted by the Department of the Navy, Engineering Field Activity Southeast, Resident Officer in Charge of Construction, Kings Bay, Georgia to provide operating support services as the Base Operating Support Contractor. Under the Prime Contract N69272-00-D-3170, VT Group has been contracted to provide groundwater monitoring services at Site 11, Old Camden County Landfill at the Naval Submarine Base (SUBASE) Kings Bay in accordance with the approved Groundwater Monitoring Plan (GWMP; Bechtel, 1999a). This Semi-Annual Corrective Action Report provides:

1. A historical summary of site activities
2. A summary of the monitoring activities that were performed from April to September 2009;
3. A presentation of the data from the activities performed;
4. An assessment of the current and historical data;
5. A summary of the activities planned for the period of October to December 2009.

1.1 SITE DESCRIPTION AND HISTORY OF LANDFILL ACTIVITIES

SUBASE Kings Bay is located in the southeast corner of Georgia, approximately 8 miles north of the Georgia-Florida state line. The SUBASE includes approximately 16,168 acres and is located in Camden County, Georgia. Currently, the base supports submarines, crew training, weapons handling and storage, submarine maintenance and associated personnel (Bechtel, 1999a).

Site 11, Old Camden County Landfill, is located along the northwest boundary of SUBASE Kings Bay. Immediately west of the site is the Crooked River Plantation residential subdivision. Landfill dimensions are approximately 1,400 feet long, 600 feet wide at the south end and 800 feet wide at the north end. The landfill was operated by Camden County from 1974 to 1981. During operation, trench and fill techniques were used for disposal of municipal waste. The landfill reportedly accepted 100 cubic yards of fire-fighting pit sludge from a dredge spoils disposal area. The landfill ceased operations in October 1981 and was covered with 2 feet of fill. The site is currently vegetated with grass, weeds and pine saplings (Bechtel, 1999A). A site map is provided as Figure 1.

1.2 NATURE AND EXTENT OF CONTAMINATION

The original extent of contamination is difficult to determine, because throughout the monitoring events associated with various remediation efforts, new data has continued to reveal previously unknown information concerning the extent of contamination at the site. The effect of the remediation efforts are difficult to estimate with respect to areas of contamination that had not been discovered prior to remediation, therefore it is also difficult to estimate the extent of these areas in their original state (prior to any remediation).

1.2.1 Prior to Remediation Activity (Original Nature and Extent)

The horizontal extent of the plume prior to installation of the pump and treat system was reported in the RCRA Facility Investigation (RFI) Interim Report (ABB-ES, 1993) as shown in Figure 2 for the 32 to 42 feet below ground surface (5 ft to -5 ft mean low water) interval. This plume was defined by the ABB Environmental Services (ABB-ES) using hydrocone sampling, monitoring well sampling and both on-site and off-site analysis of groundwater samples. No data was provided from within the boundaries of the former landfill.

The cross section representing the vertical extent of the plume according to the RFI Interim Report is shown as A-A' on Figure 3 and the vertical extent of contamination is shown on Figure 4. This plume

was interpreted by ABB-ES based on hydrocone samples and both on-site and off-site analysis of groundwater samples. This cross section contains no points within the boundaries of the former landfill.

Targeted compounds during the RFI included vinyl chloride, trans-1,2-dichloroethene (DCE), cis-1,2-DCE, trichloroethene (TCE), tetrachloroethene (PCE), benzene, toluene, ethylbenzene, m/p-xylene, and o-xylene (ABB-ES, 1993).

1.2.2 Subsequent to Remediation Activity (Current Nature and Extent)

The most current groundwater concentration data is provided in Tables 3 through 5 based upon the most recent groundwater sampling events performed in accordance with the GWMP. Outside the boundary of the landfill, the plume appears to have reduced in magnitude but has yet to show significant reductions in extent at the one microgram per liter (ug/l) contour. Groundwater Protection Standard (GWPS) compounds detected above the laboratory method reporting limit during the August 2009 sampling event included PCE, TCE, cis-1,2-DCE, ethylbenzene, chlorobenzene, and 1,4-dichlorobenzene.

Within the boundaries of the horizontal plume, only monitoring well KBA-11-13B is screened below the intermediate zone that extends from 30 to 45 feet below ground surface (ft bgs). Monitoring well KBA-11-13B, which is located downgradient from the landfill and is screened from 77 to 87 ft bgs, exhibited no detectable concentrations of GWPS constituents during five consecutive annual sampling events from 1999 to 2003. The most current data concerning the vertical extent of contamination within the landfill boundary is found in the *Construction Completion Report, Groundwater Remediation at Site 11 Old Camden County Landfill, Revision No. 02* (CCI, 2004). The data collected during the groundwater sampling events performed in accordance with the GWMP is limited in the source area to 37 ft bgs. For this reason, please refer to the referenced Construction Completion Report for comprehensive data with respect to the vertical dimension.

1.3 SUMMARY OF PREVIOUS REMEDIATION EFFORTS

1.3.1 Pump and Treat Activities

A groundwater extraction and treatment system was designed and installed as an interim measure (IM) to hydraulically control further migration of contaminated groundwater. Initial construction of the IM began in September 1993 with start-up activities occurring in March 1994. The first phase of the IM included the installation of five groundwater recovery wells and their associated conveyance system, a diffused aeration tank for groundwater treatment, and vapor-phase carbon drums for off-gas air treatment. The recovery wells were positioned in the areas with the highest known concentrations of contaminants along the western side of the landfill and right-of-way of Spur 40. The second phase of the IM included the addition of a new recovery well which was centrally located within the existing recovery well network (Bechtel, 1998). The third phase of the IM included the shut down of all previously installed recovery wells and the installation and activation of two new recovery wells located within the boundaries of the former landfill. These were activated in February 1999 but were shut down in March 1999 due to repeated fouling of the wells, pumps and effluent piping (Bechtel, 1999).

1.3.2 In-Situ Chemical Oxidation Activities

Bechtel Environmental, Inc. (Bechtel), with Geo-Cleanse International, Inc. (GCI), performed three phases of in-situ chemical oxidation treatment during the period of August 1998 to April 2000. During the three phases of the treatment program, a total of 54 injectors were installed and an approximate total of 34,850 gallons of 50 percent hydrogen peroxide and an equivalent volume of ferrous iron catalyst were delivered to the subsurface. During the post-injection sampling events following the third phase of injections, it was discovered that Injector 60 had rebounded from a low PCE concentration of 69 ug/l to a PCE concentration of 10,000 ug/l, indicating that a PCE source was still present (CCI, 2002).

CH2MHill Constructors, Inc. (CCI) performed additional source delineation during the period of November 2000 to January 2001, collecting groundwater samples using a membrane interface probe/direct-push technology rig. The most concentrated source area was determined to be in the vicinity of Injector 60 at the 44 to 48 ft bgs depth interval, which exhibited a PCE concentration of 54,078 ug/l. Based upon these results, CCI installed 20 additional injectors and performed a fourth phase of in-situ chemical oxidation treatment during the period of September to November 2001, in which an approximate total of 11,365 gallons of 50 percent hydrogen peroxide and 12,220 gallons of ferrous iron catalyst were injected into the subsurface. No post-injection sampling was performed (CCI, 2002).

1.3.3 pH Adjustment/Soybean Oil Injection Activities

Subsequent to the fourth phase of in-situ chemical oxidation, during the period of December 2001 to January 2002, the pH of the groundwater was adjusted and soybean oil was injected into the subsurface to enhance natural degradation of residual contaminants. A total of 5,500 gallons of potassium hydroxide solution (pH of 9 standard units) was injected to accomplish the desired pH adjustment from 5 to 7.5 standard units. Following the pH adjustment, a total of 8,839 gallons of emulsified soybean oil mixed with 16,369 gallons of water was injected at 39 temporary injection points in the source area, typically at depths of 28 to 48 ft bgs (CCI, 2002).

1.4 SUMMARY OF CORRECTIVE ACTION PLAN OBJECTIVES

The objectives for remediation at Site 11 are stated in the Corrective Action Plan as follows:

"Concentrations of total chlorinated ethenes (summation of PCE, TCE, DCE, and VC) must be reduced to less than 100 ug/l at each monitoring well associated with this site. This criterion is based upon the information provided in the report, Selecting Remediation Goals by Assessing the Natural Attenuation Capacity of Ground-Water Systems (USGS, 1998)." (SUBASE Kings Bay, 2001)

1.5 SUMMARY OF ONGOING USGS STUDY OF NATURAL ATTENUATION

A natural attenuation study has been conducted at Site 11 by the United States Geological Survey (USGS) since 1998. The most recent available update on this study is found in the report, *Monitoring the Effectiveness of Natural Attenuation at the Old Camden County Landfill, Kings Bay Naval Submarine Base, Georgia* (USGS, 2009). The chlorinated ethene concentration results are summarized below:

1. A total of 18 wells are being sampled in conjunction with the USGS study.
2. All data associated with the study is based upon samples from monitoring wells that are installed at least 60 ft downgradient from the Injector 60 source area.
3. From August 1998 to September 2008, significant decreases in total chlorinated ethene concentrations (up to 99.5 percent) have been observed in most of the monitoring wells associated with the study.
4. The most currently reported total chlorinated ethenes concentrations (September 2008) in the downgradient portion of the plume range from 1.2 ug/l (USGS 9 and USGS 14) to 82 ug/l (USGS 10).
5. Of the 18 wells sampled during September 2008, none exhibited total chlorinated ethene concentrations above 100 ug/l.
6. A total of seven of the eighteen monitoring wells (USGS 3, 6, 7, 9, 13, 14, and 15) that are being monitored in conjunction with the study have been below GADNR Maximum Contaminant Levels (MCLs) per Chapter 391-3-5-.18 for at least eight consecutive quarters.

7. Downgradient monitoring well USGS 4 continues to exhibit a significant downward trend in total chlorinated ethene concentrations. This well contains the highest known concentrations at the site and is the northern most data point with concentrations of this magnitude.
8. Monitoring wells USGS 3, 5 and 11 are also exhibiting downward trends in TCLE concentrations. The concentration trends at the remaining USGS wells appear relatively stable.
9. PCE, in relatively low concentrations, has migrated into some of the downgradient locations (USGS 2, USGS 3 and USGS 15) monitored in conjunction with the USGS study. Please see Section 4.1 of this report for a further discussion of the PCE plume at Site 11.
10. Monitoring wells KBA-11-13A and KBA-11-34 have exhibited chlorinated ethene concentrations that have been consistently lower in the samples collected by USGS than those collected by VT Group in relatively close time proximities. The cause may have been occurring in the laboratory or may have been related to differences in sample collection procedure and/or technique. The cause was investigated during the monitoring period and details of the investigation are provided in the appropriate sections of this report.

2.0 SUMMARY OF GROUNDWATER MONITORING ACTIVITIES

Currently, monitoring wells KBA-11-13A, KBA-11-16, KBA-11-34, and KBA-11-37 are being sampled on a quarterly basis and monitoring wells PS-2, KBA-11-10B, KBA-11-11A (background; Appendix IX), KBA-11-13A (Appendix IX) and the irrigation well located at 122 Plantation Court are being sampled on an annual basis. Per the GADNR recommendation provided during a conference call between Wayne McKenzie and Thomas Stofflet of SUBASE and Mo Ghazi and Amy Potter of GADNR on January 14, 2009, an additional four monitoring wells, including KBA–11-15, KBA-11-17B, KBA-11-20 and KBA-11-21, located in the roadway of Crooked River Subdivision (See Figure 1), have been added to the groundwater monitoring program. These sentinel wells are now being sampled on a semi-annual frequency for GWPS constituents.

Four groundwater monitoring events were performed on the following dates by VT Group during the period: August 4 to 5, 2009; April 7 to 8, 2009; May 4 to 6; 2009; and June 2, 2009. The activities that were performed during the April/May/June 2009 groundwater monitoring events were presented in detail in the Quarterly Groundwater Monitoring Report, April – June 2009 (VT Group, 2009), dated July 2009. For this reason, this section of the document only addresses in detail the activities that were performed during the August 2009 monitoring event. Activities performed during the monitoring events included well inspections, well measurements, and quarterly, semi-annual, annual, and special groundwater sampling and analysis. Weather conditions during the August 2009 groundwater sampling event were partly cloudy with temperatures in the high 70's in the morning to mid 90's in the afternoon. There was 3.75 inches of rainfall during the week preceding the August 2009 groundwater sampling event. For the month of July 2009, a total of 7.75 inches of rainfall occurred.

2.1 WELL INSPECTIONS

All wells were inspected for aboveground damage or well deterioration. Generally, all wells were structurally sound with no aboveground damage.

As previously reported, monitoring well PS-2 contains an unknown obstruction in the bottom of the well. It was previously recommended that this well continue to be used for monitoring purposes as most of its 5 foot screen appears to have remained intact and unobstructed (VT Group, 2006). It is noted that PS-2 is reported to have been originally screened from 33 to 38 ft btoc (Bechtel, 1999a).

Per the direction of the Navy, with approval by the Georgia Department of Natural Resources (GADNR), recovery wells RW-6, RW-7, and RW-8 were abandoned on October 30, 2001. The work was performed under Delivery Order 640 of Prime Contract N69272-00-D-3170, by a licensed driller in accordance with the Georgia Water Well Standards Act.

Per the direction of the Navy, with approval by the GADNR, the shallow (screened from about 16 to 20 ft bgs) irrigation well located at 122 Plantation Court was abandoned on March 21, 2003. A deeper irrigation well (open-hole from 132 to 260 ft bgs) was installed at this location from March 20-21, 2003. The work was performed by Woodrow Sapp Water Well Contractor, Inc under Prime Contract N69272-02-M-3015.

2.2 WELL MEASUREMENTS

Depth to water and total well depth was recorded on August 4, 2009, at a total of 19 monitoring wells. Water levels and well depth measurements were performed using an electronic water level indicator, accurate to 0.01 feet. All water level measurements were recorded with respect to a surveyed reference point located at the top of the well casing. Measurements were recorded two times over an eight-hour period and stabilization of static water level was assumed when two consecutive readings recorded at least one hour apart were within 0.01 feet. The total well depth was measured using the electronic water level indicator by lowering the probe until the bottom of the well was reached. Total depth measurements were made with respect to a surveyed reference point located at the top of the well casing. All monitoring well measurements were obtained prior to sampling to avoid interference by purging activities.

2.3 GROUNDWATER SAMPLING AND ANALYSES

2.3.1 Monitoring Well Sampling

Four groundwater monitoring events were performed on the following dates by VT Group during the period: August 4 to 5, 2009; April 7 to 8, 2009; May 4 to 6; 2009; and June 2, 2009. Activities performed during the monitoring events included well inspections, well measurements, and semi-annual, quarterly, annual, and special groundwater sampling and analysis. During the sampling events, groundwater samples were generally collected from the monitoring wells in order of least contaminated to most contaminated, based upon historical data. Prior to sampling, all monitoring wells were purged using the low-flow (minimal draw down) method. Prior to purging, the intake of a dedicated piece of Teflon™ tubing (3/16-in. OD by ¼-in. ID) was positioned near the center of the monitoring well screen. Groundwater was then purged through the tube using a peristaltic pump, Geotech Model Geopump 2. Water quality parameters, including temperature, pH, conductivity, oxygen-reduction potential, turbidity, and dissolved oxygen were measured every two gallons while purging. After parameters stabilized within 10 percent, a sample was collected and containerized for chemical analysis. All samples were submitted to Columbia Analytical Services (State of Florida NELAC accreditation #E82502) for analyses using standard chain-of-custody procedures as specified in the GWMP. All purge water was containerized in drums and properly disposed.

2.3.2 Monitoring Well Analyses

Groundwater samples collected during August 2009 from monitoring wells KBA-11-13A, KBA-11-16, KBA-11-34, and KBA-11-37 were analyzed by Columbia Analytical Services for GWPS compounds by EPA Method 8260B.

2.3.3 Irrigation Well Sampling and Analyses

A total of three irrigation wells in the Crooked River Plantation subdivision, located across the highway from the Kings Bay Naval Submarine Base, were initially included in the groundwater sampling program.

These locations were not included in the GWMP and were selected for sampling based upon the results from a comprehensive irrigation well survey that was performed in 1998. The selected locations included irrigation wells located at 102 Plantation Court, 122 Plantation Court, and 108 Cottage Court.

In letter dated February 27, 2004, the GADNR approved the recommendation to delete the irrigation well located at 108 Cottage Court from the sampling program, on the basis that contaminant detections had not exceeded the GWPS for three consecutive years. In letter dated December 23, 2005, the GADNR approved the recommendation to delete the irrigation well located at 102 Plantation Court from the sampling program, on the basis that contaminant detections had not exceeded the GWPS for two consecutive annual sampling events. In the same (December 23) letter, the GADNR approved reducing the sampling frequency at 122 Plantation Court from quarterly to annually on the basis that except for one anomaly, contaminant detections have not exceeded the GWPS in 2½ years. The fourth annual sampling event for GWPS constituents was performed at the irrigation well located at 122 Plantation Court on May 5, 2009.

2.3.4 Special Sampling and Analyses

In response to GADNR comment in letter dated March 13, 2009, split samples were collected at monitoring wells KBA-11-13A and KBA-11-34 on June 2, 2009, to help determine the cause of the apparent discrepancies between historical sample results obtained by VT Group and the USGS. The samples were collected in conjunction with the USGS sampling event that was being performed on that date. Monitoring well KBA-11-13A was purged by the USGS and samples were subsequently collected by both the USGS and VT Group. Monitoring well KBA-11-34 was then purged by VT Group as described in Section 2.3.1 of this report, and samples were subsequently collected by both the USGS and VT Group. The USGS collected samples were analyzed by Shealy Environmental Services, Inc. for GWPS constituents by EPA Method 8260B, and the VT Group collected samples were analyzed by Columbia Analytical Services, also for GWPS constituents by EPA Method 8260B.

3.0 DATA PRESENTATION

This section provides a summation and tabulation of all field measurements and analytical results associated with the groundwater monitoring program.

3.1 MONITORING WELL MEASUREMENTS

Depth to water and depth to monitoring well bottom were measured at 19 monitoring wells as described in Section 2.2, using an electronic water level indicator. Based upon the data, ground water flow in the intermediate zone appears to be generally west to northwest. A summary of the data recorded during the monitoring well measurement evolution is provided in Table 1.

3.2 GROUNDWATER MONITORING WELL PURGING PARAMETERS

Water quality parameters including temperature, conductivity, dissolved oxygen, turbidity and oxygen reduction potential were measured at each sampling location every two gallons during purging activities using a Horiba U-22 water quality meter, which was calibrated in accordance with manufacturer's specifications prior to use. Parameters generally stabilized within ten percent after eight gallons of groundwater were purged from each monitoring well. Table 2 provides a summary of the stabilized parameters (last data set recorded) at the time of sample collection.

A summary of the monitoring well purging and sampling records for the August 2009 sampling event is included in Appendix A.

3.3 ANALYTICAL RESULTS

A total of four monitoring wells were sampled during August 2009. All samples were analyzed as described in Section 2.3. A summary of the analytical laboratory results is provided in Table 3 and on Figures 5, 6, 8 and 8 through 11. Analytical laboratory reports are provided in Appendix B.

3.3.1 Groundwater Protection Standard Analytical Results

Three of the four monitoring wells that were sampled for GWPS compounds, KBA-11-13A, KBA-11-34, and KBA-11-37, exhibited concentrations that exceeded one or more of the GWPS constituent standards during August 2009. A summary of the GWPS standard exceedances is provided below.

1. Monitoring well KBA-11-13A, located approximately 150 ft downgradient from the source area, exhibited elevated concentrations of PCE at 9.5 ug/l and 13 ug/l (sample and duplicate, respectively) and TCE at 7.9 ug/l and 9.0 ug/l (sample and duplicate, respectively).
2. Monitoring well KBA-11-34, located within the source area, exhibited an elevated concentration of cis-1,2-DCE at 180 ug/l.
3. Monitoring well KBA-11-37, located approximately 600 ft downgradient from the source area, exhibited an elevated concentration of chlorobenzene at 2.7 ug/l.

The analytical results are summarized in Table 3 and on Figures 5, 6, 8 and 8 through 11. Laboratory analytical reports are provided in Appendix B.

3.3.2 Subdivision Irrigation Wells Analytical Results

Annual sampling of the irrigation well located at 122 Plantation Court was last performed on May 5, 2009. All GWPS constituent concentrations were below the respective laboratory method reporting limit for the fourth consecutive annual sampling event. Historical analytical results are presented in Table 4.

3.3.3 Special Sampling Analytical Results

In response to GADNR comment in letter dated March 13, 2009, special samples were collected at monitoring wells KBA-11-13A and KBA-11-34 on June 2, 2009, to help determine the cause of the apparent discrepancies between historical sample results obtained by VT Group and the USGS. The samples were collected in conjunction with the USGS sampling event that was being performed on that date. Monitoring well KBA-11-13A was purged by the USGS and samples were subsequently collected by both the USGS and VT Group. Monitoring well KBA-11-34 was then purged by VT Group as described in Section 2.3.1 of this report, and samples were subsequently collected by both the USGS and VT Group. The USGS collected samples were analyzed by Shealy Environmental Services, Inc. for GWPS constituents by EPA Method 8260B, and the VT Group collected samples were analyzed by Columbia Analytical Services, also for GWPS constituents by EPA Method 8260B. The analytical results from the June 2, 2009 split sample and a side by side comparison of the historical data obtained by VT Group and the USGS are summarized below.

KBA-11-13A

Date	VT Group			USGS		
	PCE	TCE	DCE	PCE	TCE	DCE
11/7/2007	17	11	29			
11/7/2007 (dup 1)	17	11	29			
11/7/2007 (dup 2)	16	10	29			
1/28/2008				5.5	5.5	6.2
2/4/2008	15	8.3	25			
2/4/2008 (dup 1)	13	8.3	26			
2/4/2008 (dup 2)	15	8.4	26			
5/16/2008				1.8	6.4	7.3
5/1/2008	9.7	7.3	19			
5/1/2008 (dup 1)	10	8	20			
5/1/2008 (dup 2)	7.1	6.4	19			
5/1/2008 (dup 3)	10	7.5	19			
7/30/2008				<1	6	5.2
8/6/2008	11	8.8	18			
8/6/2008 (dup 1)	11	8.5	19			
8/6/2008 (dup 2)	11	8.6	19			
9/1/2008				<1	5.3	4.9
11/5/2008	13	10	20			
11/5/2008 (dup 1)	15	11	20			
11/5/2008 (dup 2)	15	10	21			
5/6/09	14	8.8	18			
5/6/2009 (dup 1)	16	8.7	17			
5/6/2009 (dup 2)	18	9.6	18			
6/2/2009	22	9.2	19	20	11	20

KBA-11-34

Date	VT Group			USGS		
	PCE	TCE	DCE	PCE	TCE	DCE
11/6/2007	5.2	0.37J	8.2			
1/28/2008				2.2	<1	<1
2/4/2008	4.8	0.66J	16			
5/16/2008				2.9	<1	7.8
5/6/2008	4.4	1.3	30			
7/30/2008				2.8	<1	10
8/6/2008	4.5	1.7	57			
9/1/2008				3.2	<1	8.8
11/5/2008	4.2	1.0	110			
5/5/2009	4.1	0.71J	<1			
6/2/2009	3.8	<1	110	3.6	<1	120

J – value is between the method reporting limit and the method detection limit
Shaded cells indicate no sampling was performed on this date
All values reported in micrograms per liter

3.4 QUANTITY OF HYDROCARBONS REMOVED

Per the direction of the Navy, with approval by the GADNR, the pump-and-treat remediation system at Site 11 was dismantled during November 2001 under Delivery Order 651 of Prime Contract 69272-00-D-3170. For this reason, the quantity of hydrocarbons removed calculation no longer applies.

4.0 DATA ASSESSMENT

4.1 OBSERVATIONS

1. With the possible exception of monitoring well PS-2, which appears to contain an unknown obstruction as stated in Section 2.1, all of the monitoring wells were in good condition and are functioning adequately for evaluating the hydrologic conditions and groundwater quality.
2. Of the four monitoring wells sampled during August 2009, only KBA-11-34 (185.79 ug/l) exhibited total chlorinated ethene concentrations above the Corrective Action Plan objective of 100 ug/l stated in Section 1.4.
3. Monitoring well KBA-11-16 has shown a general decline in 1,1-DCA concentration since 2002, and was below the GWPS standard of 1.0 ug/l in August 2009. All constituent concentrations were below GWPS standards at KBA-11-16 in for the second consecutive quarterly sampling event.
4. The concentration of cis-1,2-DCE continued an upward trend at source area monitoring well KBA-11-34 during August 2009. This trend appeared to have leveled off based upon samples collected during May and June 2009, but another significant increase was noted during August 2009. A similar spike, plateau, and subsequent decrease of 1,2-DCE was observed at KBA-11-34 during the period of November 2004 to May 2006. As there has historically been no known source of cis-1,2-DCE contamination at Site 11, this trend is likely the result of natural attenuation of PCE and TCE concentrations located further upgradient.
5. Monitoring well KBA-11-37 continued to exhibit a stable concentration of chlorobenzene during August 2009 at a concentration of 2.7 ug/l. The only constituent that is exhibiting concentrations above GWPS standards at KBA-11-37 is chlorobenzene and it is relatively close to being below the GWPS standard of 1.0 ug/l.
6. The split samples collected from KBA-11-13A and KBA-11-34 on June 2, 2009 by the USGS and VT Group indicated close correlation between the two sets of laboratory results. The results also showed a close correlation with respect to recent historical concentrations exhibited at these locations in samples collected previously by VT Group.
7. During the period of 1999 to 2004, PCE began to appear in monitoring wells USGS 1, USGS 2, USGS 3 and USGS 15, all of which are in the line of USGS wells closest to the source area, about 100 ft downgradient from the source area and 50 ft upgradient from KBA-11-13A. PCE concentrations have since decreased to below laboratory detection limits at USGS-1.
8. A possible explanation for the extended PCE plume is that the subsurface reactions that occurred during the chemical oxidation treatments that began in 1998 have relocated and agitated the groundwater within the PCE plume, thereby extending the horizontal dimensions of the detectable PCE concentrations. It is noted that there is no evidence that any source level PCE concentrations have been pushed downgradient. Without having current source area data, conclusive determinations cannot be made, but it is possible that the PCE plume has changed from being characterized by a concentrated source with limited migration due to natural attenuation, to being characterized by having almost no distinct source area but slightly more widespread due to the aggressive treatment activity.
9. No exceedances were found from the four sentinel wells (i.e., KBA-11-15, KBA-11-17B, KBA-11-20, and KBA-11-21) that were recently added to the monitoring plan and sampled semi-annually for GWPS constituents.

4.2 RECOMMENDATIONS

The GWMP (Bechtel, 1999) provides the following exit criteria for monitoring wells:

- "*Groundwater monitoring wells where the Groundwater Protection Standard has been met for four consecutive quarters will be reduced to annual sampling.*
- *Groundwater monitoring wells where the Groundwater Protection Standard has been met for two annual sampling events will be omitted from the sampling program.*
- *After termination of the corrective action, three groundwater monitoring wells will be selected for annual sampling and analyses to demonstrate compliance with the Groundwater Protection Standard for three consecutive years. One of these wells will be offsite well KBA-11-37. The other two wells selected for monitoring will be those that exhibited the most frequent/consistent occurrence of Groundwater Protection Standard exceedances.*
- *After demonstration of compliance with the Groundwater Protection Standard for three consecutive years, compliance monitoring of Site 11 will be terminated."*

A total of two wells that are currently in the sampling program, KBA-11-10B and the irrigation well located at 122 Plantation Court, have previously met the criteria described in the first bullet above and have now met the second criteria as no concentrations have been measured in these two wells above GWPS criteria for four consecutive annual sampling events. For this reason, it has been previously recommended that both of these locations be omitted from the sampling program. However, per the teleconference between SUBASE and GADNR on January 14, 2009 (McKenzie, Stofflet, Potter and Ghazi), SUBASE will continue monitoring these two wells until further re-evaluation of the overall monitoring program has been completed by GADNR.

No other recommendations are appropriate at this time. Future recommendations will be provided, as appropriate, when GWMP exit strategy milestones are attained.

5.0 PROJECTED WORK FOR THE NEXT REPORTING PERIOD

VT Group will continue quarterly/semi-annual/annual monitoring in accordance with the GWMP and all approved modifications. The next quarterly/semi-annual monitoring event is scheduled for November 2009.

6.0 REFERENCES

ABB Environmental Services, Inc. (ABB-ES), December 1993. ***RFI Interim Report for Site 11, Naval Installation Restoration Program, Naval Submarine Base, Kings Bay, Georgia.***

Bechtel Environmental, Inc. (Bechtel), July 1998. ***Corrective Action Plan, Site 11,Old Camden County Landfill, U.S. Naval Submarine Base, Kings Bay, Georgia, Revision 1.***

Bechtel, May 1999. ***Interim Measures Progress Report, February 1 1999- April 30, 1999, Site 11,Old Camden County Landfill, U.S. Naval Submarine Base, Kings Bay, Georgia.***

Bechtel, June 1999a. ***Groundwater Monitoring Plan for Site 11,Old Camden County Landfill, U.S. Naval Submarine Base, Kings Bay, Georgia.***

CH2MHill Constructors, Inc. (CCI), January 2004. ***Construction Completion Report, Groundwater Remediation at Site 1, Old Camden County Landfill, Naval Submarine Base Kings Bay, Kings Bay, Georgia, Revision No. 01.***

SUBASE Kings Bay, 2001. ***Corrective Action Plan, Site 11,Old Camden County Landfill, U.S. Naval Submarine Base, Kings Bay, Georgia, Revision 2.***

United States Geological Survey (USGS), January 1998. ***Selecting Remediation Goals by Assessing the Natural Attenuation Capacity of Ground-Water Systems*** **by Francis H. Chapelle and Paul M. Bradley, United States Geological Survey, Columbia, South Carolina.**

United States Geological Survey (USGS), January 2009. ***Monitoring the Effectiveness of Natural Attenuation at the Old Camden County Landfill, Kings Bay Naval Submarine Base, Georgia, 2008*** **by Francis H. Chapelle, United States Geological Survey, Columbia, South Carolina.**

VT Group, April 2006. *Semi-Annual Corrective Action Report, October 2005 – March 2006 for U.S. Naval Submarine Base, Kings Bay, Georgia.*

VT Group, July 2009. *Quarterly Groundwater Monitoring Report, April – June 2009 for U.S. Naval Submarine Base, Kings Bay, Georgia.*

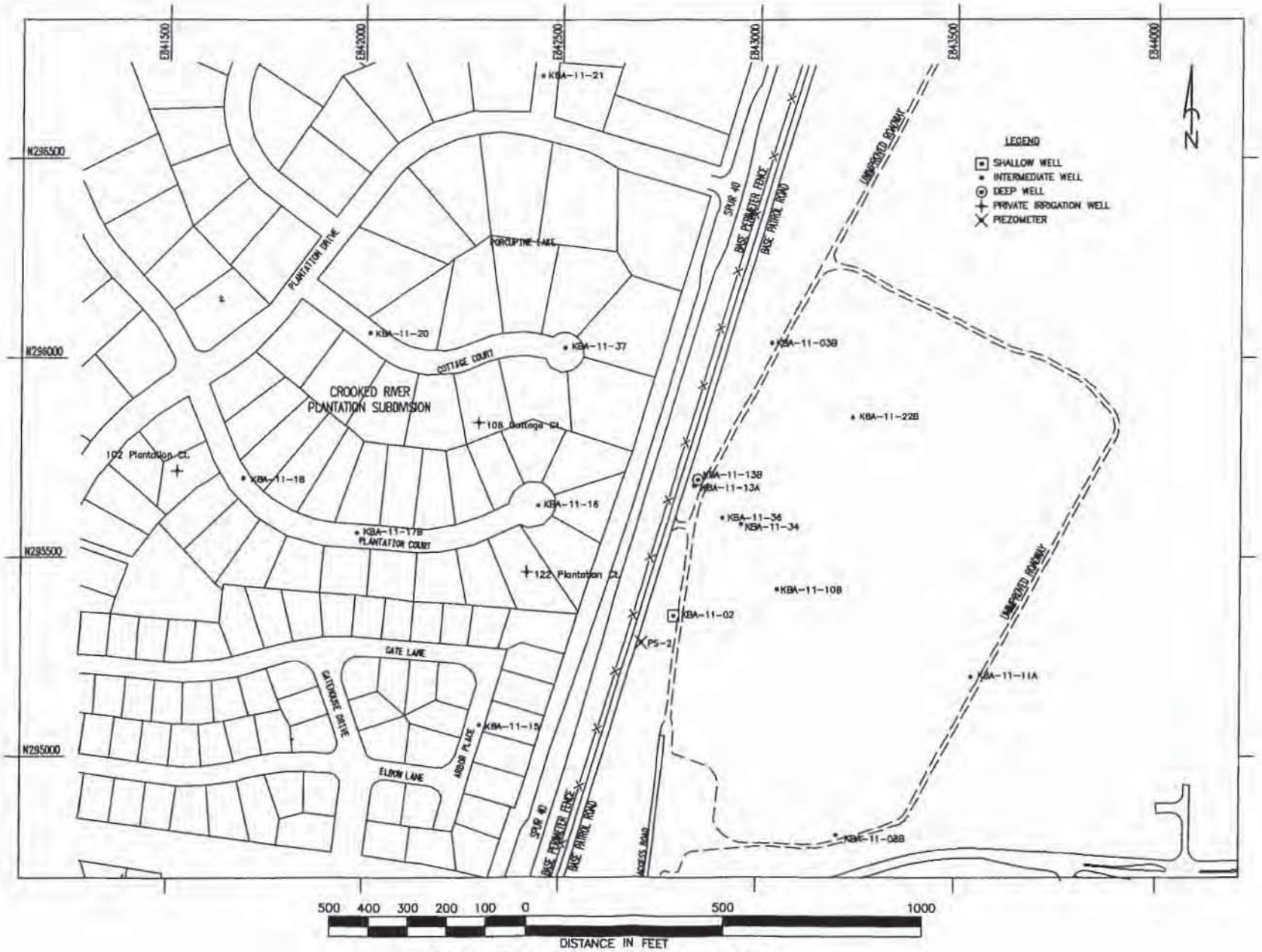


FIGURE 1: Site 11, Site Map

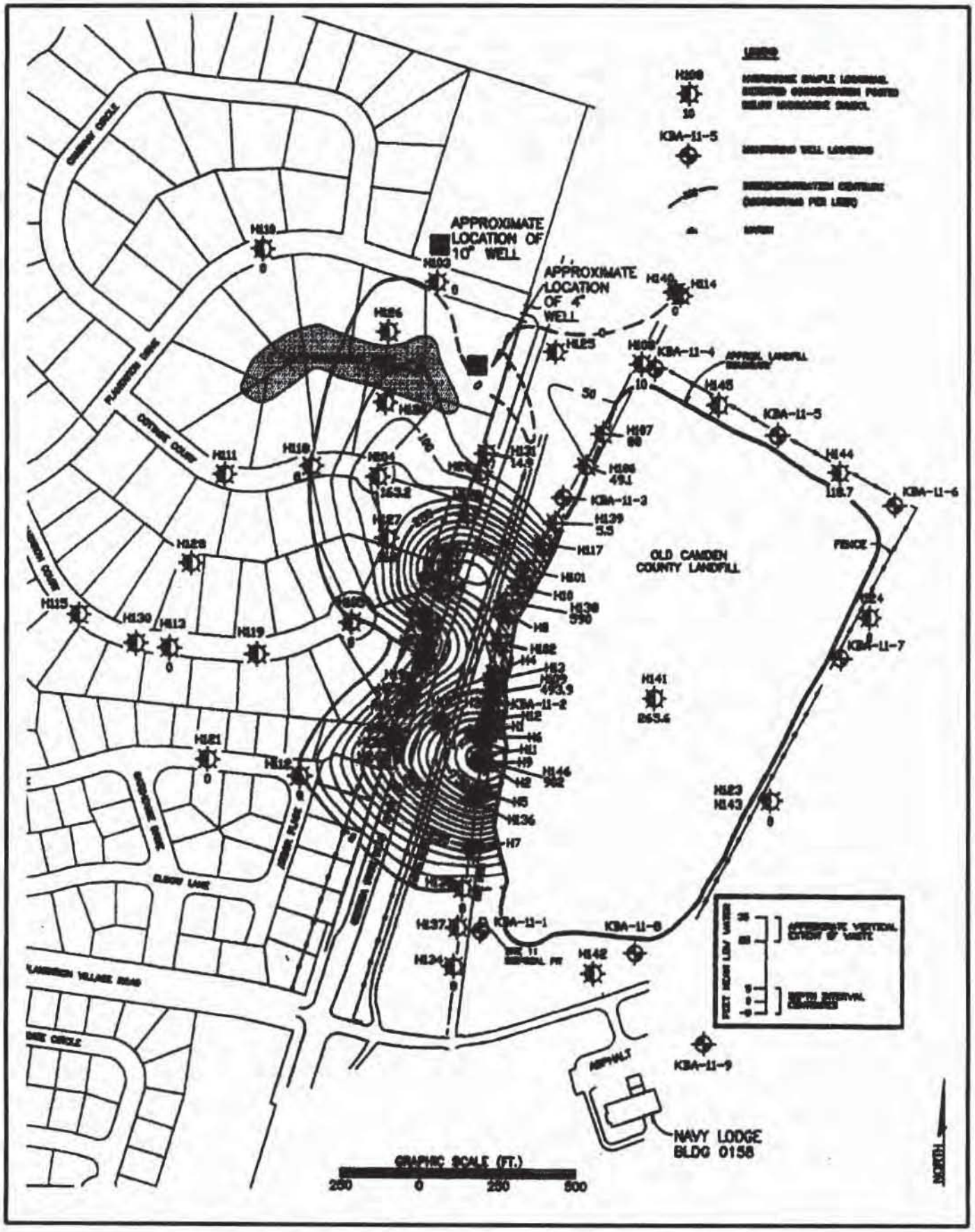


Figure 2: Site 11, RFI Interim Report, Interpreted Plume Plan View
5 ft. To -5 ft. Mean Low Water - Total Target VOCs March 31, 1993

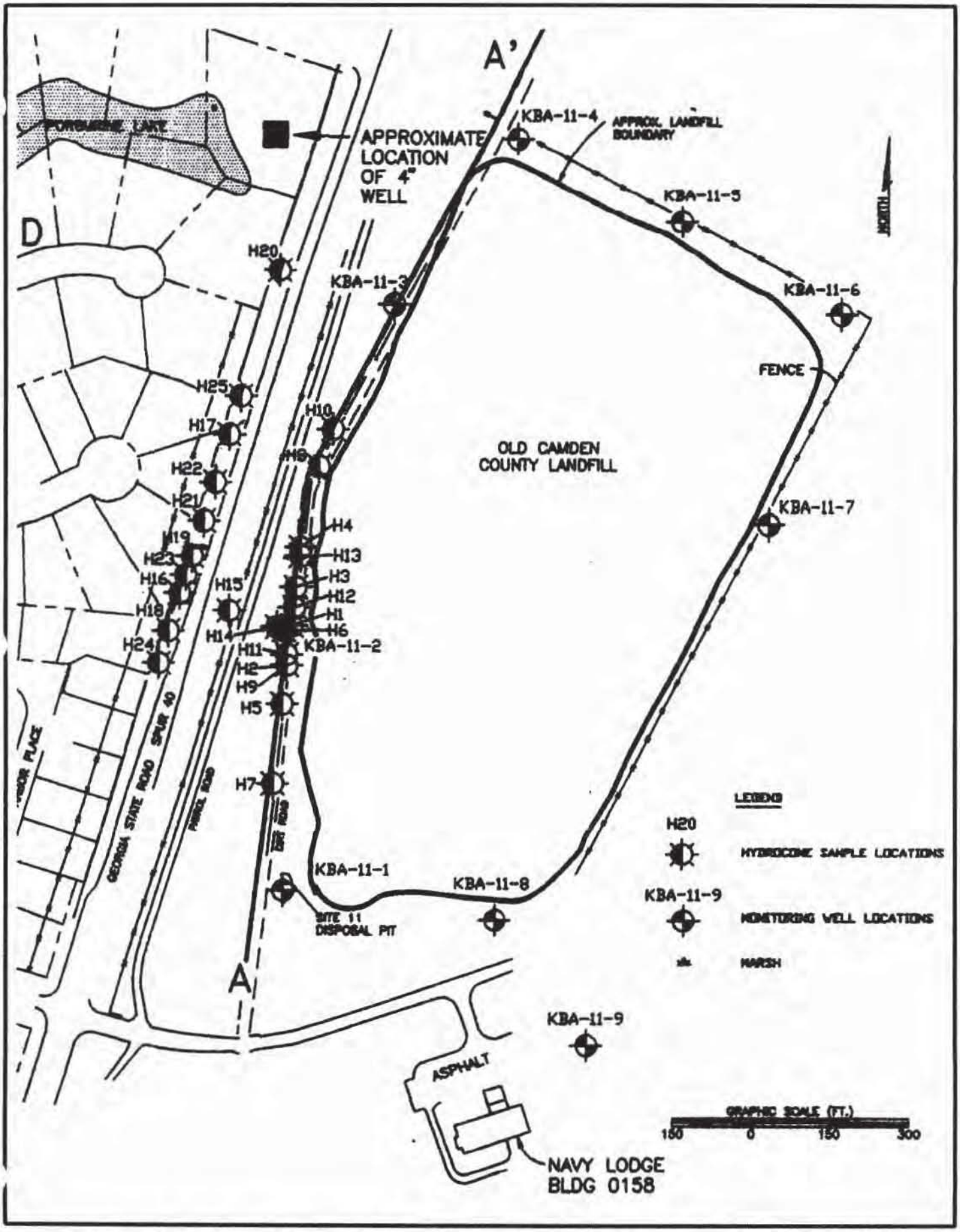


FIGURE 3: Site 11, RFI Interim Report, Hydrocone Sample Locations March 31, 1993

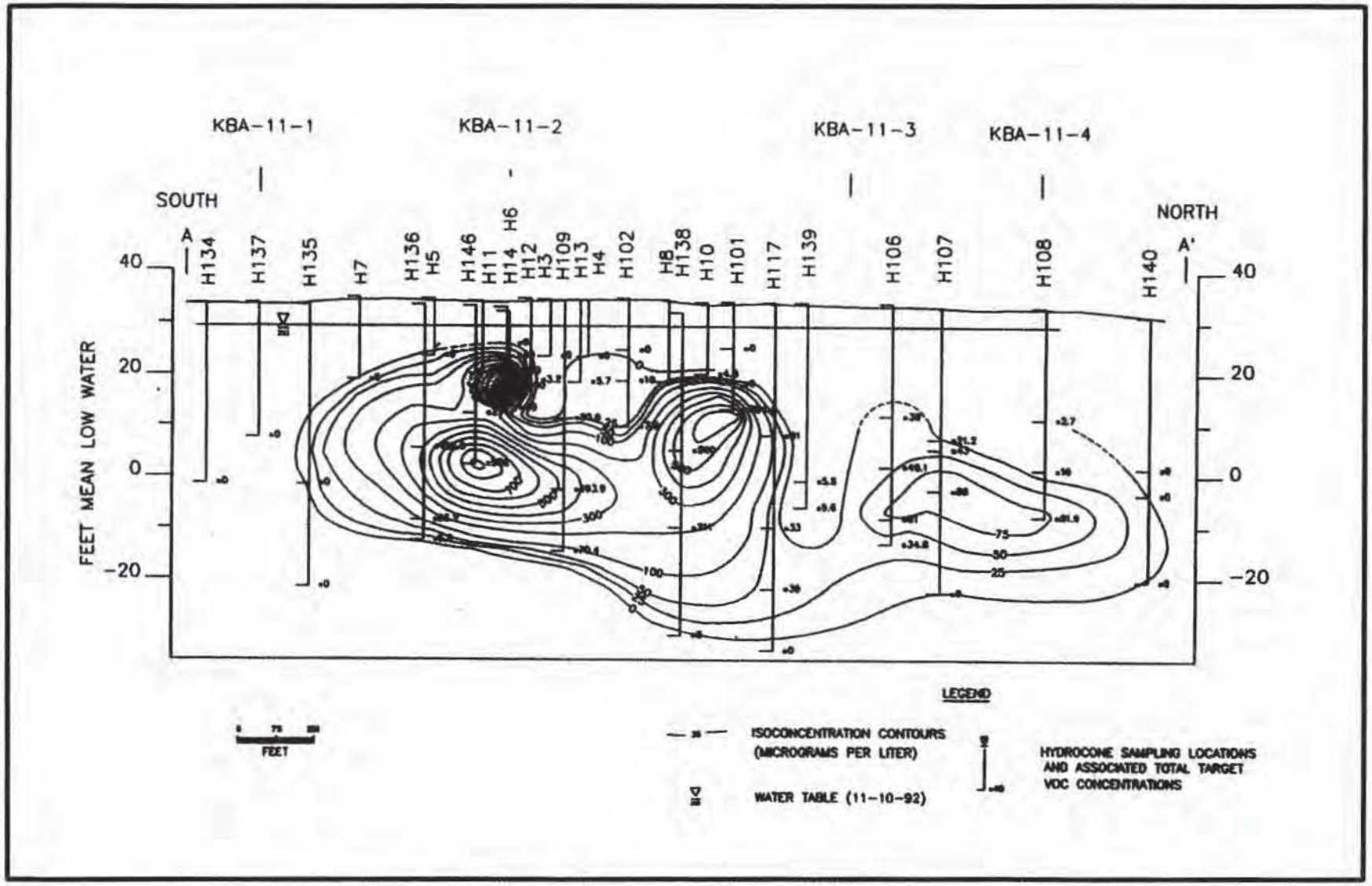


FIGURE 4: Site 11, RFI Interim Report, Cross Section
Total Target VOCs On-site Analytical Data, January 17, 1993

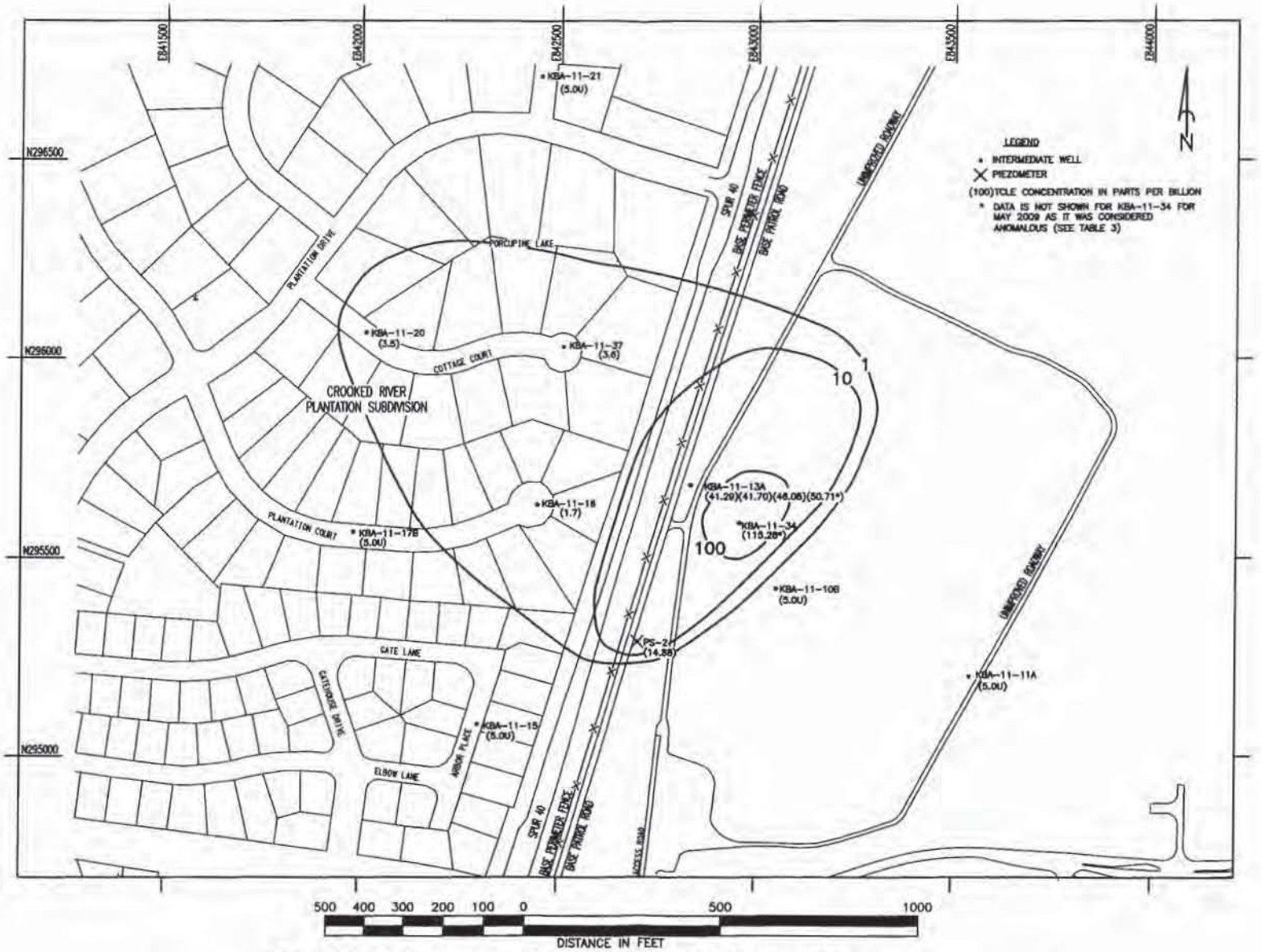


FIGURE 5: Site 11, Groundwater Monitoring Program,
Total Chlorinated Ethenes Concentrations (TCLE) April, May, June 2009

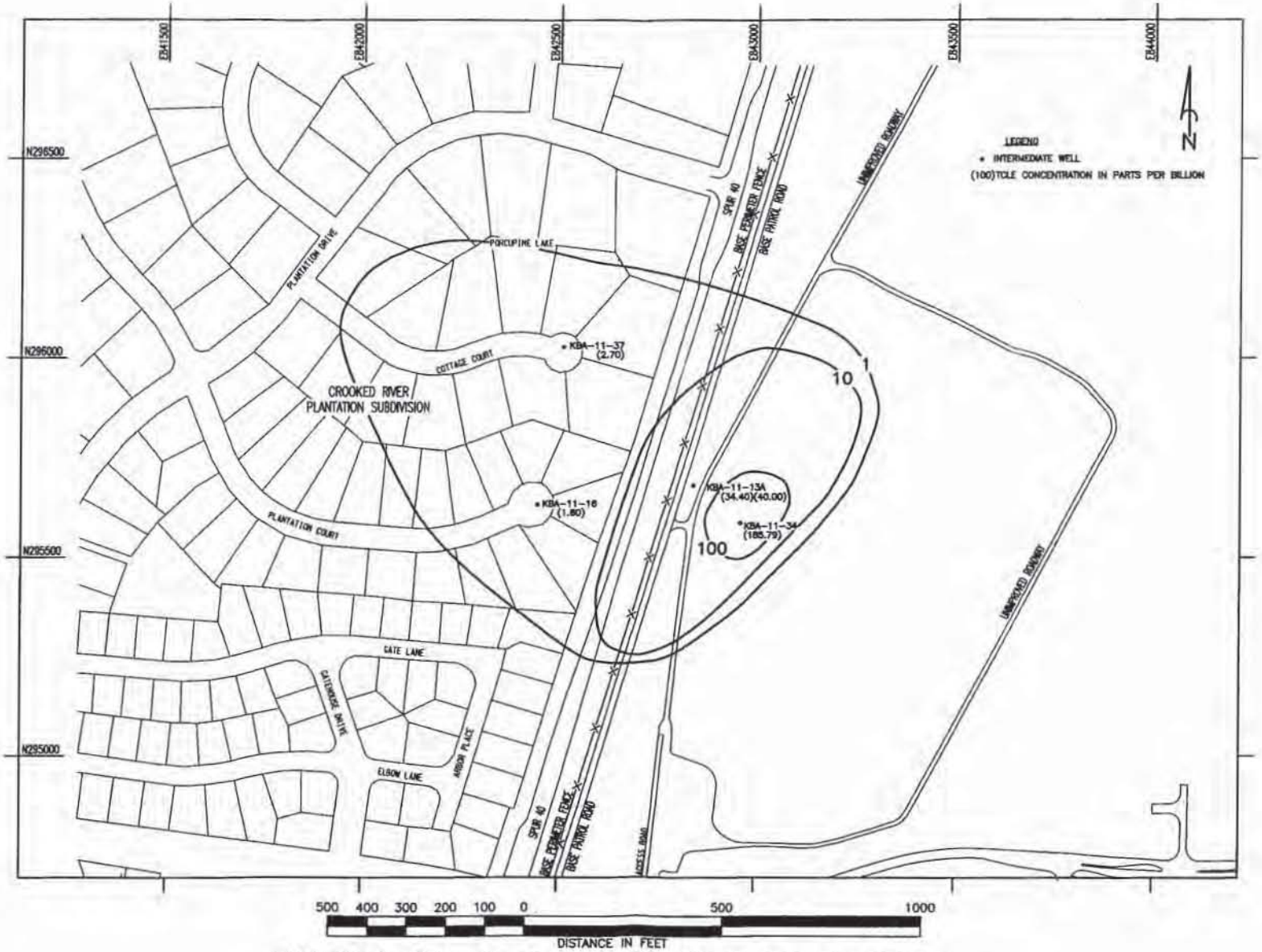


FIGURE 6: Site 11, Groundwater Monitoring Program,
Total Chlorinated Ethenes Concentrations (TCLE) August 2009

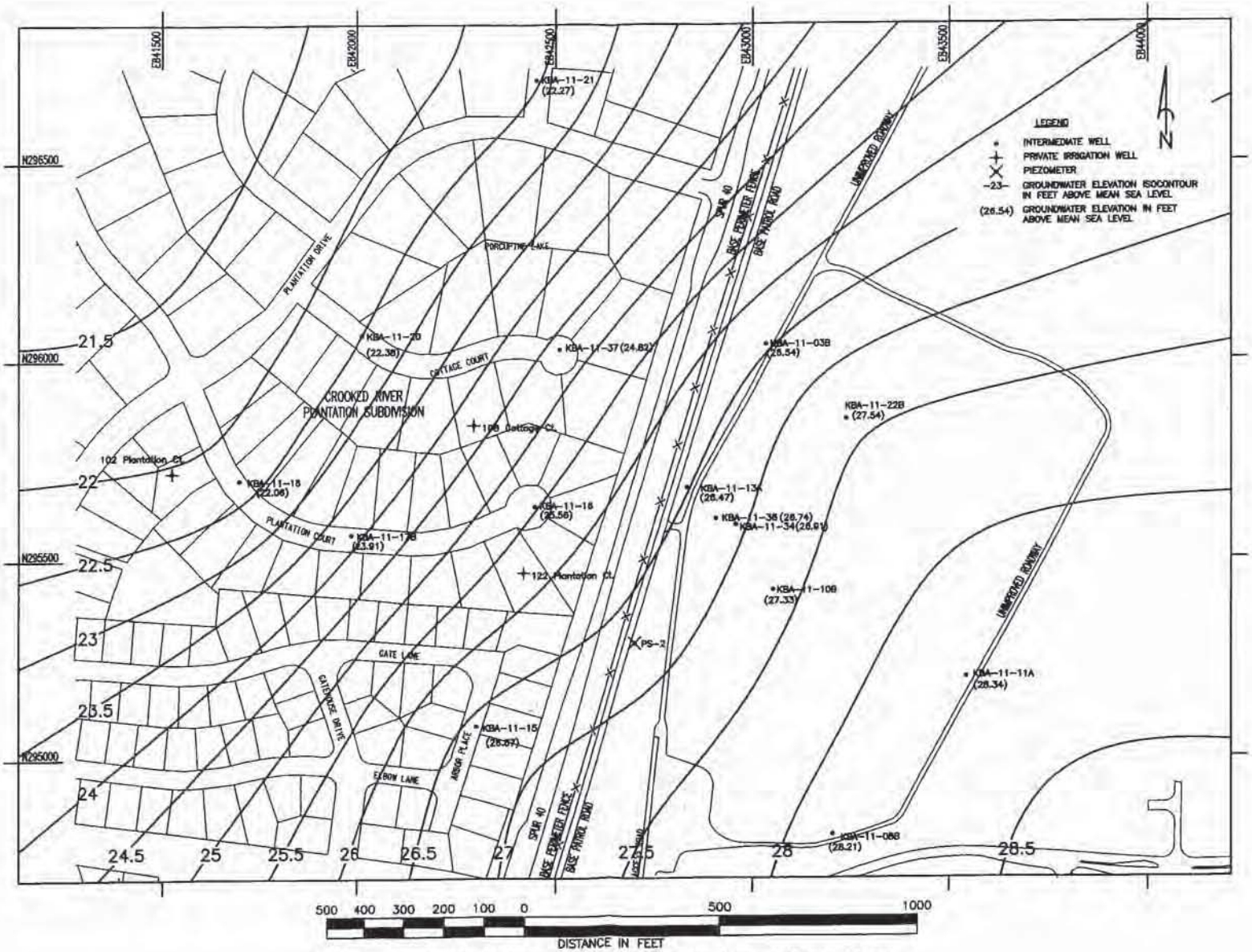


FIGURE 7: Site 11, Groundwater Elevation Map

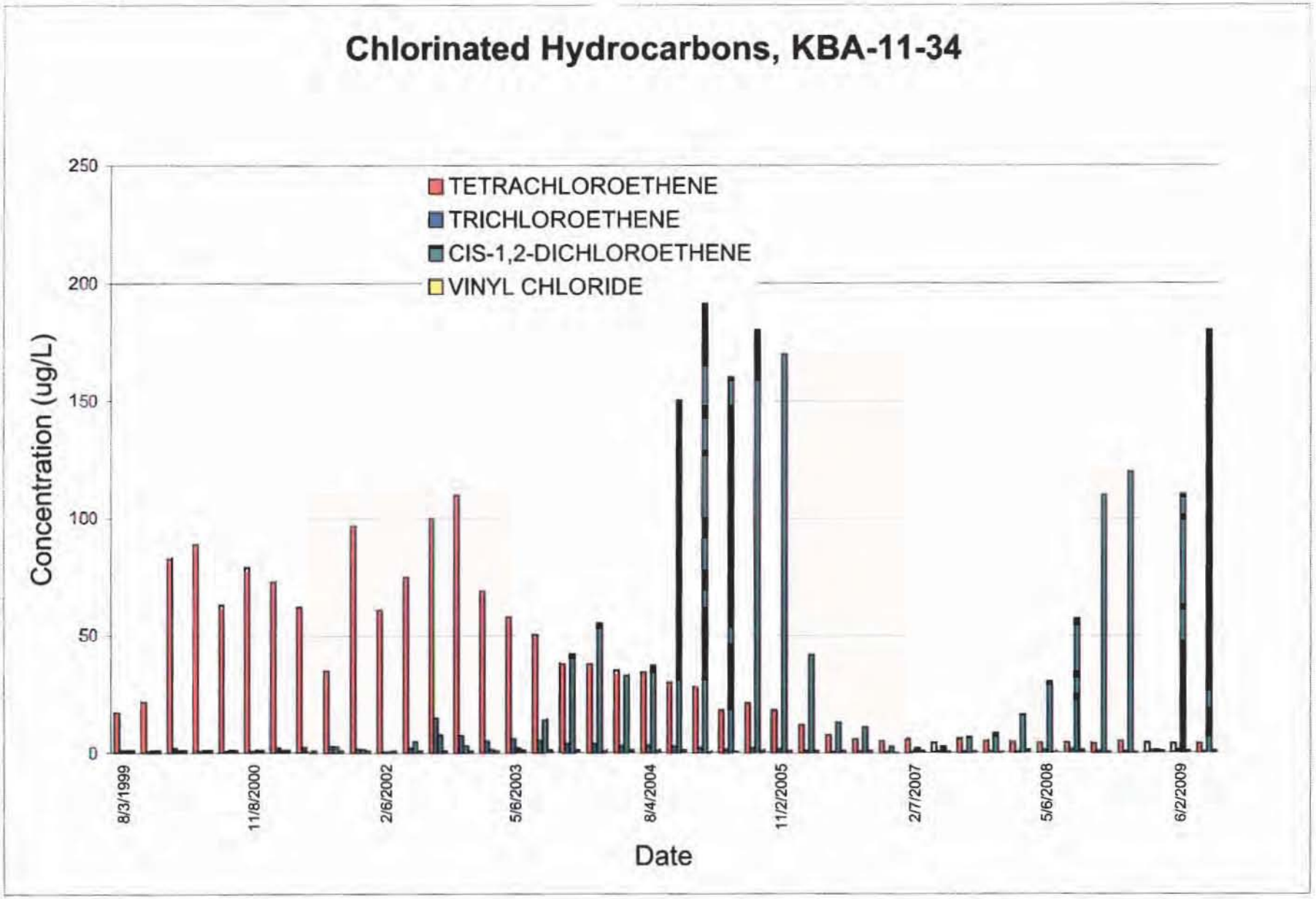
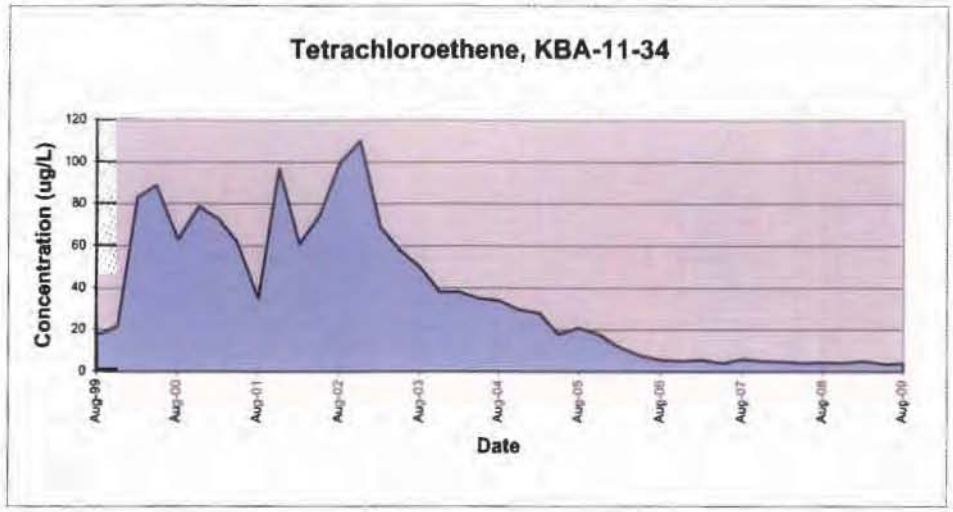
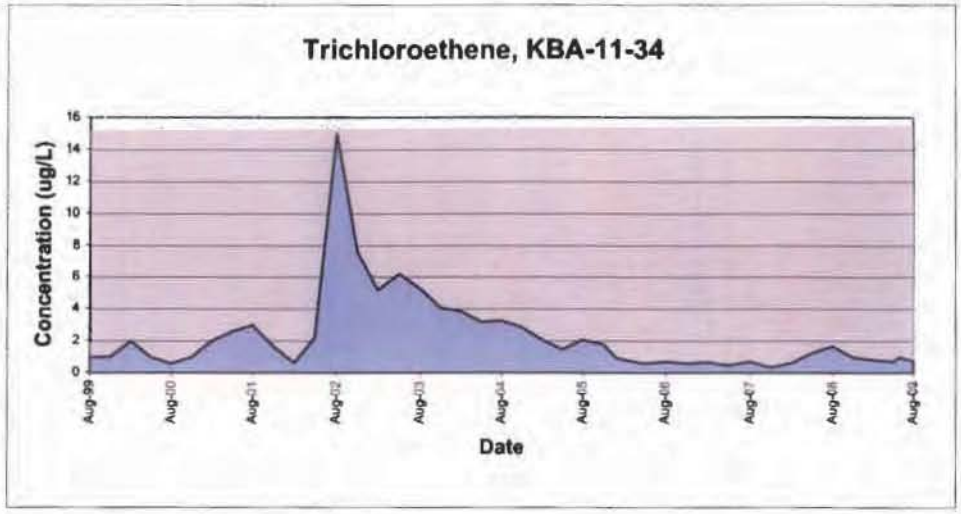
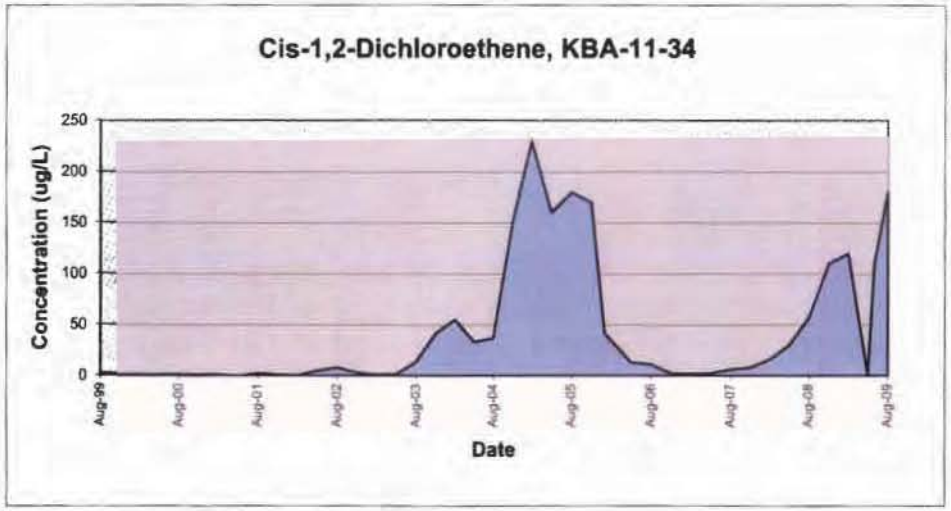


FIGURE 8 - CHLORINATED HYDROCARBONS, KBA-11-34







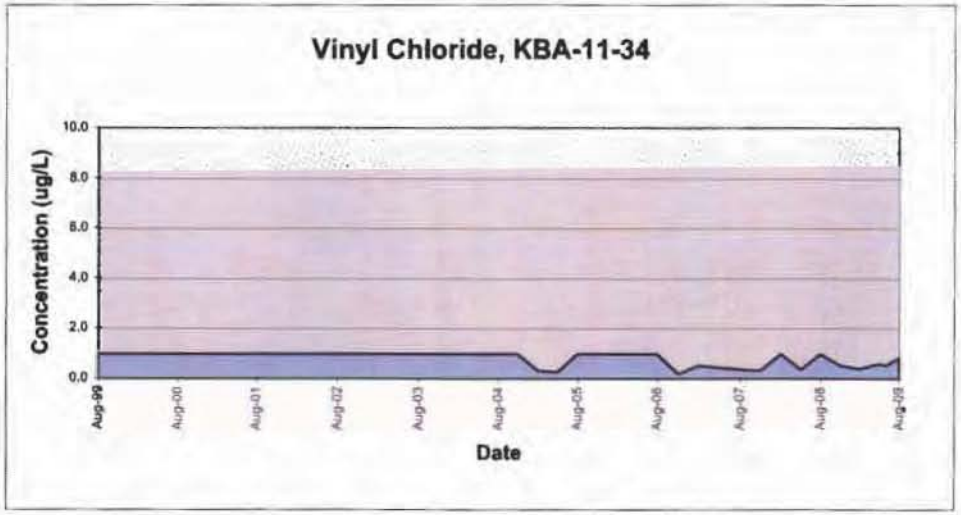


FIGURE 9 - CHLORINATED HYDROCARBON TRENDS, WELL KBA-11-34

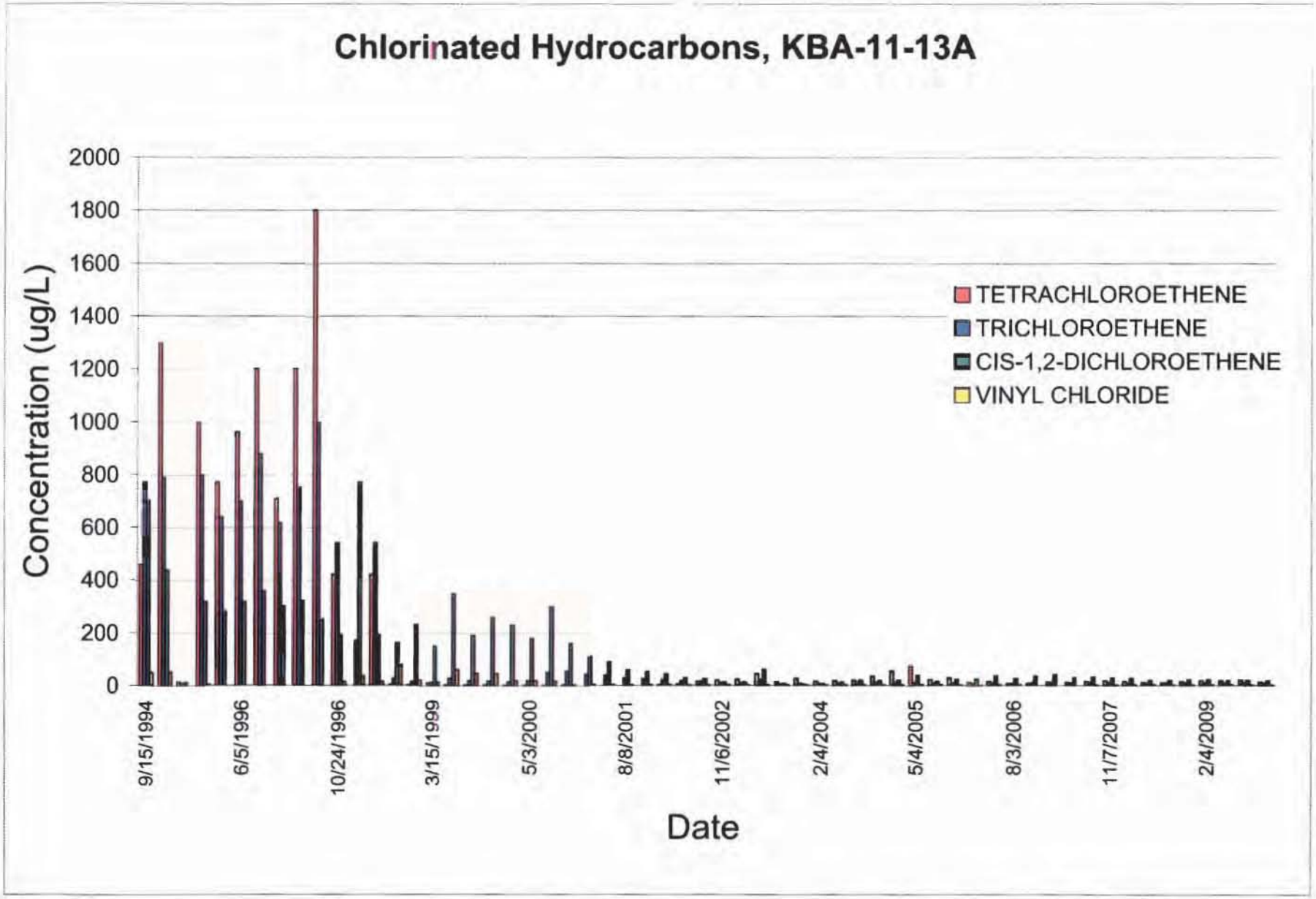
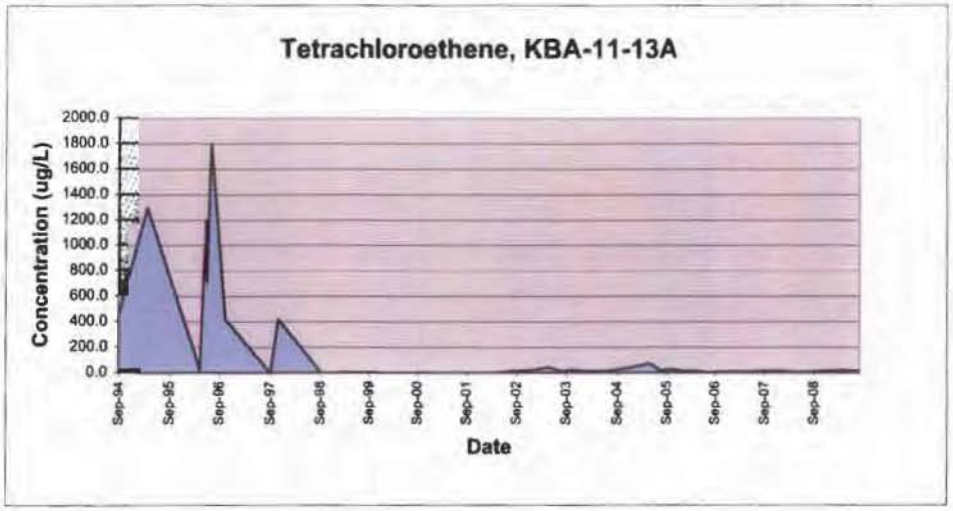
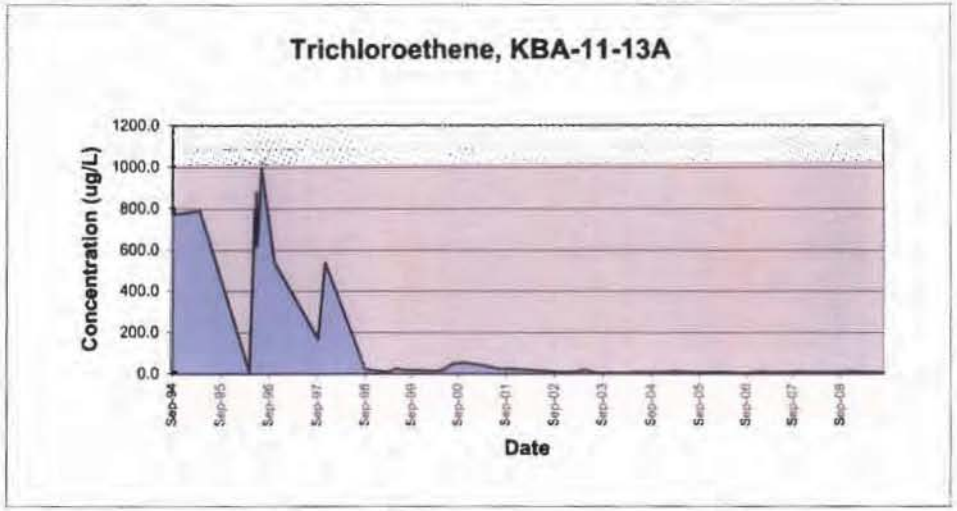
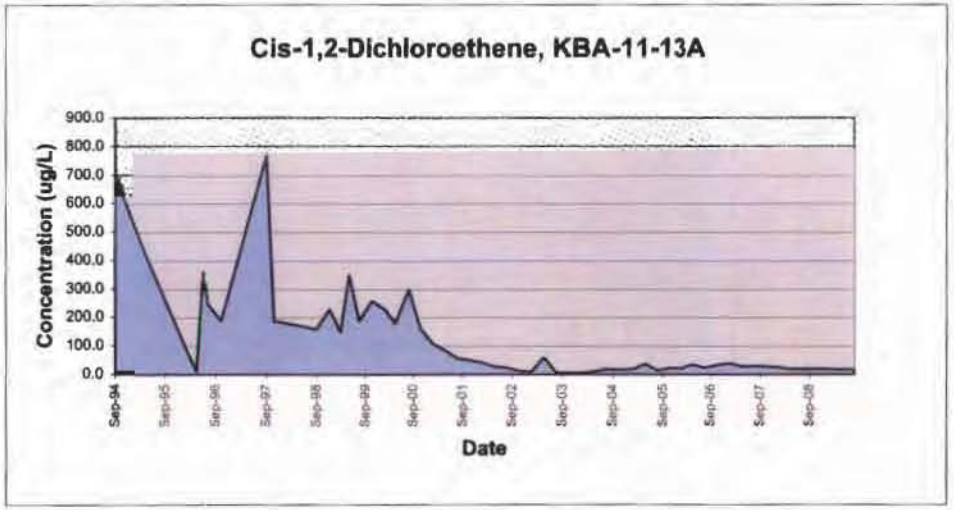


FIGURE 10 - CHLORINATED HYDROCARBONS, KBA-11-13A







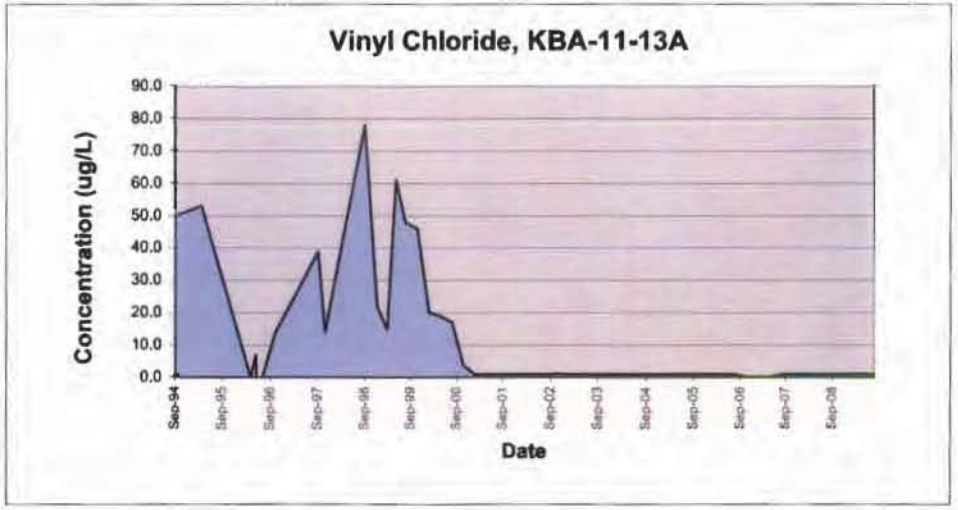


FIGURE 11 - CHLORINATED HYDROCARBON TRENDS, WELL KBA-11-13A

Table 1
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	8/2/1999	36.02	11.37	24.65	13.90	15.42
	11/8/1999		9.61	26.41		15.19
	2/4/2000		11.50	24.52		15.30
	5/2/2000		10.10	25.92		14.00
	8/8/2000		No water	No water		10.80
	11/8/2000		8.65	27.37		10.60
	2/6/2001		10.18	25.84		10.18
	5/1/2001		9.53	26.49		10.65
	8/7/2001		8.13	27.89		10.87
	11/6/2001		8.07	27.95		10.88
	2/5/2002		8.60	27.42		11.00
	5/6/2002		9.71	26.31		10.90
	8/5/2002		10.11	25.91		10.88
	11/4/2002		6.85	29.17		10.97
	2/4/2003		7.65	28.37		10.90
	5/5/2003		7.55	28.47		11.00
	8/4/2003		8.47	27.55		11.01
	11/3/2003		9.98	26.04		11.30
	2/3/2004		11.44	24.58		14.95
	5/3/2004		11.37	24.65		11.46
	8/3/2004		10.80	25.22		14.95
	11/1/2004		7.60	28.42		11.35
	2/7/2005		9.35	26.67		10.70
	5/2/2005		7.47	28.55		11.09
	8/1/2005		8.40	27.62		11.10
	10/31/2005		5.48	30.54		10.87
	1/30/2006		6.01	30.01		15.70
	5/1/2006		7.81	28.21		15.66
	7/31/2006		10.06	25.96		15.68
	11/14/2006		12.01	24.01		15.73
	2/6/2007		11.36	24.66		15.75
	5/7/2007		12.71	23.31		15.75
	8/10/2007		10.40	25.62		15.75
	11/5/2007		9.02	27.00		15.74
	1/31/2008		10.23	25.79		15.76
	4/30/2008		10.11	25.91		15.75
	8/5/2008		11.69	24.33		15.76
	11/4/2008		10.89	25.13		15.77
	2/3/2009		11.98	24.04		15.76
	5/4/2009		10.16	25.86		15.75
	8/4/2009		8.44	27.58		15.76

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-03B	8/2/1999	33.49	10.01	23.48	47.00	47.82
	11/8/1999		8.54	24.95		47.77
	2/24/2000		9.50	23.99		49.10
	5/2/2000		8.70	24.79		47.10
	8/15/2000		10.40	23.09		47.50
	11/6/2000		7.78	25.71		47.50
	2/5/2001		8.67	24.82		47.50
	5/1/2001		8.43	25.06		47.50
	8/7/2001		6.78	26.71		47.56
	11/6/2001		7.39	26.10		47.50
	2/5/2002		8.37	25.12		47.51
	5/6/2002		8.75	24.74		47.44
	8/5/2002		8.69	24.80		47.51
	11/4/2002		7.65	25.84		47.52
	2/4/2003		7.48	26.01		47.51
	5/5/2003		7.00	26.49		47.50
	8/4/2003		7.26	26.23		47.53
	11/3/2003		8.63	24.86		47.52
	2/3/2004		9.71	23.78		47.50
	5/3/2004		9.73	23.76		47.50
	8/3/2004		9.60	23.89		47.50
	11/1/2004		6.97	26.52		47.50
	2/7/2005		8.11	25.38		47.55
	5/2/2005		6.48	27.01		47.54
	8/1/2005		7.53	25.96		47.54
	10/31/2005		5.18	28.31		47.55
	1/30/2006		5.52	27.97		47.55
	5/1/2006		7.26	26.23		47.52
	7/31/2006		8.98	24.51		47.51
	11/14/2006		10.53	22.96		47.59
	2/6/2007		9.58	23.91		47.58
	5/7/2007		10.92	22.57		47.59
	8/10/2007		8.53	24.96		47.57
	11/5/2007		7.71	25.78		47.58
	1/31/2008		8.67	24.82		47.57
	4/30/2008		8.81	24.68		47.58
	8/5/2008		10.54	22.95		47.58
	11/4/2008		9.35	24.14		47.59
	2/3/2009		10.20	23.29		47.59
	5/4/2009		8.65	24.84		47.57
	8/4/2009		6.95	26.54		47.58

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-08B	8/2/1999	38.20	13.74	24.46	43.00	43.77
	11/8/1999		12.04	26.16		43.75
	2/24/2000		13.40	24.80		44.90
	5/2/2000		12.10	26.10		43.80
	8/15/2000		14.00	24.20		43.50
	11/20/2000		11.54	26.66		43.46
	2/5/2001		12.04	26.16		43.51
	5/1/2001		11.85	26.35		43.59
	8/7/2001		10.02	28.18		43.49
	11/6/2001		10.78	27.42		43.47
	2/5/2002		11.66	26.54		43.48
	5/6/2002		12.25	25.95		43.48
	8/5/2002		11.84	26.36		43.47
	11/4/2002		10.82	27.38		43.50
	2/4/2003		10.81	27.39		43.50
	5/5/2003		10.37	27.83		43.50
	8/4/2003		10.41	27.79		43.55
	11/3/2003		11.91	26.29		43.48
	2/3/2004		13.27	24.93		43.50
	5/3/2004		13.35	24.85		43.49
	8/3/2004		12.73	25.47		43.50
	11/1/2004		10.23	27.97		43.50
	2/7/2005		11.30	26.90		43.50
	5/2/2005		9.70	28.50		43.53
	8/1/2005		10.65	27.55		43.53
	10/31/2005		8.78	29.42		43.51
	1/30/2006		9.03	29.17		43.51
	5/1/2006		10.81	27.39		43.51
	7/31/2006		12.58	25.62		43.51
	11/14/2006		14.44	23.76		43.58
	2/6/2007		13.14	25.06		43.58
	5/7/2007		14.91	23.29		43.55
	8/10/2007		12.05	26.15		43.56
	11/5/2007		11.04	27.16		43.58
	1/31/2008		12.09	26.11		43.58
	4/30/2008		12.32	25.88		43.56
	8/5/2008		14.03	24.17		43.56
	11/4/2008		12.76	25.44		43.56
	2/3/2009		13.78	24.42		43.57
	5/4/2009		12.15	26.05		43.55
	8/4/2009		9.99	28.21		43.56

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-10B	8/2/1999	38.03	13.90	24.13	51.50	51.67
	11/8/1999		12.31	25.72		51.62
	2/24/2000		13.50	24.53		53.00
	5/2/2000		12.80	25.23		53.40
	8/8/2000		14.90	23.13		52.20
	11/6/2000		14.03	24.00		54.34
	2/5/2001		12.48	25.55		51.35
	5/1/2001		12.06	25.97		51.35
	8/7/2001		10.48	27.55		51.38
	11/6/2001		10.96	27.07		51.37
	2/5/2002		12.11	25.92		51.37
	5/6/2002		12.40	25.63		51.36
	8/5/2002		12.53	25.50		51.36
	11/4/2002		11.07	26.96		51.36
	2/4/2003		10.90	27.13		51.34
	5/5/2003		10.46	27.57		51.35
	8/4/2003		10.98	27.05		51.37
	11/3/2003		12.41	25.62		51.36
	2/3/2004		13.68	24.35		51.36
	5/3/2004		13.70	24.33		51.35
	8/3/2004		13.26	24.77		51.37
	11/1/2004		10.46	27.57		51.36
	2/7/2005		11.80	26.23		51.40
	5/2/2005		10.11	27.92		51.40
	8/1/2005		11.05	26.98		51.43
	10/31/2005		8.59	29.44		51.41
	1/30/2006		9.04	28.99		51.39
	5/1/2006		10.78	27.25		51.37
	7/31/2006		12.74	25.29		51.38
	11/14/2006		14.54	23.49		51.54
	2/6/2007		13.55	24.48		51.45
	5/7/2007		15.03	23.00		51.44
	8/10/2007		12.72	25.31		51.43
	11/5/2007		11.45	26.58		51.43
	1/31/2008		12.61	25.42		51.44
	4/30/2008		12.65	25.38		51.44
	8/5/2008		14.34	23.69		51.42
	11/4/2008		13.28	24.75		51.46
	2/3/2009		14.23	23.80		51.43
	5/4/2009		12.54	25.49		51.45
	8/4/2009		10.70	27.33		51.44

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-11A	8/2/2003	35.85	11.40	24.45	37.00	37.12
	11/8/1999		9.61	26.24		37.12
	2/24/2000		11.10	24.75		37.20
	5/2/2000		9.40	26.45		37.00
	8/10/2000		11.70	24.15		37.40
	11/13/2000		8.85	27.00		36.86
	2/5/2001		9.60	26.25		36.84
	5/1/2001		9.31	26.54		36.83
	8/7/2001		7.64	28.21		36.86
	11/6/2001		8.16	27.69		36.83
	2/5/2002		8.23	27.62		36.85
	5/6/2002		9.69	26.16		36.81
	8/5/2002		9.43	26.42		36.82
	11/4/2002		8.30	27.55		36.86
	2/4/2003		8.25	27.60		36.85
	5/5/2003		7.76	28.09		36.84
	8/4/2003		7.92	27.93		36.86
	11/3/2003		9.41	26.44		36.85
	2/3/2004		10.79	25.06		36.85
	5/3/2004		10.90	24.95		36.85
	8/3/2004		10.35	25.50		36.82
	11/1/2004		7.65	28.20		36.85
	2/7/2005		8.87	26.98		36.85
	5/2/2005		7.28	28.57		36.88
	8/1/2005		8.10	27.75		36.87
	10/31/2005		5.98	29.87		36.97
	1/30/2006		6.46	29.39		36.87
	5/1/2006		8.12	27.73		36.83
	7/31/2006		9.98	25.87		36.82
	11/14/2006		11.96	23.89		36.91
	2/6/2007		10.91	24.94		36.89
	5/7/2007		12.55	23.30		36.91
	8/10/2007		9.81	26.04		36.91
	11/5/2007		8.55	27.30		36.91
	1/31/2008		9.75	26.10		36.93
	4/30/2008		9.90	25.95		36.91
	8/5/2008		11.69	24.16		36.92
	11/4/2008		10.40	25.45		36.92
	2/3/2009		11.46	24.39		36.92
	5/4/2009		9.62	26.23		36.91
	8/4/2009		7.51	28.34		36.51

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-13A	8/2/1999	34.20	10.77	23.43	42.50	42.52
	11/8/1999		9.25	24.95		42.75
	2/4/2000		10.20	24.00		42.40
	5/2/2000		9.30	24.90		42.00
	8/10/2000		11.20	23.00		42.90
	11/8/2000		6.52	27.68		42.30
	2/9/2001		9.53	24.67		42.26
	5/3/2001		9.21	24.99		42.25
	8/7/2001		7.51	26.69		42.31
	11/6/2001		8.17	26.03		42.27
	2/5/2002		9.13	25.07		42.26
	5/6/2002		9.46	24.74		42.29
	8/5/2002		9.47	24.73		42.25
	11/4/2002		8.20	26.00		42.29
	2/4/2003		8.05	26.15		42.24
	5/5/2003		7.66	26.54		42.26
	8/4/2003		8.06	26.14		42.28
	11/3/2003		9.43	24.77		42.28
	2/3/2004		10.54	23.66		42.27
	5/3/2004		10.50	23.70		42.28
	8/3/2004		10.25	23.95		42.29
	11/1/2004		7.64	26.56		42.30
	2/7/2005		8.85	25.35		42.30
	5/2/2005		7.16	27.04		42.29
	8/1/2005		8.23	25.97		42.29
	10/31/2005		5.89	28.31		42.32
	1/30/2006		6.20	28.00		42.30
	5/1/2006		7.99	26.21		42.28
	7/31/2006		9.74	24.46		42.27
	11/14/2006		11.32	22.88		42.35
	2/6/2007		10.33	23.87		42.36
	5/7/2007		11.68	22.52		42.34
	8/10/2007		9.33	24.87		42.35
	11/5/2007		8.45	25.75		42.36
	1/31/2008		9.46	24.74		42.35
	4/30/2008		9.52	24.68		42.35
	8/5/2008		11.20	23.00		42.36
	11/4/2008		10.10	24.10		42.36
	2/3/2009		10.97	23.23		42.35
	5/4/2009		9.45	24.75		42.35
	8/4/2009		7.73	26.47		42.36

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-13B	8/2/1999	34.86	14.27	20.59	90.70	90.77
	11/8/1999		12.88	21.98		90.72
	2/24/2000		13.60	21.26		91.40
	5/2/2000		12.80	22.06		91.00
	8/8/2000		14.60	20.26		91.80
	11/6/2000		12.50	22.36		91.60
	2/9/2001		13.05	21.81		90.53
	5/4/2001		13.09	21.77		90.49
	8/7/2001		11.37	23.49		91.98
	11/6/2001		12.33	22.53		90.50
	2/5/2002		12.80	22.06		90.60
	5/6/2002		13.38	21.48		90.52
	8/5/2002		13.07	21.79		90.46
	11/4/2002		12.20	22.66		90.51
	2/4/2003		12.24	22.62		90.47
	5/5/2003		11.91	22.95		90.50
	8/4/2003		11.86	23.00		90.46
	11/3/2003		13.00	21.86		90.51
	2/3/2004		13.90	20.96		90.61
	5/3/2004		13.88	20.98		90.48
	8/3/2004		13.74	21.12		90.50
	11/1/2004		11.85	23.01		90.90
	2/7/2005		12.50	22.36		90.50
	5/2/2005		11.18	23.68		90.51
	8/1/2005		12.24	22.62		90.45
	10/31/2005		10.67	24.19		90.46
	1/30/2006		10.81	24.05		90.51
	5/1/2006		12.37	22.49		90.49
	7/31/2006		13.71	21.15		91.90
	11/14/2006		14.92	19.94		90.57
	2/6/2007		13.62	21.24		90.56
	5/7/2007		15.14	19.72		90.49
	8/10/2007		12.68	22.18		90.55
	11/5/2007		12.33	22.53		89.81
	1/31/2008		12.95	21.91		90.56
	4/30/2008		13.32	21.54		90.51
	8/5/2008		14.75	20.11		90.61
	11/4/2008		13.55	21.31		90.61
	2/3/2009		14.15	20.71		90.58
	5/4/2009		13.04	21.82		90.55
	8/4/2009		11.57	23.29		90.56

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-15	8/2/1999	28.49	5.60	22.89	39.00	39.22
	11/9/1999		4.07	24.42		39.17
	2/7/2000		4.80	23.69		39.00
	5/2/2000		3.90	24.59		38.00
	8/9/2000		5.70	22.79		39.30
	11/7/2000		3.69	24.80		38.70
	2/13/2001		4.45	24.04		38.89
	5/4/2001		4.12	24.37		38.90
	8/7/2001		2.22	26.27		38.94
	11/6/2001		3.20	25.29		38.90
	2/5/2002		3.98	24.51		38.90
	5/6/2002		4.43	24.06		38.90
	8/5/2002		4.32	24.17		38.92
	11/4/2002		3.38	25.11		37.91
	2/4/2003		3.24	25.25		38.92
	5/5/2003		2.69	25.80		38.90
	8/4/2003		2.75	25.74		38.87
	11/3/2003		4.31	24.18		38.90
	2/3/2004		5.51	22.98		38.90
	5/3/2004		5.43	23.06		38.92
	8/3/2004		4.99	23.50		38.90
	11/1/2004		2.65	25.84		38.95
	2/7/2005		3.61	24.88		38.90
	5/2/2005		1.80	26.69		38.93
	8/1/2005		3.11	25.38		38.97
	10/31/2005		1.33	27.16		38.98
	1/30/2006		1.19	27.30		38.91
	5/1/2006		3.18	25.31		38.91
	7/31/2006		4.73	23.76		38.88
	11/14/2006		6.46	22.03		38.97
	2/6/2007		5.16	23.33		38.98
	5/7/2007		6.76	21.73		38.36
	8/10/2007		4.02	24.47		38.98
	11/5/2007		3.27	25.22		38.98
	1/31/2008		4.24	24.25		38.97
	4/30/2008		4.39	24.10		38.95
	8/5/2008		5.88	22.61		38.97
	11/4/2008		4.89	23.60		NM
	2/3/2009		5.72	22.77		38.96
	4/7/2009		3.52	24.97		38.98
	8/4/2009		1.62	26.87		38.97

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-16	8/2/1999	28.66	6.17	22.49	44.90	44.77
	11/9/1999		4.73	23.93		44.72
	2/7/2000		5.30	23.36		45.30
	5/3/2000		3.90	24.76		44.00
	8/9/2000		6.40	22.26		45.10
	11/8/2000		4.39	24.27		44.45
	2/6/2001		4.98	23.68		44.47
	5/2/2001		4.48	24.18		44.46
	8/7/2001		2.59	26.07		43.48
	11/6/2001		3.99	24.67		44.46
	2/5/2002		4.70	23.96		44.47
	5/6/2002		5.09	23.57		44.45
	8/5/2002		4.95	23.71		44.47
	11/4/2002		4.00	24.66		44.47
	2/4/2003		3.83	24.83		44.48
	5/5/2003		3.45	25.21		44.48
	8/4/2003		3.63	25.03		44.46
	11/3/2003		5.00	23.66		44.48
	2/3/2004		5.98	22.68		44.48
	5/3/2004		5.86	22.80		44.48
	8/3/2004		5.65	23.01		44.48
	11/1/2004		3.45	25.21		44.50
	2/7/2005		4.40	24.26		44.59
	5/2/2005		2.63	26.03		44.48
	8/1/2005		3.93	24.73		44.47
	10/31/2005		2.06	26.60		44.48
	1/30/2006		2.07	26.59		44.50
	5/1/2006		3.91	24.75		44.48
	7/31/2006		5.36	23.30		44.47
	11/14/2006		6.80	21.86		44.52
	2/6/2007		5.46	23.20		44.55
	5/7/2007		7.04	21.62		44.53
	8/10/2007		4.46	24.20		44.55
	11/5/2007		3.36	25.30		44.53
	1/31/2008		4.82	23.84		44.55
	4/30/2008		5.02	23.64		44.52
	8/5/2008		6.53	22.13		44.54
	11/4/2008		5.46	23.20		44.57
	2/3/2009		6.20	22.46		44.52
	5/4/2009		4.90	23.76		44.53
	8/4/2009		3.10	25.56		44.60

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-17B	8/2/1999	25.41	4.61	20.80	44.80	44.72
	11/9/1999		3.03	22.38		44.67
	2/7/2000		3.60	21.81		44.40
	5/3/2000		2.70	22.71		42.30
	8/9/2000		4.60	20.81		45.00
	11/7/2000		3.07	22.34		45.30
	2/13/2001		3.65	21.76		44.41
	5/4/2001		3.33	22.08		44.41
	8/7/2001		1.29	24.12		44.48
	11/6/2001		2.81	22.60		44.41
	2/5/2002		3.27	22.14		44.44
	5/6/2002		3.74	21.67		44.44
	8/5/2002		3.35	22.06		44.43
	11/4/2002		2.66	22.75		44.45
	2/4/2003		2.64	22.77		44.42
	5/5/2003		2.20	23.21		44.41
	8/4/2003		2.09	23.32		44.41
	11/3/2003		3.65	21.76		44.41
	2/3/2004		4.50	20.91		44.41
	5/3/2004		4.22	21.19		44.46
	8/3/2004		3.94	21.47		44.41
	11/1/2004		2.24	23.17		44.45
	2/7/2005		2.94	22.47		44.50
	5/2/2005		1.15	24.26		44.44
	8/1/2005		2.65	22.76		44.45
	10/31/2005		1.09	24.32		44.41
	1/30/2006		0.96	24.45		44.43
	5/1/2006		2.84	22.57		44.45
	7/31/2006		4.67	20.74		44.42
	11/14/2006		5.40	20.01		44.51
	2/6/2007		3.65	21.76		44.52
	5/7/2007		5.50	19.91		44.48
	8/10/2007		2.45	22.96		44.49
	11/5/2007		2.30	23.11		44.48
	1/31/2008		3.16	22.25		44.51
	4/30/2008		3.45	21.96		44.48
	8/5/2008		4.83	20.58		44.49
	11/4/2008		3.81	21.60		44.48
	2/3/2009		4.48	20.93		44.47
	4/7/2009		2.17	23.24		44.53
	8/4/2009		1.50	23.91		44.48

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-18	8/2/1999	22.81	3.67	19.14	45.80	45.82
	11/9/1999		2.05	20.76		45.77
	2/25/2000		2.70	20.11		46.80
	5/3/2000		1.50	21.31		45.50
	8/15/2000		3.70	19.11		45.40
	11/8/2000		2.24	20.57		47.51
	2/16/2001		2.77	20.04		45.50
	5/4/2001		2.57	20.24		45.51
	8/7/2001		0.38	22.43		45.59
	11/6/2001		2.18	20.63		45.51
	2/5/2002		2.45	20.36		45.53
	5/6/2002		2.96	19.85		45.43
	8/5/2002		2.48	20.33		45.51
	11/4/2002		1.82	20.99		45.51
	2/4/2003		1.90	20.91		45.54
	5/5/2003		1.55	21.26		45.50
	8/4/2003		1.34	21.47		45.46
	11/3/2003		2.89	19.92		45.52
	2/3/2004		3.55	19.26		45.49
	5/3/2004		3.22	19.59		45.50
	8/3/2004		2.93	19.88		48.51
	11/1/2004		1.55	21.26		45.55
	2/7/2005		2.15	20.66		45.55
	5/2/2005		0.49	22.32		45.55
	8/1/2005		1.95	20.86		45.52
	10/31/2005		0.50	22.31		45.51
	1/30/2006		0.46	22.35		45.53
	5/1/2006		2.23	20.58		45.54
	7/31/2006		3.93	18.88		45.54
	11/14/2006		4.43	18.38		45.62
	2/6/2007		2.54	20.27		45.59
	5/7/2007		4.45	18.36		45.57
	8/10/2007		1.34	21.47		45.57
	11/5/2007		1.40	21.41		45.57
	1/31/2008		2.23	20.58		45.53
	4/30/2008		2.58	20.23		45.60
	8/5/2008		3.80	19.01		45.58
	11/4/2008		2.71	20.10		45.62
	2/3/2009		3.36	19.45		45.58
	5/4/2009		2.24	20.57		45.58
	8/4/2009		0.75	22.06		45.59

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-20	8/2/1999	23.07	3.00	20.07	40.00	40.12
	11/9/1999		1.94	21.13		40.12
	2/25/2000		2.60	20.47		40.90
	5/2/2000		1.60	21.47		40.90
	8/15/2000		3.60	19.47		40.20
	11/8/2000		2.18	20.89		39.84
	2/13/2001		2.39	20.68		39.86
	5/4/2001		2.48	20.59		39.86
	8/7/2001		0.58	22.49		39.87
	11/6/2001		2.04	21.03		39.84
	2/5/2002		2.18	20.89		39.86
	5/6/2002		2.73	20.34		39.84
	8/5/2002		1.95	21.12		39.85
	11/4/2002		1.67	21.40		39.85
	2/4/2003		1.77	21.30		39.86
	5/5/2003		1.16	21.91		39.86
	8/4/2003		1.29	21.78		39.80
	11/3/2003		2.30	20.77		39.87
	2/3/2004		2.71	20.36		39.84
	5/3/2004		2.48	20.59		39.86
	8/3/2004		2.83	20.24		39.85
	11/1/2004		1.51	21.56		39.90
	2/7/2005		1.80	21.27		39.85
	5/2/2005		0.44	22.63		39.88
	8/1/2005		1.80	21.27		39.87
	10/31/2005		0.64	22.43		39.86
	1/30/2006		0.40	22.67		39.86
	5/1/2006		2.68	20.39		39.88
	7/31/2006		3.33	19.74		39.85
	11/14/2006		3.63	19.44		39.92
	2/6/2007		1.98	21.09		39.94
	5/7/2007		3.82	19.25		39.91
	8/10/2007		1.10	21.97		39.92
	11/5/2007		1.38	21.69		39.93
	1/31/2008		1.89	21.18		39.93
	4/30/2008		2.33	20.74		39.91
	8/5/2008		3.75	19.32		39.92
	11/4/2008		2.28	20.79		39.91
	2/3/2009		2.78	20.29		39.92
	4/7/2009		0.94	22.13		39.92
	8/4/2009		0.69	22.38		39.92

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-21	8/2/1999	23.56	3.75	19.81	40.40	40.57
	11/9/1999		2.40	21.16		40.57
	2/25/2000		2.90	20.66		41.80
	5/2/2000		2.10	21.46		40.80
	8/15/2000		3.60	19.96		40.20
	11/6/2000		2.40	21.16		40.20
	2/13/2001		2.69	20.87		40.30
	5/4/2001		2.83	20.73		40.30
	8/7/2001		0.94	22.62		40.30
	11/6/2001		2.25	21.31		40.29
	2/5/2002		2.49	21.07		40.30
	5/6/2002		3.04	20.52		40.27
	8/5/2002		2.36	21.20		40.29
	11/4/2002		2.00	21.56		40.31
	2/4/2003		2.12	21.44		40.29
	5/5/2003		1.94	21.62		40.29
	8/4/2003		1.52	22.04		40.25
	11/3/2003		2.60	20.96		40.29
	2/3/2004		3.06	20.50		40.27
	5/3/2004		3.00	20.56		40.25
	8/3/2004		3.39	20.17		40.28
	11/1/2004		1.84	21.72		40.30
	2/7/2005		2.15	21.41		40.30
	5/2/2005		0.94	22.62		40.31
	8/1/2005		2.21	21.35		40.30
	10/31/2005		0.84	22.72		40.32
	1/30/2006		0.74	22.82		40.31
	5/1/2006		2.40	21.16		40.32
	7/31/2006		3.67	19.89		40.28
	11/14/2006		4.00	19.56		40.35
	2/6/2007		2.43	21.13		40.38
	5/7/2007		4.04	19.52		40.31
	8/10/2007		1.46	22.10		40.35
	11/5/2007		1.90	21.66		40.34
	1/31/2008		2.37	21.19		40.38
	4/30/2008		2.81	20.75		40.37
	8/5/2008		4.10	19.46		40.35
	11/4/2008		2.70	20.86		40.34
	2/3/2009		3.20	20.36		40.35
	4/7/2009		1.35	22.21		40.34
	8/4/2009		1.29	22.27		40.35

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-22B	8/2/1999	36.13	11.92	24.21	52.60	52.62
	11/8/1999		10.34	25.79		52.59
	2/25/2000		11.60	24.53		53.60
	5/2/2000		10.80	25.33		52.20
	8/15/2000		11.40	24.73		52.30
	11/8/2000		9.21	26.92		52.30
	2/5/2001		10.48	25.65		52.29
	5/4/2001		10.18	25.95		52.33
	8/7/2001		8.54	27.59		52.38
	11/6/2001		8.81	27.32		52.28
	2/5/2002		10.15	25.98		52.29
	5/6/2002		10.40	25.73		52.28
	8/5/2002		10.59	25.54		52.28
	11/4/2002		9.26	26.87		52.29
	2/4/2003		9.01	27.12		52.29
	5/5/2003		8.45	27.68		52.28
	8/4/2003		8.98	27.15		52.29
	11/3/2003		10.41	25.72		52.29
	2/3/2004		11.68	24.45		52.29
	5/3/2004		11.73	24.40		52.28
	8/3/2004		11.41	24.72		52.35
	11/1/2004		8.42	27.71		52.30
	2/7/2005		9.85	26.28		52.30
	5/2/2005		8.17	27.96		52.32
	8/1/2005		9.05	27.08		52.32
	10/31/2005		6.39	29.74		52.31
	1/30/2006		6.95	29.18		52.32
	5/1/2006		8.64	27.49		52.30
	7/31/2006		10.70	25.43		52.30
	11/14/2006		12.47	23.66		52.40
	2/6/2007		11.75	24.38		52.42
	5/7/2007		12.99	23.14		52.40
	8/10/2007		10.77	25.36		52.18
	11/5/2007		9.39	26.74		52.41
	1/31/2008		10.62	25.51		52.41
	4/30/2008		10.69	25.44		52.40
	8/5/2008		12.40	23.73		52.40
	11/4/2008		11.31	24.82		52.41
	2/3/2009		12.29	23.84		52.38
	5/4/2009		10.48	25.65		52.39
	8/4/2009		8.59	27.54		52.40

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-34	8/2/1999	37.51	13.75	23.76	40.00	41.07
	11/8/1999		12.18	25.33		41.07
	2/7/2000		13.20	24.31		41.04
	5/2/2000		12.30	25.21		41.40
	8/8/2000		14.30	23.21		41.60
	11/8/2000		11.31	26.20		40.76
	2/8/2001		12.40	25.11		40.76
	5/3/2001		12.01	25.50		40.45
	8/7/2001		10.35	27.16		40.78
	11/6/2001		10.96	26.55		40.78
	2/5/2002		11.95	25.56		40.76
	5/6/2002		12.26	25.25		40.77
	8/5/2002		12.42	25.09		40.76
	11/4/2002		10.95	26.56		40.78
	2/4/2003		10.79	26.72		40.74
	5/5/2003		10.37	27.14		40.75
	8/4/2003		10.91	26.60		40.77
	11/3/2003		12.30	25.21		40.75
	2/3/2004		13.53	23.98		40.77
	5/3/2004		13.51	24.00		40.78
	8/3/2004		13.14	24.37		40.76
	11/1/2004		10.35	27.16		40.75
	2/7/2005		11.72	25.79		40.75
	5/2/2005		9.99	27.52		41.78
	8/1/2005		10.98	26.53		40.78
	10/31/2005		8.45	29.06		40.78
	1/30/2006		8.90	28.61		40.78
	5/1/2006		10.66	26.85		40.76
	7/31/2006		12.60	24.91		40.76
	11/14/2006		14.30	23.21		40.82
	2/6/2007		13.41	24.10		40.89
	5/7/2007		14.71	22.80		40.82
	8/10/2007		12.47	25.04		40.55
	11/5/2007		11.30	26.21		40.82
	1/31/2008		12.42	25.09		40.83
	4/30/2008		12.48	25.03		40.81
	8/5/2008		14.14	23.37		40.84
	11/4/2008		13.07	24.44		40.83
	2/3/2009		14.00	23.51		40.81
	5/4/2009		12.35	25.16		40.83
	8/4/2009		10.60	26.91		40.82

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-36	8/2/1999	37.91	14.34	23.57	40.00	41.67
	11/8/1999		12.84	25.07		41.65
	2/24/2000		14.02	23.89		42.50
	5/4/2000		12.90	25.01		41.40
	8/15/2000		14.60	23.31		41.40
	11/8/2000		12.02	25.89		41.62
	2/12/2001		13.07	24.84		41.39
	5/4/2001		12.67	25.24		41.39
	8/7/2001		10.95	26.96		41.39
	11/6/2001		11.56	26.35		41.38
	2/5/2002		12.57	25.34		41.36
	5/6/2002		12.85	25.06		41.35
	8/5/2002		12.97	24.94		41.36
	11/4/2002		11.57	26.34		41.38
	2/4/2003		11.41	26.50		41.34
	5/5/2003		11.00	26.91		41.36
	8/4/2003		11.48	26.43		41.38
	11/3/2003		12.87	25.04		41.37
	2/3/2004		14.08	23.83		41.36
	5/3/2004		14.03	23.88		41.38
	8/3/2004		13.70	24.21		41.38
	11/1/2004		10.98	26.93		41.40
	2/7/2005		12.30	25.61		41.40
	5/2/2005		10.57	27.34		41.41
	8/1/2005		11.60	26.31		41.39
	10/31/2005		9.10	28.81		41.39
	1/30/2006		9.51	28.40		41.39
	5/1/2006		11.31	26.60		41.38
	7/31/2006		13.18	24.73		41.38
	11/14/2006		14.83	23.08		41.44
	2/6/2007		13.91	24.00		41.45
	5/7/2007		15.23	22.68		41.41
	8/10/2007		12.94	24.97		41.43
	11/5/2007		11.88	26.03		41.42
	1/31/2008		12.95	24.96		41.45
	4/30/2008		13.04	24.87		41.43
	8/5/2008		14.68	23.23		41.45
	11/4/2008		13.60	24.31		41.43
	2/3/2009		14.51	23.40		41.44
	5/4/2009		12.91	25.00		41.43
	8/4/2009		11.17	26.74		41.43

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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-11-37	8/16/1999	26.26	4.15	22.11	38.50	38.57
	11/9/1999		2.86	23.40		38.46
	2/8/2000		3.20	23.06		38.40
	5/4/2000		2.40	23.86		38.20
	8/9/2000		4.10	22.16		38.60
	11/8/2000		2.76	23.50		30.20
	2/7/2001		2.96	23.30		38.18
	5/2/2001		3.00	23.26		38.20
	8/7/2001		1.37	24.89		38.21
	11/6/2001		2.43	23.83		38.19
	2/5/2002		2.82	23.44		38.18
	5/6/2002		3.28	22.98		38.19
	8/5/2002		2.84	23.42		38.19
	11/4/2002		2.29	23.97		38.20
	2/4/2003		2.23	24.03		38.22
	5/5/2003		1.95	24.31		38.20
	8/4/2003		2.03	24.23		38.21
	11/3/2003		2.89	23.37		38.20
	2/3/2004		3.43	22.83		38.19
	5/3/2004		3.44	22.82		38.22
	8/3/2004		3.80	22.46		38.20
	11/1/2004		1.96	24.30		38.20
	2/7/2005		2.44	23.82		38.20
	5/2/2005		1.16	25.10		38.21
	8/1/2005		2.28	23.98		38.22
	10/31/2005		0.79	25.47		38.22
	1/30/2006		0.71	25.55		38.22
	5/1/2006		2.32	23.94		38.21
	7/31/2006		3.15	23.11		38.21
	11/14/2006		4.28	21.98		38.25
	2/6/2007		3.00	23.26		38.25
	5/7/2007		4.44	21.82		38.27
	8/10/2007		2.23	24.03		38.28
	11/5/2007		2.12	24.14		38.24
	1/31/2008		2.68	23.58		38.25
	4/30/2008		2.97	23.29		38.24
	8/5/2008		4.66	21.60		38.24
	11/4/2008		3.17	23.09		38.27
	2/3/2009		3.78	22.48		38.29
	5/4/2009		2.81	23.45		38.26
	8/4/2009		1.44	24.82		38.25

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 1
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)
PS-2	8/17/1999	32.71	9.60	23.11	39.47	39.60
	11/8/1999		7.80	24.91		37.47
	2/7/2000		8.80	23.91		36.80
	5/4/2000		7.20	25.51		36.80
	8/8/2000		9.90	22.81		37.50
	11/8/2000		8.85	23.86		36.86
	2/7/2001		8.06	24.65		37.24
	5/2/2001		7.72	24.99		37.19
	8/7/2001		5.97	26.74		37.24
	11/6/2001		6.68	26.03		37.24
	2/5/2002		7.61	25.10		37.22
	5/6/2002		8.00	24.71		37.20
	8/5/2002		8.01	24.70		37.21
	11/4/2002		6.76	25.95		37.20
	2/4/2003		6.65	26.06		37.23
	5/5/2003		6.22	26.49		37.15
	8/4/2003		6.50	26.21		37.25
	11/3/2003		7.63	25.08		37.24
	2/3/2004		9.20	23.51		37.24
	5/3/2004		9.18	23.53		37.20
	8/3/2004		8.70	24.01		37.21
	11/1/2004		6.20	26.51		37.25
	2/7/2005		7.30	25.41		37.25
	5/2/2005		5.67	27.04		37.26
	8/1/2005		6.72	25.99		37.17
	10/31/2005		0.79	31.92		38.22
	1/30/2006		4.79	27.92		37.71
	5/1/2006		6.61	26.10		37.69
	7/31/2006		8.99	23.72		37.69
	11/14/2006		10.06	22.65		37.75
	2/6/2007		8.93	23.78		37.77
	5/7/2007		10.45	22.26		37.75
	8/10/2007		7.62	25.09		37.78
	11/5/2007		7.00	25.71		37.76
	1/31/2008		8.00	24.71		37.78
	4/30/2008		8.14	24.57		37.80
	8/5/2008		9.72	22.99		37.80
	11/4/2008		8.67	24.04		37.82
	2/3/2009		9.57	23.14		37.81
	5/4/2009		8.02	24.69		37.73
	8/4/2009		6.13	26.58		37.81

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-02	11/9/1999	6	23.4	5.94	-160	0.527	3	0.51
	2/4/2000	3	22.7	5	-258	0.604	12	1.7
	5/3/2000	6	22.5	6.8	NM	0.44	10	2.3
	8/8/2000			no water - well was not purged				
	11/8/2000	6	23.7	6.62	-189	0.325	7	0.67
	2/6/2001	6	18.9	6.35	-255	0.343	11	0.07
	5/1/2001	6	22	6.1	-84	0.276	6	8.55
	8/8/2001	6	26.9	7.09	-242.2	0.248	10	9.65
	11/7/2001	8	22.7	6.69	-59	0.317	0.7	3.59
	2/6/2002	6	20.96	6.51	-85	0.206	0.4	0.97
	5/7/2002	8	22.1	6.42	-105	0.167	5.31	0
	8/6/2002	6	27.97	8.52	-39	0.35	5.1	3.88
	11/5/2002	8	24.58	6.14	-47	0.808	-1.9	5.17
	8/2/1999	6	25.6	5.14	-221	0.304	2	NM
	11/4/2003	8	24.22	6.62	-56	0.357	-6.7	5.41
	11/2/2004	8	24	6.82	-128	0.264	5.5	6.65
KBA-11-10B	8/8/2000	6	25	6.3	-65	0.295	12	0.04
	8/9/2001	6	24.1	6.16	-222.6	0.317	5	9.99
	8/7/2002	8	25.82	8.37	-23	0.328	6.8	3.96
	8/5/2003	8	24	5.6	-60	0.252	0.9	2.03
	5/4/2004	8	21.29	5.53	-120	0.293	14.7	4.83
	5/3/2005	8	22.06	5.86	-73	0.188	5.4	4.69
	5/4/2006	8	22.50	6.13	-26	0.383	-1.9	10.62
	5/9/2007	8	21.68	5.56	-96	0.201	1.6	4.94
	5/5/2008	8	22.38	5.47	-72	0.506	1.1	3.95
	5/5/2009	8	24.70	5.45	-77	0.432	2.1	4.14
KBA-11-11A	8/10/2000	6	22.9	6	-18	0.071	4	0.01
	8/8/2001	8	22.8	5.64	-216.6	0.079	10	8.6
	8/6/2002	8	24.02	7.45	3	0.074	0.4	3.67
	5/6/2003	8	21.8	5.56	-39	0.06	13.1	3.59
	5/5/2004	8	20.76	5.44	-23	0.059	-10	6.61
	5/4/2005	8	21.24	5.46	9	0.034	5.2	5.78
	5/3/2006	8	21.61	6.05	86	0.049	-4.1	7.6
	5/8/2007	8	20.76	5.19	15	0.037	1.3	3.90
	5/1/2008	8	21.53	5.16	67	0.060	<0.01	3.92
	5/6/2009	8	21.77	5.30	-7	0.054	5.4	1.42

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-13A	8/3/1999	6	24.3	5.5	-210	0.463	17	NM
	11/9/1999	8	23	5.54	-142	0.467	2	0.78
	2/4/2000	8	22.3	6.68	-217	0.503	10	1.17
	5/3/2000	6	24.5	6.4	-113	0.561	10	1.1
	8/10/2000	6	23.7	6.2	-48	1.35	1	0.11
	11/8/2000	6	24.3	5.4	-81	1.3	4	0.4
	2/8/2001	6	23.8	4.8	-277	1.8	8	0.31
	5/3/2001	6	22.8	4.75	-76	2.16	1.9	8.5
	8/8/2001	8	25.2	4.98	-166.8	2.38	9	9.05
	11/7/2001	6	23.3	4.97	-10	1.75	0.6	3.53
	2/6/2002	8	24.1	4.85	-42	1.8	5.8	5.88
	5/8/2002	8	23.89	4.46	-16	1.66	8.3	0
	8/6/2002	8	26.67	6.7	69	1.82	32.7	2.51
	11/6/2002	8	23.8	5.84	-2	1.72	16.8	3.57
	2/5/2003	8	22.2	4.34	-62	1.21	7.33	3.41
	5/6/2003	8	23.3	4.27	57	1.24	113	2.63
	8/6/2003	8	24.3	4.25	102	0.928	11.4	3.36
	11/5/2003	8	24.3	4.23	18	1.02	136	3.37
	2/4/2004	8	24.08	4.2	0	1.06	10	6.59
	5/5/2004	8	22.64	4.2	60	1.07	6.98	4.52
	8/4/2004	8	25.20	4.2	132	0.940	43.4	2.59
	11/3/2004	8	24.11	4.19	19	0.645	48.6	11.64
	2/9/2005	8	21.73	4.34	96	0.516	-6	7.7
	5/4/2005	8	22.57	4.22	34	0.454	65.8	4.19
	8/3/2005	8	24.02	7.15*	-5	0.491	1.7	6.93
	9/7/2005	4	23.45	4.31	13	0.307	1.3	6.40
	11/2/2005	8	23.47	4.24	15	0.522	53.4	3.02
	2/1/2006	8	20.81	4.31	39	0.272	-10	6.69
	5/3/2006	8	24.19	4.51	61	0.567	53.9	6.9
	8/3/2006	8	23.68	4.47	-10	0.530	12.4	3.25
	11/16/2006	8	22.48	4.44	-32	0.536	<0.01	3.89
	2/7/2007	8	22.87	4.24	-61	0.403	5.1	3.35
	5/8/2007	8	23.28	4.31	-53	0.197	2.2	4.14
	8/14/2007	8	22.43	4.22	-61	0.470	5.4	3.15
	11/7/2007	8	22.04	4.23	-12	0.460	10.5	4.27
	2/4/2008	8	24.34	4.36	-80	0.399	16.7	4.02
	5/1/2008	8	23.56	4.17	-12	0.502	13.1	4.91
	8/6/2008	8	26.24	3.96	-19	0.471	<0.01	2.05
	11/5/2008	8	21.96	4.15	-42	0.368	15.4	3.47
	5/6/2009	8	24.16	4.45	-44	0.407	10.9	4.69
	8/5/2009	8	15.21***	4.24	-24	0.362	86.5	4.88
KBA-11-13B	8/3/1999	8	24.9	7.15	-43	0.267	<0.1	NM
	8/8/2000	6	24.3	7.5	-37	0.241	2	0.07
	8/8/2001	6	24.5	8.11	-243.3	0.29	0.85	10.21
	8/7/2002	8	26.3	8.76	-41	0.341	3.1	3.53
	8/5/2003	8	23.90	8	-143	0.255	1.9	4.77
KBA-11-15	8/3/1999	6	25	4.9	-182	0.677	9	NM
	2/7/2000	7	20.8	5.04	-313	0.536	5	1.43
	8/9/2000	6	24.2	5.7	-91	0.694	3	0.13
	8/9/2001	6	22.7	5.9	-204.8	0.97	10	8.83
	8/7/2002	8	24.57	7.62	24	0.775	2.7	5.54
	8/5/2003	8	23.40	5.6	-40	0.468	0.5	5.6
	4/8/2009	8	20.28	6.86	-34	1.30	0.8	4.55

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-16	8/3/1999	7	26.8	4.76	-111	0.171	35	NM
	11/9/1999	8	24	4.89	-104	0.263	20	0.57
	2/7/2000	7	22.8	5.4	-275	0.364	8	1.09
	5/4/2000	6	23.6	6.1	NM	0.146	10	3.7
	8/9/2000	6	24.6	5.6	-67.7	0.331	1	0.06
	11/8/2000	6	25.02	5.02	-102	0.302	4	0.15
	2/6/2001	6	23.4	4.92	-111	0.345	2	0.03
	5/2/2001	6	23.1	4.17	-123	0.411	7	7.3
	8/9/2001	8	24.4	5.58	-248.1	0.394	4	8.68
	11/7/2001	8	23.6	4.79	-54	0.387	4.8	0.8
	2/6/2002	6	24.64	4.94	-140	0.28	0.7	2.3
	5/7/2002	6	24.41	4.81	-170	0.188	6.5	0
	8/7/2002	8	27.44	8.36	-45	0.449	1.1	10.45
	11/5/2002	8	25.29	5.82	-147	0.339	-0.3	4.3
	2/5/2003	8	20.80	5.22	-199	0.326	4.5	4.92
	5/5/2003	8	23.5	5.2	-170	0.369	60.8	2.38
	8/6/2003	8	24.60	5.26	-150	0.299	1.7	3.28
	11/4/2003	8	25.50	5.25	-148	0.277	2.4	8.67
	2/4/2004	8	19.11	5.26	-190	0.306	2.4	16.19
	5/4/2004	8	23.30	5.11	-194	0.332	8.64	2.91
	8/4/2004	8	26.30	5.19	-177	0.403	4.2	3.36
	11/2/2004	8	25.97	5.16	-156	0.219	22.9	3.08
	2/8/2005	8	23.64	5.25	-187	0.202	12.2	9.24
	5/3/2005	8	25.26	5.36	-106	0.22	20.4	3.26
	8/2/2005	8	24.66	9.48*	-147	0.266	0.5	4.3
	9/7/2005	4	24.82	5.61	-65	0.100	3.6	6.16
	11/1/2005	8	25.56	4.51	-161	0.326	29.2	3.27
	1/31/2006	8	21.89	5.34	-146	0.180	13.6	5.66
	5/4/2006	8	24.36	5.87	-88	0.355	19.3	16.3
	8/2/2006	8	25.22	5.05	-70	0.378	15.7	2.76
	11/15/2006	8	24.78	5.04	-110	0.380	35.8	2.94
	2/7/2007	8	22.38	5.05	-126	0.313	<01	2.90
	5/9/2007	8	23.83	5.23	-117	0.172	26.8	4.36
	8/13/2007	8	23.71	5.04	-134	0.378	<0.1	3.37
	11/6/2007	8	25.97	5.08	-58	0.371	2.4	2.77
	2/4/2008	8	23.66	5.22	-127	0.358	0.7	3.48
	5/5/2008	8	24.90	5.14	-83	0.459	2.6	3.29
	8/6/2008	8	26.02	4.85	-19	0.435	<0.1	2.48
	11/5/2008	8	23.82	5.03	-66	0.354	1.8	3.73
	2/4/2009	8	20.71	5.07	-14	0.389	<0.1	4.48
	5/5/2009	8	25.74	5.21	-55	0.406	2.3	4.32
	8/5/2009	8	17.50***	5.12	-51	0.389	5.7	4.21
KBA-11-17B	8/3/1999	8	24.7	4.48	-112	0.118	6	NM
	2/7/2000	7	21.9	5.4	-287	0.135	3	1.08
	8/9/2000	6	24.3	6.8	-101	0.073	2	0.01
	8/9/2001	6	23.6	5.46	-178.4	0.118	10	8.7
	8/7/2002	8	25.88	7.14	58	0.583	2	3.35
	8/5/2003	8	24.90	4.91	-1	0.331	0.5	3.98
	4/8/2009	8	22.03	6.14	-33	0.190	0.5	3.99
KBA-11-20	4/8/2009	8	22.79	6.56	-58	0.372	<0.1	4.53
KBA-11-21	4/8/2009	8	22.30	6.04	-15	0.193	0.4	4.63

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-34	8/3/1999	6	30.5	3.2	-300	2.36	13	NM
	11/9/1999	8	27.2	3.58	-134	2.26	9	0.44
	2/7/2000	8	24.9	2.81	-184	2.19	9	2.43
	5/4/2000	6	25.8	3.9	-119	1.36	10	5.85
	8/8/2000	6	27.8	3.7	-315	1.78	38	0.02
	11/8/2000	6	26.03	3.51	-189	1.73	44	1.73
	2/8/2001	6	26.9	3.8	-249	1.69	4	0.06
	5/3/2001	8	25.2	3.88	-113	1.48	3	6.96
	8/9/2001	6	27.5	4.35	-152.5	1.07	12	8.77
	11/7/2001	6	25.3	3.7	-404	0.652	4.7	19.99
	2/6/2002	6	28.08	3.45	-322	1.28	0.5	8.45
	5/8/2002	8	27.12	3.65	-260	1.1	4.5	0
	8/8/2002	8	27.89	5.05	112	1.02	5.3	3.32
	11/5/2002	8	26.83	4.85	97	0.913	0.3	4.95
	2/5/2003	8	24.3	3.94	-161	0.783	42.4	2.64
	5/5/2003	8	26.3	3.97	210	0.898	36.3	0.7
	8/6/2003	8	25.2	4.51	37	0.603	8.6	3.01
	11/4/2003	8	26.02	4.25	37	0.47	47.7	3.6
	2/4/2004	8	18.02	4.49	-26	0.504	2.3	16.37
	5/4/2004	8	23.91	4.51	-34	0.509	47.1	4.98
	8/4/2004	8	24.40	4.71	-52	0.777	141	4.52
	11/2/2004	8	25.15	4.71	-67	0.35	99	8.71
	2/8/2005	8	23.90	4.97	-91	0.29	9.3	8.27
	5/4/2005	8	23.43	5.1	-61	0.28	26.9	4.72
	8/2/2005	8	24.21	8.89*	-88	0.354	14.8	4.23
	9/7/2005	4	24.41	5.19	-85	0.241	74.3	8.76
	11/2/2005	8	23.54	4.76	-80	0.379	41.2	2.59
	1/31/2006	8	22.78	5.34	-40	0.172	<0.1	6.57
	5/4/2006	8	24.41	5.6	-28	0.345	17.0	**
	8/2/2006	8	24.70	5.31	-33	0.342	30.5	3.59
	11/15/2006	8	24.14	5.27	-65	0.356	8.1	3.25
	2/7/2007	8	20.63	5.37	-99	0.308	<0.1	3.63
	5/9/2007	8	22.67	5.30	-86	0.165	4.2	2.86
	8/13/2007	8	22.68	4.93	-84	0.373	<0.1	1.80
	11/6/2007	8	22.67	5.36	-56	0.397	28.5	3.65
	2/4/2008	8	22.16	5.63	-76	0.352	23.4	4.11
	5/6/2008	8	23.47	5.49	-51	0.462	27.4	4.08
	8/6/2008	8	24.01	5.23	-44	0.426	<0.1	3.08
	11/5/2008	8	21.91	5.44	-53	0.315	3.2	4.08
	2/4/2009	8	20.28	5.31	-28	0.346	1.7	2.82
	5/5/2009	8	23.56	5.59	-51	0.355	13.1	3.29
	6/2/2009	8	23.78	5.51	-8	0.390	0.2	5.67
	8/5/2009	8	17.31***	5.53	-42	0.302	4.8	3.64

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
KBA-11-37	8/16/1999	9	25.5	5.52	-227	0.517	15	NM
	11/9/1999	8	24.2	5.37	-200	0.573	12	0.46
	2/8/2000	8	21.3	6.1	-323	0.562	6	1.45
	5/4/2000	6	24	6.3	NM	0.517	10	1.75
	8/9/2000	6	24.6	6.2	-119	0.551	3	0.03
	11/8/2000	6	26.2	5.67	-73	0.533	4.3	0.86
	2/7/2001	6	22.5	5.5	-73	0.559	9	0.1
	5/2/2001	8	24.2	5.41	-139	0.595	30	8.55
	8/9/2001	6	25.5	6.28	-248.8	0.587	10	9.61
	11/7/2001	8	23.7	5.57	-72	0.618	0.5	1.75
	2/5/2002	6	24.68	5.56	-147	0.395	0.7	1.27
	5/7/2002	6	24.15	5.47	-155	0.231	6.01	0
	11/5/2002	8	24.95	5.96	-120	0.365	2.2	3.20
	2/5/2003	8	21.1	5.94	-148	0.310	2.5	5.09
	8/6/2003	8	24.7	5.83	-114	0.3	7.3	2.92
	11/4/2003	8	24.64	5.69	-125	0.312	4.4	2.48
	2/4/2004	8	18.08	5.72	-166	0.332	18.9	10.66
	5/4/2004	8	24.18	5.83	-125	0.388	6.0	4.82
	8/4/2004	8	25.30	5.80	-86	0.491	26.9	4.93
	11/2/2004	8	24.69	5.64	-123	0.282	4.1	4.15
	2/8/2005	8	22.34	5.89	-113	0.247	12.8	7.52
	5/3/2005	8	23.40	6.04	-90	0.249	2.3	4.97
	8/2/2005	8	24.81	9.19*	-114	0.328	1.5	3.98
	9/7/2005	4	24.41	5.83	-103	0.236	3.6	6.17
	11/1/2005	8	24.52	4.67	-114	0.379	9.3	2.71
	1/31/2006	8	20.91	5.84	-96	0.204	2.2	4.65
	5/4/2006	8	24.16	6.48	-85	0.401	6.2	**
	8/2/2006	8	24.74	5.74	-45	0.413	3.6	2.97
	11/15/2006	8	24.10	5.66	-117	0.431	2.5	1.75
	2/7/2007	8	22.03	5.74	-122	0.251	<0.1	3.59
	5/9/2007	8	23.19	5.84	-127	0.332	6.1	3.89
	8/13/2007	8	24.93	5.64	-104	0.303	<0.1	3.67
	11/6/2007	8	24.54	5.83	-80	0.384	<0.1	3.71
	2/4/2008	8	22.81	6.05	-116	0.329	2.6	4.19
	5/5/2008	8	24.30	5.89	-92	0.432	<0.1	3.97
	8/6/2008	8	26.31	5.62	-81	0.379	<0.1	3.41
	11/5/2008	8	23.22	5.94	-77	0.329	0.3	4.21
	2/4/2009	8	20.21	5.54	-30	0.370	<0.1	3.41
	5/5/2009	8	24.53	5.92	-76	0.390	1.1	2.87
	8/5/2009	8	17.00***	5.95	-70	0.315	1.5	3.35

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 2
Well Purge Parmeters

Well Identification	Date	Volume Purged (gal)	Temperature (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
PS-2	8/18/1999	7	23.2	4.95	-213	0.381	10	NM
	11/9/1999	8	22	4.87	-144	0.363	2	0.35
	2/7/2000	8	19.5	4.93	-387	0.355	10	1.43
	5/3/2000	6	21.6	5.7	NM	0.317	10	1.3
	8/8/2000	6	23	5	-108	0.3	2	0.04
	11/8/2000	6	24.2	5.4	-92	0.298	4	0.48
	2/7/2001	6	17.7	5.24	-90	0.29	3	0.03
	5/2/2001	8	21.7	5.42	-123	0.327	1	7.8
	8/9/2001	6	23.1	5.8	-223.5	0.318	5	9.84
	11/7/2001	8	21.2	5.06	-33	0.334	0.2	1.64
	2/6/2002	6	22.85	5.24	-120	0.286	0.7	0.8
	5/6/2002	6	22.1	4.98	-105	0.163	9.9	0
	11/5/2002	8	22.55	5.61	2	0.312	7.3	4.62
	2/5/2003	8	20.40	5.48	-160	0.325	3.9	2.10
	5/5/2003	8	23.6	5.52	-150	0.372	46.2	1.5
	8/5/2003	8	22.90	5.55	-115	0.293	29.9	3.44
	11/4/2003	8	22.71	5.45	-100	0.274	13.8	3.64
	2/4/2004	8	14.92	5.46	-13	0.344	9.2	5.44
	5/4/2004	8	24.18	5.83	-125	0.388	6.06	4.82
	8/4/2004	8	22.40	5.46	-128	0.549	125	3.78
	11/2/2004	8	22.46	5.15	-123	0.252	24.4	8.85
	2/8/2005	8	20.55	5.52	-133	0.239	14.9	7.96
	5/3/2005	8	20.52	5.53	-47	0.239	1.3	5.51
	8/2/2005	8	22.59	9.40*	-131	0.298	6.5	2.55
	9/7/2005	4	22.19	5.40	-78	0.245	3.8	6.35
	11/1/2005	8	22.01	4.82	-92	0.352	13.6	3.64
	1/31/2006	8	19.31	5.64	-85	0.215	13.6	5.37
	5/3/2006	8	23.32	5.55	-13	0.437	25.3	7.88
	8/2/2006	8	22.37	5.56	-28	0.426	12.5	4.08
	11/15/2006	8	21.69	5.41	-95	0.428	14.2	3.30
	5/8/2007	8	22.84	5.35	-116	0.204	2.7	3.68
	5/5/2008	8	23.42	5.52	-87	0.554	18.6	4.00
	5/6/2009	8	23.01	5.47	-105	0.501	10.6	4.36

* *pH data in August 2005 is suspect due to malfunctioning pH meter.*
** DO reading not reported due to malfunctioning DO meter

ft = feet
msl = above mean sea level
btoc = below top of casing

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-02																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	NA	NA	NA	NA	NA
11/9/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
2/4/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
5/3/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
11/8/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
2/6/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
5/2/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	0.1	1.0U	1.0U	5.0U	5.0U	NA	NA	NA
8/8/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
11/7/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	4.8JB	NA	NA
2/6/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U	NA	NA
5/7/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U	0.00137	0.00137
8/6/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U	0.0012	0.000036
11/5/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
11/4/2003	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well has met the exit criteria stated in the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999) and is no longer being sampled.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-10B																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/2/1999	3.0U	1.0U	1.6I	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.6	1.6	10	1.0U	3.0U	**2.5**	1.5	20U	50U	NA	NA	NA
8/8/2000	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0	1.0	5.0	1.0U	3.0U	1.0	1.0	10U	50U	NA	NA	NA
8/9/2001	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0	0.57J	2.5	1.0U	3.0U	**1.2**	0.76J	25U	50U	NA	NA	NA
8/7/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.1	1.0U	3.0U	1.0U	75	10U	50U	1.0U	0.00065B	0.00003
8/5/2003	1.0U	1.0U	0.49J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.49	0.32J	0.91J	1.0U	3.0U	0.90J	1.1J	10U	50U	10U	NA	NA
5/4/2004	1.0U	1.0U	0.73J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	0.42J	1.3	1.0U	3.0U	**1.2**	1.5	10U	2.1J	1.3	NA	NA
5/3/2005	1.0U	1.0U	0.80J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.80J	0.54J	1.4	0.21J	3.0U	**1.2**	1.3	10U	2.6J	0.34J	NA	NA
5/4/2006	1.0U	1.0U	0.42J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.42J	0.32J	0.47J	1.0U	3.0U	0.87J	1.5	10U	16J	1.3J	NA	NA
5/8/2007	1.0U	1.0U	0.32J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.32J	0.31J	1.0U	1.0U	3.0U	0.83J	1.2	10U	50U	1.3J	NA	NA
5/5/2008	1.0U	1.0U	0.32J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.32J	1.0U	0.35J	1.0U	3.0U	0.90J	1.3	10U	50U	1.4J	NA	NA
5/5/2009	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	5.0U	1.0U	0.47J	1.0U	3.0U	0.98J	1.4	10U	50U	6.2J	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well is being sampled annually for GWPS constituents as required by the GADNR approved
***Groundwater Monitoring Plan* (Bechtel, 1999).**

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-11A (Background Monitoring Well)

Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/2/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
8/10/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0	5.0	1.0U	1.0U	1.0	1.0	20U	50U	NA	NA	NA
8/8/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
8/6/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U	0.001B	0.00035B
5/6/2003	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	5.2U	0.000295B	0.030U
5/5/2004	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	5.0U	0.000130U	0.000039U
5/5/2004	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
5/4/2005	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	5.2U	0.000114B	0.000047U
5/3/2006	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	0.21J	1.0U	1.0U	10U	50U	5.2U	0.000690U	0.000041U
5/8/2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00069U	0.000041U
6/18/2007	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	9.1J	note 1	0.00069U	0.000041U
7/19/2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9J	NA	NA
5/1/2008	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	9.1J	5.3U	0.00034J	0.00020U
5/1/2008 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	9.1J	1.3J	NA	NA
5/6/2009	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	5.4U	0.0006J	0.0002U
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	—	—	—	0.1	—

Notes:
note 1: Semivolatile Organic concentrations for May 8, 2007 are not reported due to suspected cross-contamination of samples. Well was resampled on July 19, 2007 as presented.
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable conecntrations were assumed to be zero
This monitoring well is being sampled annually as a background reference point for GWPS and Appendix IX constituents as required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999).

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-13A																					
Date	Tetrachloroethene	Trichloroethene	Cis-1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	19	190	7.4	1.0U	1.0U	1.0U	48	1.0U	264.4	1.1I	66	2.7	14.4	6.2	4.0	20U	50U	NA	NA	NA
11/9/1999	30U	151	260	1.0U	1.0U	1.0U	1.0U	46	1.0U	321	1.0U	65	1.0U	24I	1.0U	1.0U	200U	500U	NA	NA	NA
11/9/1999 (dup)	3.0U	17	210	6.6	1.0U	1.0U	1.0U	42	1.0U	275.6	1.3I	92	4.2	49	8.2	5.2	20U	50U	NA	NA	NA
2/4/2000	1.0U	14	230	6.0	1.0U	1.0U	1.0U	20	1.0U	270	2.0	64	2.0	23	6.0	4.0	5U	4.0J	NA	NA	NA
5/3/2000	1.0U	20	180	6.0	1.0U	1.0U	1.0U	19	1.0U	225	2.0	67	2.0	4.0	5.0	3.0	5U	5U	NA	NA	NA
8/10/2000	1.0U	51	300E	9.0	1.0U	1.0U	1.0U	17	1.0U	377	1.0	71	0.9	0.7	5.0	3.0	20U	50U	NA	NA	NA
8/10/2000 (dup)	1.0U	40	190	7.0	1.0U	1.0U	1.0U	11	1.0U	248	1.0	51	0.7	3.0	4.0	2.0	10U	50U	NA	NA	NA
11/8/2000	3.0U	54	160	7.0	1.0U	1.0U	1.0U	4.0	1.0U	225	1.0	57	1.0U	2.0U	5.0	3.0	10U	33J	NA	NA	NA
2/8/2001	0.8	45	110	8.0	1.0U	1.0U	1.0U	0.9	1.0U	164.7	1.0	34	1.0U	3.0U	3.0	1.0U	25U	47J	NA	NA	NA
5/3/2001	0.59J	37	88	6.6	1.0U	1.0U	1.0U	0.9	1.0U	133.09	0.33J	20	0.46J	0.33J	2.4	1.4	5.0U	52	NA	NA	NA
8/8/2001	1.6	32	71	6.4	0.44J	1.0U	1.0U	1.0U	1.0U	111	0.43J	22	0.43J	0.56J	3.1	1.4	25U	50U	NA	NA	NA
8/8/2001 (dup)	0.77J	26	59	5.4	1.0U	1.0U	1.0U	1.0U	1.0U	91.17	0.31J	14	0.30J	0.37J	2.1	1.4	25U	50U	NA	NA	NA
11/7/2001	0.86J	24	52	4.7	1.0U	1.0U	1.0U	1.0U	1.0U	81.56	0.36J	16	0.28J	3.0U	2.6	2.1B	5.0U	10U	30	NA	NA
11/7/2001 (dup)	0.66J	20	44	4.0	1.0U	1.0U	1.0U	1.0U	1.0U	68.66	0.34J	14	0.24J	3.0U	2.3	1.7B	5.0U	10U	29B	NA	NA
2/6/2002	1.6	21	43	4.1	1.0U	1.0U	1.0U	1.0U	1.0U	69.7	1.0U	9.0	1.0U	3.0U	3.1	2.0B	25U	50U	38B	NA	NA
2/6/2002 (dup)	1.6	20	42	4.2	1.0U	1.0U	1.0U	1.0U	1.0U	67.8	1.0U	8.5	1.0U	3.0U	3.0	1.9B	25U	50U	37B	NA	NA
5/8/2002	5.0	17	28	3.1	1.0U	1.0U	1.0U	1.0U	1.0U	53.1	1.0U	6	0.37J	3.0U	2.2	1.8	25U	50U	29	0.58	0.4
5/2/2002 (dup)	3.8	16	26	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	45.8	1.0U	5.8	0.34J	3.0U	1.9	1.7	25U	50U	25	0.55	0.38
8/6/2002	14	16	25	2.5	1.0U	1.0U	1.0U	1.0U	1.0U	57.5	1.0U	5.4	1.0U	3.0U	1.8	1.7	10U	50U	NA	0.49	0.36
8/6/2002 (dup)	13	15	23	2.5	1.0U	1.0U	1.0U	1.0U	1.0U	53.5	1.0U	5.1	1.0U	3.0U	1.6	1.6	10U	50U	22	0.45	0.33
11/6/2002	20	10	13	1.1	1.0U	1.0U	1.0U	1.0U	1.0U	44.1	1.0U	5.1	1.0U	3.0U	1.4	1.5	10U	50U	31	NA	NA
11/6/2002 (dup)	26	9.6	12	1.1	1.0U	1.0U	1.0U	1.0U	1.0U	48.7	1.0U	5.2	1.0U	3.0U	1.5	1.5	10U	50U	37	NA	NA
2/5/2003	23	8.8	12	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	43.8	1.0U	3.7	1.0U	3.0U	1.2	1.0	10U	50U	11	NA	NA
2/5/2003 (dup)	1.2	1.1	1.4	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.7	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U	NA	NA
5/6/2003	44	22	60	1.7	1.0U	1.0U	1.0U	1.0U	1.0U	127.7	1.0U	2.9	0.36J	3.0U	1.0	0.99J	10U	50U	5.6	0.0822	0.0291
5/6/2003 (dup)	45	22	60	1.8	1.0U	1.0U	1.0U	1.0U	1.0U	128.8	1.0U	2.9	0.40J	3.0U	0.98J	1.4	10U	50U	9.4J	NA	NA
8/6/2003	13	6.1	7.0	0.63	1.0U	1.0U	1.0U	1.0U	1.0U	26.73	1.0U	3.0	0.36J	3.0U	1.3	1.3	10U	50U	19	NA	NA
8/6/2003 (dup)	20	8.4	7.8	0.69J	1.0U	1.0U	1.0U	1.0U	1.0U	36.89	1.0U	3.0	0.39J	3.0U	1.1	1.1	10U	50U	14	NA	NA
11/5/2003	26	7.8	5.6	0.53	1.0U	1.0U	1.0U	1.0U	1.0U	39.93	1.0U	2.4	0.40J	3.0U	1.0J	1.1	10U	4.0J	6.4	NA	NA
11/5/2003 (dup)	27	8.1	5.7	0.59	1.0U	1.0U	1.0U	1.0U	1.0U	41.39	1.0U	3.0U	0.44J	3.0U	1.0J	0.98J	10U	3.6J	5.6J	NA	NA
2/4/2004	16	7.4	6.7	0.54J	1.0U	1.0U	1.0U	1.0U	1.0U	30.64	1.0U	1.8	0.37J	3.0U	0.81J	0.90J	10U	50U	10	NA	NA
2/4/2004 (dup)	15	7.3	6.9	0.57J	1.0U	1.0U	1.0U	1.0U	1.0U	29.77	1.0U	1.8	0.38J	3.0U	0.80J	0.93J	10U	50U	11	NA	NA
5/5/2004	17	9.6	12	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	39.60	1.0U	1.5	0.39J	0.42J	0.81J	0.80J	10U	50U	7.1	0.0262	0.00771
5/5/2004 (dup 1)	17	8.3	10	0.90J	1.0U	1.0U	1.0U	1.0U	1.0U	36.20	1.0U	1.5	0.43J	0.50J	0.77J	0.80J	10U	2.8J	7.3J	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-13A																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
5/5/2004 (dup 2)	17	8.4	11	0.87J	1.0U	1.0U	1.0U	1.0U	1.0U	37.27	1.0U	1.5	0.42J	0.44J	0.79J	0.77J	10U	2.2J	6.8J	NA	NA
8/4/2004	18	8.7	20	1.2	1.0U	1.0U	1.0U	1.0U	1.0U	47.90	1.0U	1.6	0.38J	0.41J	0.83J	0.71J	10U	50U	7.4J	NA	NA
8/4/2004 (dup)	19	8.4	20	1.2	1.0U	1.0U	1.0U	1.0U	1.0U	48.60	1.0U	1.6	0.39J	0.43J	0.83J	0.70J	10U	50U	8.2J	NA	NA
11/3/2004	34	9.7	17	1.1	0.32J	1.0U	1.0U	1.0U	1.0U	61.80	1.0U	1.4	0.46J	0.491J	0.84J	0.79J	10U	6.0J	6.4J	NA	NA
11/3/2004 (dup)	35	10	17	1.1	0.31J	1.0U	1.0U	1.0U	1.0U	63.10	1.0U	1.4	0.45J	0.32J	0.82J	0.74J	10U	50U	6.9J	NA	NA
2/9/2005	43	11	20	0.96J	0.30J	1.0U	1.0U	1.0U	1.0U	74.96	1.0U	1.3	0.47J	0.49J	0.87J	0.69J	10U	4.2J	6.7J	NA	NA
2/9/2005 (dup)	54	11	20	0.95J	0.29J	1.0U	1.0U	1.0U	1.0U	85.95	1.0U	1.4	0.46J	0.53J	0.90J	0.80J	10U	3.0J	7.6J	NA	NA
5/4/2005	61	11	36	0.95J	1.0U	1.0U	1.0U	1.0U	1.0U	108.95	1.0U	0.99J	0.47J	0.28J	0.71J	0.55J	10U	2.5J	3.4J	0.0129	0.00306
5/4/2005 (dup)	74	12	37	1.1	1.0U	1.0U	1.0U	1.0U	1.0U	124.10	1.0U	1.2	0.44J	1.49	0.79J	0.68J	10U	50U	1.7J	NA	NA
8/3/2005	22	9.3	15	0.56J	1.0U	1.0U	1.0U	1.0U	1.0U	46.86	1.0U	1.1	0.36J	3.0U	0.96J	0.85J	10U	50U	8.7J	NA	NA
8/3/2005 (dup)	18	8.2	15	0.52J	1.0U	1.0U	1.0U	1.0U	1.0U	41.72	1.0U	1.1	0.39J	1.44	0.93J	0.84J	10U	3.4J	9.3J	NA	NA
11/2/2005	26	8.6	21	0.56J	1.0U	1.0U	1.0U	1.0U	1.0U	56.16	1.0U	1.3	0.50J	3.0U	1.2	0.92J	10U	5.3J	19	NA	NA
11/2/2005 (dup)	29	8.9	23	0.53J	1.0U	1.0U	1.0U	1.0U	1.0U	61.43	1.0U	1.2	0.49J	3.0U	1.1	0.91J	10U	50U	18	NA	NA
2/1/2006	15	8.8	21	0.80J	0.34J	1.0U	1.0U	1.0U	1.0U	45.60	1.0U	1.3	0.40J	0.34J	1.1	1.2	10U	50U	13	NA	NA
2/1/2006 (dup)	15	8.9	23	0.87J	0.30J	1.0U	1.0U	1.0U	1.0U	47.77	1.0U	1.2	0.41J	0.56J	1.2	1.3	10U	50U	13	NA	NA
5/3/2006	11	6.7	33	1.1	1.0U	1.0U	1.0U	1.0U	1.0U	50.70	1.0U	0.59J	0.33J	0.20J	0.76J	1.0U	10U	4.6J	4.1J	0.000552	0.000956J
5/3/06 (dup 1)	13	8.5	33	1.2	0.30J	1.0U	1.0U	1.0U	1.0U	54.50	1.0U	0.74J	0.37J	0.508J	0.85J	0.83J	10U	9.1J	4.8J	NA	NA
5/3/06 (dup 2)	14	8.5	36	1.3	0.35J	1.0U	1.0U	1.0U	1.0U	58.50	1.0U	0.77J	0.37J	0.38J	0.84J	0.82J	10U	7.6J	7.7J	NA	NA
8/3/2006	6.6	6.9	24	0.90J	0.43J	1.0U	1.0U	1.0U	1.0U	38.40	1.0U	0.80J	0.29J	0.22J	0.77J	1.0U	10U	50U	8.7J	NA	NA
8/3/06 (dup)	7.4	7.3	24	0.84J	0.47J	1.0U	1.0U	1.0U	1.0U	39.54	1.0U	0.76J	0.32J	0.25J	0.79J	0.75J	10U	3.1J	9.3J	NA	NA
11/16/2006	6.8	8.8	32	1.2	0.48J	1.0U	1.0U	1.0U	1.0U	48.80	1.0U	1.1	0.40J	0.29J	1.3	1.3	10U	50U	8.4J	NA	NA
11/16/2006 (dup)	7.8	9.6	36	1.4	0.47J	1.0U	1.0U	0.16J	1.0U	54.96	1.0U	1.0	0.40J	0.27J	1.2	1.2	10U	50U	8.5J	NA	NA
2/7/2007	10	9.7	38	1.3	0.39J	1.0U	1.0U	1.0U	1.0U	59.00	1.0U	0.88J	0.36J	0.29J	0.99J	0.84J	10U	17J	10U	NA	NA
2/7/2007 (dup)	12	11	40	1.4	0.46J	1.0U	1.0U	0.15J	1.0U	64.55	1.0U	0.97J	0.38J	0.31J	1.1	1.1	10U	12J	10U	NA	NA
5/8/2007	11	9.2	27	0.90J	1.0U	1.0U	1.0U	1.0U	1.0U	48.1	1.0U	0.87J	0.39J	0.37J	0.99J	1.1	10U	9.0J	3.6J	0.00055	0.00076J
5/8/2007 (dup)	11	8.6	28	0.93J	0.35J	1.0U	1.0U	0.17J	1.0U	48.7	1.0U	0.85J	0.36J	0.26J	0.96J	0.93J	10U	50U	5.9J	NA	NA
8/14/2007	15	10	32	1.1	0.36J	1.0U	1.0U	1.0U	1.0U	58.1	1.0U	0.91J	0.45J	0.28J	1.0	1.0U	10U	5.1J	3.8J	NA	NA
8/14/2007 (dup)	13	9.3	31	0.88J	0.34J	1.0U	1.0U	1.0U	1.0U	54.18	1.0U	0.79J	0.41J	0.28J	0.90J	0.98J	10U	50U	3.6J	NA	NA
11/7/2007	17	11	29	0.63J	1.0U	1.0U	1.0U	1.0U	1.0U	57.63	1.0U	0.89J	0.35J	3.0U	0.98J	1.1	10U	50U	4.8J	NA	NA
11/7/2007 (dup 1)	17	11	29	0.67J	1.0U	1.0U	1.0U	1.0U	1.0U	57.67	1.0U	0.87J	0.32J	3.0U	0.93J	1.0	10U	50U	4.1J	NA	NA
11/7/2007 (dup 2)	16	10	29	0.64J	1.0U	1.0U	1.0U	1.0U	1.0U	55.64	1.0U	0.83J	0.35J	3.0U	0.88J	1.1	10U	50U	4.3J	NA	NA
2/4/2008	15	8.3	25	0.83J	0.34J	1.0U	1.0U	1.0U	1.0U	48.94	1.0U	0.80J	0.41J	3.0U	0.94J	1.1	10U	50U	0.76J	NA	NA
2/4/2008 (dup 1)	13	8.3	26	0.85J	0.37J	1.0U	1.0U	1.0U	1.0U	47.94	1.0U	0.82J	0.35J	3.0U	0.95J	1.2	10U	50U	0.96J	NA	NA
2/4/2008 (dup 2)	15	8.4	26	0.80J	0.35J	1.0U	1.0U	1.0U	1.0U	50.04	1.0U	0.90J	0.41J	3.0U	0.97J	1.1	10U	50U	1.2J	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-13A																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
5/1/2008	9.7	7.3	19	0.57J	1.0U	0.28J	1.0U	1.0U	1.0U	36.57	1.0U	0.76J	0.36J	3.0U	0.86J	1.0	10U	50U	4.1J	0.00034	0.00043J
5/1/2008 (dup 1)	10	8.0	20	0.65J	0.27J	0.27J	1.0U	1.0U	1.0U	38.65	1.0U	0.84J	0.37J	3.0U	0.89J	1.0	10U	50U	5.7J	NA	NA
5/1/2008 (dup 2)	7.1	6.4	19	0.57J	1.0U	0.26J	1.0U	1.0U	1.0U	33.07	1.0U	0.61J	0.27J	3.0U	0.70J	1.0	10U	50U	5.4J	NA	NA
5/1/2008 (dup 3)	10	7.5	19	0.64J	1.0U	0.25J	1.0U	1.0U	1.0U	33.14	1.0U	0.86J	0.33J	3.0U	0.91J	1.1	10U	50U	6.7J	NA	NA
8/6/2008	11	8.8	18	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	36.00	1.0U	0.64J	1.0U	3.0U	0.79J	0.91J	10U	50U	3.2J	NA	NA
8/6/2008 (dup 1)	11	8.5	19	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	37.80	1.0U	0.56J	1.0U	3.0U	0.73J	0.94J	10U	50U	3.3J	NA	NA
8/6/2008 (dup 2)	11	8.6	19	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	38.50	1.0U	0.58J	1.0U	3.0U	0.70J	0.84J	10U	50U	3.2J	NA	NA
11/5/2008	13	10	20	0.72J	0.35J	1.0U	1.0U	1.0U	5.0U	37.22	1.0U	0.57J	1.0U	3.0U	0.73J	0.87J	10U	50U	4.4J	NA	NA
11/5/2008 (dup 1)	15	11	20	0.72J	0.44J	1.0U	1.0U	1.0U	5.0U	43.72	1.0U	0.64J	1.0U	0.25J	0.75J	1.1	10U	50U	5.3J	NA	NA
11/5/2008 (dup 2)	15	10	21	0.72J	0.40J	1.0U	1.0U	1.0U	5.0U	46.72	1.0U	0.62J	1.0U	0.23J	0.80J	1.1	10U	50U	5.1J	NA	NA
2/4/2009	15	9.6	18	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	42.6	1.0U	0.68J	1.0U	3.0U	0.85J	1.1	10U	50U	6.0J	NA	NA
2/4/2009 (dup 1)	17	10	20	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	47	1.0U	0.61J	1.0U	3.0U	0.82J	1.1	10U	50U	5.5J	NA	NA
2/4/2009 (dup 2)	18	11	21	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	50	1.0U	0.70J	1.0U	3.0U	0.81J	1.1	10U	50U	5.1J	NA	NA
5/6/2009	14	8.8	18	0.49J	0.27J	1.0U	1.0U	1.0U	5.0U	41.29	1.0U	0.63J	1.0U	0.29J	0.69J	1.0	10U	50U	2.6J	0.0038	0.0004J
5/6/2009 (dup 1)	16	8.7	17	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	41.70	1.0U	0.58J	1.0U	3.0U	0.72J	1.1	10U	50U	6.7J	NA	NA
5/6/2009 (dup 2)	18	9.6	18	0.48J	1.0U	1.0U	1.0U	1.0U	5.0U	46.08	1.0U	0.55J	1.0U	3.0U	0.69J	1.0	10U	50U	6.3J	NA	NA
6/2/2009	22	9.2	19	0.51J	1.0U	1.0U	1.0U	1.0U	5.0U	50.71	1.0U	0.70J	1.0U	3.0U	0.82J	1.2	10U	4.7J	2.4J	NA	NA
8/5/2009	9.5	7.9	17	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	34.40	1.0U	0.48J	1.0U	3.0U	0.63J	0.82J	10U	50U	3.3J	NA	NA
8/5/2009 (dup)	13	9.0	18	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	40.00	1.0U	0.48J	1.0U	3.0U	0.60J	0.96J	10U	50U	3.3J	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	—	—	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well is being sampled quarterly for GWPS and annually for Appendix IX constituents as required by the GADNR approved*Groundwater Monitoring Plan* (Bechtel, 1999).

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-13B

Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Napthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
8/8/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
8/8/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
8/7/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U	0.016	0.00037B
8/5/2003	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well has met the exit criteria stated in the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999) and is no longer being sampled.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-15																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Napthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	9.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	20U	50U	1.0U	NA	NA
2/7/2000	1.0	1.0	1.0U	0.91	1.0U	1.0U	1.0U	1.0U	1.0U	2.9	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	5U	5U	1.0U	NA	NA
2/7/2000 (dup)	1.0	1.0	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	5U	5U	1.0U	NA	NA
8/9/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	1.0U	NA	NA
8/9/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	25U	50U	1.0U	NA	NA
8/7/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	1.0U	0.000092B	1.0U
8/5/2003	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	1.0U	NA	NA
4/8/2009	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well has met the exit criteria stated in the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999). By special request from GADNR, this well is now being sampled on a semi-annual basis for GWPS constituents.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-16																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	6.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
11/9/1999	3.0U	1.0U	3.6	1.0U	1.0U	1.6I	1.0U	1.4I	1.0U	5.0	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
2/7/2000	1.0U	1.0U	14	1.0U	1.0U	5.0	1.0U	1.0	1.0U	15.0	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
5/4/2000	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
5/4/2000 (dup)	1.0U	1.0U	2.0	1.0U	1.0U	0.6U	1.0U	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
8/9/2000	1.0U	1.0U	2.0	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	2.0	1.0U	0.8J	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
11/8/2000	2.0	1.0U	8.0	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	10.0	1.0U	1.0U	3.0U	3.0U	1.0U	1.0U	4J	4J	NA	NA	NA
2/6/2001	1.0U	1.0U	34	1.0U	1.0U	11	1.0U	4.0	1.0U	38.0	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	9J	12J	NA	NA	NA
5/2/2001	1.0U	0.31J	32	1.0U	1.3	15	1.0U	3.4	1.0U	35.71	0.96J	0.99J	5.4	0.86J	1.0U	1.0U	31	22	NA	NA	NA
8/9/2001	1.0U	0.42J	30	1.0U	1.8	26	1.0U	1.1	1.0U	31.52	1.2	1.8	15	1.7J	1.0U	1.0U	29	22J	NA	NA	NA
11/7/2001	1.0U	0.72J	28	1.0U	1.7	32	1.0U	1.1	1.0U	29.82	1.2	2.4	26	3.1	1.0U	1.0U	39	44	1.0U	NA	NA
2/6/2002	1.0U	1.3	46	1.0U	1.0U	31	1.0U	1.0U	1.0U	47.3	1.1	3.2	28	5.3	1.0U	1.0U	78	110	1.0U	NA	NA
5/7/2002	0.38J	1.4	32	1.0U	2.3	37	1.0U	1.0U	1.0U	33.78	0.92J	4.2	25	6.4	1.0U	1.0U	55	92	1.0U	0.0014J	0.001U
8/7/2002	1.0U	1.0U	24	1.1	1.6	27	1.0U	1.0U	1.0U	25.1	1.0	2.9	15	5.2	1.0U	1.0U	83	98	0.9	0.0027	0.000034B
11/5/2002	1.0U	1.3	33	1.0U	2.5	50	1.0U	1.0U	1.0U	34.3	1.0U	5.7	29	10.5	1.0U	1.0U	65	110	10U	NA	NA
2/5/2003	1.0U	1.0U	28	1.0U	2.5	46	1.0U	1.0U	1.0U	28.0	1.0U	5.0	25	9.7	1.0U	1.0U	65	94	1.0U	NA	NA
5/7/2003	0.74J	0.88J	39	1.0U	3.0	37	1.0U	1.0U	1.0U	40.6	0.90J	4.3	28	13.2	1.0U	1.0U	61	100	10U	NA	NA
8/6/2003	0.53J	0.48J	27	1.0U	2.4	23	1.0U	1.0U	1.0U	28.0	0.67J	3.6	21	7.4	1.0U	1.0U	33	78	10U	NA	NA
11/4/2003	0.61J	0.54J	26	1.0U	2.3	21	1.0U	1.0U	1.0U	27.15	0.83J	4.2	21	8.2	1.0U	1.0U	28	51	10U	NA	NA
2/4/2004	0.45J	0.36J	15	1.0U	1.9	14	1.0U	1.0U	1.0U	15.81	0.81J	3.5	13	5.5	1.0U	1.0U	11	22J	10U	NA	NA
5/4/2004	0.62J	0.40J	13	1.0U	1.4	11	1.0U	1.0U	1.0U	14.02	0.82J	4.9	13	7.2	1.0U	1.0U	7.5J	16J	10U	NA	NA
8/4/2004	0.43J	1.0U	7.5	1.0U	0.80J	5.6	1.0U	1.0U	1.0U	7.93	0.54J	3.2	5.5	5.0	1.0U	1.0U	2.5J	9.1J	0.51J	NA	NA
11/2/2004	0.40J	0.33J	13	1.0U	1.3	8.2	1.0U	1.0U	1.0U	13.73	0.79J	3.9	11	6.8	0.13J	1.0U	10U	15J	0.19J	NA	NA
2/8/2005	0.82J	0.37J	10	1.0U	0.98J	4.8	1.0U	1.0U	1.0U	11.19	0.71J	6.3	8.0	12.0	0.23J	1.0U	1.8J	6.3J	0.24J	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-16																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
5/3/2005	0.51J	0.37J	8.5	1.0U	0.86J	4.1	1.0U	1.0U	1.0U	9.38	0.80J	5.4	4.9	9.2	0.25J	1.0U	1.3J	7.0J	10U	NA	NA
8/2/2005	0.56J	1.0U	6.3	1.0U	0.61J	3.3	1.0U	1.0U	1.0U	6.86	0.58J	4.3	2.3	6.9	1.0U	1.0U	10U	5.8J	2.1J	NA	NA
11/1/2005	1.0U	1.0U	8.1	1.0U	0.52J	4.2	1.0U	1.0U	1.0U	8.62	0.54J	3.4	2.8	4.3	1.0U	1.0U	10U	4.6J	10U	NA	NA
1/31/2006	0.52J	0.25J	8.4	1.0U	0.65J	4.6	1.0U	1.0U	1.0U	9.17	0.64J	5.0	2.0	5.4	0.35J	1.0U	10U	4.5J	0.21J	NA	NA
5/4/2006	0.43J	0.26J	8.0	1.0U	0.58J	4.4	1.0U	1.0U	1.0U	8.69	0.57J	4.0	0.96J	4.2	0.30J	1.0U	10U	9.6J	0.83J	NA	NA
8/2/2006	0.29J	1.0U	5.3	1.0U	0.49J	2.6	1.0U	1.0U	1.0U	5.59	0.48J	3.2	0.19J	1.1J	0.31J	1.0U	10U	4.4J	10U	NA	NA
11/15/2006	0.31J	1.0U	3.4	1.0U	0.33J	1.2	1.0U	1.0U	1.0U	3.71	0.38J	3.5	1.0U	0.55J	0.27J	1.0U	10U	50U	0.85J	NA	NA
2/7/2007	0.56J	0.21J	3.2	1.0U	0.29J	1.7	1.0U	1.0U	1.0U	3.97	0.49J	1.0U	1.0U	0.44J	0.38J	1.0U	10U	50U	10U	NA	NA
5/9/2007	0.35J	1.0U	3.4	1.0U	1.0U	2.4	1.0U	1.0U	1.0U	3.75	0.46J	3.9	1.0U	0.25J	0.24J	1.0U	10U	50U	1.6J	NA	NA
8/13/2007	0.30J	1.0U	2.1	1.0U	1.0U	1.5	1.0U	1.0U	1.0U	2.40	0.31J	2.3	1.0U	3.0U	0.34J	1.0U	10U	50U	0.47J	NA	NA
11/6/2007	1.0U	1.0U	1.7	1.0U	1.0U	1.4	1.0U	1.0U	1.0U	1.70	1.0U	1.7	1.0U	3.0U	1.0U	1.0U	10U	50U	2.0J	NA	NA
2/4/2008	1.0U	1.0U	2.0	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	2.00	1.0U	2.0	1.0U	3.0U	0.40J	1.0U	10U	50U	10U	NA	NA
5/5/2008	1.0U	1.0U	1.9	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.90	1.0U	1.7	1.0U	3.0U	0.39J	1.0U	10U	50U	3.1J	NA	NA
8/6/2008	1.0U	1.0U	1.5	1.0U	1.0U	1.0	1.0U	1.0U	5.0U	1.50	1.0U	1.0J	1.0U	3.0U	1.0U	1.0U	10U	50U	1.3J	NA	NA
11/5/2008	0.29J	1.0U	2.0	1.0U	1.0U	1.1	1.0U	1.0U	5.0U	2.29	1.0U	1.5	1.0U	3.0U	0.46J	0.22J	10U	50U	4.0J	NA	NA
2/4/2009	1.0U	1.0U	1.7	1.0U	1.0U	1.2	1.0U	1.0U	5.0U	1.70	1.0U	1.2	1.0U	3.0U	1.0U	1.0U	10U	50U	3.9J	NA	NA
5/5/2009	1.0U	1.0U	1.4	1.0U	1.0U	0.97J	1.0U	1.0U	5.0U	1.70	1.0U	1.0	1.0U	3.0U	1.0U	1.0U	10U	50U	6.0J	NA	NA
8/5/2009	1.0U	1.0U	1.6	1.0U	1.0U	0.88J	1.0U	1.0U	5.0U	1.60	1.0U	0.83J	1.0U	3.0U	1.0U	1.0U	10U	3.9J	2.8J	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well is being sampled quarterly for GWPS constituents as required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999).

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-17B																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	NA	NA	NA
8/3/1999	3.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	NA	NA	NA	NA	NA
8/3/1999	17	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	17	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	NA	NA	NA	NA	NA
2/7/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
8/9/2000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
8/9/2001	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
8/7/2002	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	0.00086B	0.000034
8/5/2003	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
4/8/2009	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	1.0U	0.49J	1.0U	3.0U	1.0U	1.0U	10U	50U	5.7J	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75			—	0.1	—

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well has met the exit criteria stated in the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999). By special request from GADNR, this well is now being sampled on a semi-annual basis for GWPS constituents.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-20																					
Date	Tetrachloroethene	Trichloroethene	Cis-1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Napthalene	Nickel (mg/L)	Cobalt (mg/L)
4/8/2009	1.0U	1.0U	3.5	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	3.5	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	—	—	—	0.1	—

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
The sampling of this monitoring well is not required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999). By special request from GADNR, this well is now being sampled on a semi-annual basis for GWPS constituents.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-21																					
Date	Tetrachloroethene	Trichloroethene	Cis-1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Napthalene	Nickel (mg/L)	Cobalt (mg/L)
4/8/2009	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	5.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
The sampling of this monitoring well is not required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999). By special request from GADNR, this well is now being sampled on a semi-annual basis for GWPS constituents.

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-34																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/3/1999	17	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	17	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	93	NA	NA	NA
11/9/1999	22	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	22	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	190	NA	NA	NA
2/7/2000	83	2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	85	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	4J	NA	NA	NA
5/4/2000	89	1	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	90	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA	NA	NA
8/9/2000	63	0.6J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	63.6	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
11/8/2000	79	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	79	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA	NA	NA
2/8/2001	73	2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	75	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA	NA	NA
5/3/2001	62	2.6	0.27J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	64.87	1.0U	0.13J	0.24J	0.17J	1.0U	0.41J	20	300	NA	NA	NA
8/9/2001	35	3	2.8	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	40.8	1.0U	1.0U	1.0U	3.0U	1.0U	0.56J	18J	350	NA	NA	NA
11/7/2001	97	1.7	1.5	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	100.2	1.0U	1.0U	1.0U	3.0U	1.0U	0.47JB	6.4	130	4.0 JB	NA	NA
2/6/2002	61	0.63J	0.54J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	62.17	1.0U	1.0U	1.0U	3.0U	1.0U	0.34JB	25U	100	1.0U	NA	NA
5/8/2002	75	2.2	5	0.37J	1.0U	1.0U	1.0U	1.0U	1.0U	82.57	1.0U	1.0U	1.0U	3.0U	1.0U	0.39J	25U	50U	0.094J	0.15	0.28
8/8/2002	100	15	7.9	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	122.9	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U	0.073	0.077
11/5/2002	110	7.6	3.1	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	120.7	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
2/5/2003	69	5.2	1.5	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	75.7	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U	NA	NA
5/6/2003	58	6.2	1.8	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	66	1.0U	1.0U	1.0U	3.0U	1.0U	0.74J	10U	50U	10U	NA	NA
8/6/2003	50	5.3	14	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	69.3	1.0U	1.0U	1.0U	3.0U	0.37J	0.72J	10U	50U	10U	NA	NA
11/4/2003	38	4.1	42	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	84.1	1.0U	1.0U	1.0U	3.0U	0.36J	0.96J	5.6J	6.6J	10U	NA	NA
2/4/2004	38	3.9	55	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	96.9	1.0U	1.0U	1.0U	3.0U	0.49J	1.5	3.2J	5.6J	10U	NA	NA
5/4/2004	35	3.2	33	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	71.2	1.0U	1.0U	1.0U	3.0U	0.45J	1.7	10U	3.3J	10U	NA	NA
8/4/2004	34	3.3	37	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	74.3	1.0U	1.0U	1.0U	3.0U	0.37J	1.5	10U	50U	0.37J	NA	NA
11/2/2004	30	2.9	150	0.29J	0.30J	1.0U	1.0U	1.0U	1.0U	183.19	1.0U	1.0U	0.16J	3.0U	0.30J	1.7	1.2J	5.6J	10U	NA	NA
2/8/2005	28	2.1	230	0.50J	0.46J	1.0U	1.0U	0.34J	1.0U	260.94	1.0U	1.0U	0.22J	0.26J	0.40J	1.9	10U	6.9J	10U	NA	NA
5/4/2005	18	1.5	160	0.52J	1.0U	1.0U	1.0U	0.29J	1.0U	180.31	1.0U	1.0U	0.22J	3.0U	0.31J	1.9	10U	6.3J	10U	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

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Date	Tetrachloroethene	Trichloroethene	Cis-1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/2/2005	21	2.1	180	0.46J	0.36J	1.0U	1.0U	1.0U	1.0U	203.56	1.0U	1.0U	1.0U	3.0U	1.0U	1.6	10U	7.5J	10U	NA	NA
11/2/2005	18	1.8	170	0.42J	1.0U	1.0U	1.0U	1.0U	1.0U	190.22	1.0U	1.0U	1.0U	3.0U	1.0U	2.0	10U	50U	10U	NA	NA
1/31/2006	12	0.94J	42	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	54.94	1.0U	1.0U	1.0U	3.0U	0.20J	2.2	10U	50U	10U	NA	NA
5/4/2006	7.8	0.61J	13	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	21.41	1.0U	1.0U	1.0U	3.0U	0.21J	1.9	10U	3.7J	1.3J	NA	NA
8/2/2006	5.9	0.71J	11	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	17.61	1.0U	1.0U	1.0U	3.0U	0.19J	1.7	10U	2.0J	10U	NA	NA
11/15/2006	5.1	0.60J	2.7	1.0U	1.0U	1.0U	1.0U	0.21J	1.0U	8.61	1.0U	1.0U	1.0U	3.0U	0.21J	2.5	10U	6.2J	0.16J	NA	NA
2/7/2007	5.8	0.67J	1.8	1.0U	1.0U	1.0U	1.0U	0.54J	1.0U	8.81	1.0U	1.0U	0.15J	0.20J	0.21J	2.1	10U	12J	10U	NA	NA
5/9/2007	4.2	0.48J	2.5	1.0U	1.0U	1.0U	1.0U	0.46J	1.0U	7.64	1.0U	0.17J	0.14J	0.33J	0.21J	2.0	10U	3.6J	2.3J	NA	NA
8/13/2007	6.0	0.71J	6.5	1.0U	1.0U	1.0U	1.0U	0.39J	1.0U	13.60	1.0U	1.0U	0.16J	3.0U	0.21J	1.5	10U	50U	0.38J	NA	NA
11/6/2007	5.2	0.37J	8.2	1.0U	1.0U	1.0U	1.0U	0.32J	1.0U	14.09	1.0U	1.0U	1.0U	3.0U	1.0U	1.5	10U	50U	10U	NA	NA
2/4/2008	4.8	0.66J	16	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	21.46	1.0U	1.0U	0.19J	3.0U	1.0U	1.7	10U	2.0J	10U	NA	NA
5/6/2008	4.4	1.3	30	1.0U	1.0U	1.0U	1.0U	0.37J	1.0U	36.07	1.0U	1.0U	1.0U	3.0U	1.0U	2.0	10U	50U	10U	NA	NA
8/6/2008	4.5	1.7	57	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	63.20	1.0U	1.0U	1.0U	3.0U	1.0U	1.6	10U	50U	10U	NA	NA
11/5/2008	4.2	1.0	110	0.15J	1.0U	1.0U	1.0U	0.54J	5.0U	115.89	1.0U	1.0U	1.0U	3.0U	0.28J	1.5	10U	50U	0.80J	NA	NA
2/4/2009	5.2	0.84J	120	1.0U	1.0U	1.0U	1.0U	0.40J	5.0U	126.44	1.0U	1.0U	1.0U	3.0U	1.0U	1.6	10U	50U	10U	NA	NA
5/5/2009	4.1	0.71J	1.0U	1.0U	1.0U	1.0U	1.0U	0.60J	5.0U	5.41	1.0U	1.0U	1.0U	3.0U	1.0U	1.5	10U	50U	10U	NA	NA
6/2/2009	3.8	1.0U	110	0.95J	1.0U	1.0U	1.0U	0.53J	5.0U	115.28	1.0U	1.0U	1.0U	3.0U	1.0U	1.3	10U	9.3J	10U	NA	NA
8/5/2009	4.2	0.76J	180	1.0U	1.0U	1.0U	1.0U	0.83J	5.0U	185.79	1.0U	1.0U	1.0U	3.0U	1.0U	1.3	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well is being sampled quarterly for GWPS constituents as required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999).

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-37																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/17/1999	3.0U	1.0U	24	1.0U	1.0U	1.0U	1.0U	2.5I	1.0U	26.5	2.1	15	1.0U	3.0U	2.9	3.6	20U	50U	NA	NA	NA
11/9/1999	3.0U	1.0U	17	1.0U	1.0U	1.0U	1.0U	1.4I	1.0U	18.4	2.0	14	1.0U	3.0U	3.1	4.7	20U	50U	NA	NA	NA
2/8/2000	1.0U	1.0U	16	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	16	2.0	9.0	1.0	3.0U	2.0	3.0	5U	5U	NA	NA	NA
5/4/2000	1.0U	1.0U	17	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	17	2.0	1.0U	1.0U	12	3.0	3.0	5U	5U	NA	NA	NA
8/9/2000	1.0U	1.0U	14	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	14	2.0	7.0	1.0U	3.0	2.0	3.0	10U	50U	NA	NA	NA
11/8/2000	1.0U	1.0U	11	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	11	2.0	10	1.0U	2.0U	3.0	4.0	10U	50U	NA	NA	NA
11/8/2000 (dup)	1.0U	1.0U	11	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	11	2.0	11	1.0U	2.0U	3.0	3.0	10U	50U	NA	NA	NA
2/7/2001	1.0U	1.0U	13	1.0U	1.0U	1.0U	1.0U	0.6J	1.0U	13.6	2.0	13	1.0U	3.0U	2.0	1.0U	25U	50U	NA	NA	NA
5/2/2001	1.0U	1.0U	13	1.0U	1.0U	1.0U	1.0U	0.6J	1.0U	13.6	1.3	10	0.41J	0.18J	2.1	2.6	5.0U	3.6J	NA	NA	NA
8/8/2001	1.0U	1.0U	12	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	12	1.3	13	0.22J	3.0U	2.8	3.1	25U	50U	NA	NA	NA
11/7/2001	1.0U	1.0U	6.9	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	6.9	1.1	8.2	1.0U	3.0U	3.8	2.4B	5.0U	10U	25	NA	NA
2/6/2002	1.0U	1.0U	6.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	6.0	0.85J	6.4	1.0U	3.0U	4.6	2.4B	25U	50U	17B	NA	NA
5/7/2002	1.0U	1.0U	5.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	9.0U	0.79J	5.4	1.0U	3.0U	5.6	2.4	25U	50U	12	0.0014	0.001U
8/8/2002	1.0U	1.0U	4.6	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.6	1.0U	4.2	1.0U	3.0U	5.5	2.4	10U	50U	13	0.0021	0.00003U
11/5/2002	1.0U	1.0U	4.4	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.4	1.0U	4.4	1.0U	3.0U	6.4	3.3	10U	50U	30	NA	NA
2/5/2003	1.0U	1.0U	2.4	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.4	1.0U	2.3	1.0U	3.0U	5.5	4.3	10U	50U	25	NA	NA
5/7/2003	1.0U	1.0U	7.2	1.0U	1.0U	1.0U	1.0U	1.2	1.0U	8.4	0.72J	3.3	1.0U	3.0U	6.2	3.6	10U	50U	14	NA	NA
8/6/2003	1.0U	1.0U	8	1.0U	1.0U	1.0U	1.0U	0.95J	1.0U	8.95	0.67J	3.9	1.0U	3.0U	4.6	4.1	10U	50U	14	NA	NA
11/4/2003	1.0U	0.37J	8.5	1.0U	1.0U	1.0U	1.0U	0.94J	1.0U	9.81	0.82J	4.2	1.0U	3.0U	4.6	3.9	10U	3.9J	4.2J	NA	NA
2/4/2004	1.0U	0.34J	5.7	1.0U	1.0U	1.0U	1.0U	0.60J	1.0U	7.01	0.71J	3.0	1.0U	3.0U	4.9	4.7	10U	50U	13	NA	NA
5/4/2004	1.0U	1.0U	4.3	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.3	0.66J	2.1	1.0U	3.0U	5.3	4.8	10U	2.8J	12	NA	NA
8/4/2004	1.0U	1.0U	3.8	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.8	0.76J	1.0	1.0U	3.0U	5.1	4.0	10U	50U	9.1J	NA	NA
11/2/2004	1.0U	1.0U	4.5	1.0U	1.0U	0.21J	1.0U	1.0U	1.0U	4.5	0.67J	2.1	0.22J	3.0U	4.2	4.2	10U	5.5J	6.5J	NA	NA
2/8/2005	0.24J	0.26J	5.5	1.0U	1.0U	1.0U	1.0U	0.38J	1.0U	6.38	0.68J	2.3	0.30J	0.35J	4.5	4.6	10U	6.4J	7.0J	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

KBA-11-37																					
Date	Tetrachloroethene	Trichloroethene	Cis-1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
5/3/2005	0.25J	0.29J	6.9	1.0U	1.0U	0.27J	1.0U	0.66J	1.0U	8.1	0.86J	2.3	0.43J	3.0U	3.6	4.5	10U	3.5J	2.7J	NA	NA
8/2/2005	1.0U	0.31J	7.2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.51	0.72J	2.4	1.0U	3.0U	3.1	3.9	10U	3.6J	7.4J	NA	NA
11/1/2005	1.0U	1.0U	7.1	1.0U	1.0U	1.0U	1.0U	0.88J	1.0U	7.98	0.64J	3.1	0.42J	3.0U	2.9	4.0	10U	6.5J	16	NA	NA
1/31/2006	1.0U	0.23J	6.3	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	6.53	0.60J	2.6	0.22J	3.0U	2.9	2.9	10U	50U	6.5J	NA	NA
5/4/2006	1.0U	0.21J	5.4	0.24J	1.0U	0.20J	1.0U	1.0U	1.0U	5.85	0.60J	2.0	0.26J	0.098J	3.1	2.4	10U	3.6J	4.2J	NA	NA
8/2/2006	1.0U	0.26J	5.5	1.0U	1.0U	1.0U	1.0U	1.3	1.0U	7.06	0.54J	1.3	0.19J	0.090J	2.2	2.1	10U	50U	8.3J	NA	NA
11/15/2006	0.17J	1.0U	4.7	1.0U	1.0U	0.26J	1.0U	1.9	1.0U	6.77	0.56J	1.7	0.29J	0.12J	3.1	3.5	10U	7.6J	3.2J	NA	NA
2/7/2007	1.0U	1.0U	5.1	1.0U	1.0U	1.0U	1.0U	0.83J	1.0U	5.93	0.48J	1.1	0.19J	0.42J	2.8	3.1	10U	11J	10U	NA	NA
5/9/2007	1.0U	1.0U	4.3	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.3	0.45J	0.27J	1.0U	0.21J	2.9	3.2	10U	4.2J	3.5J	NA	NA
8/13/2007	1.0U	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.0	0.45J	0.16J	1.0U	3.0U	3.9	3.7	10U	5.3J	2.3J	NA	NA
11/6/2007	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	3.0U	3.7	3.5	10U	50U	3.4J	NA	NA
2/4/2008	1.0U	1.0U	3.5	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.5	0.42J	1.0U	1.0U	3.0U	3.3	3.3	10U	5.5J	0.73J	NA	NA
5/5/2008	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0	0.42J	1.0U	1.0U	3.0U	2.8	3.2	10U	50U	4.5J	NA	NA
8/6/2008	1.0U	1.0U	2.8	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	2.8	1.0U	1.0U	1.0U	3.0U	2.7	2.7	10U	50U	1.9J	NA	NA
11/5/2008	1.0U	1.0U	2.6	1.0U	1.0U	1.0U	1.0U	0.59J	5.0U	3.2	1.0U	0.18J	1.0U	3.0U	3.2	3.9	10U	50U	3.4J	NA	NA
2/4/2009	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	3.0	1.0U	1.0U	1.0U	3.0U	3.1	3.1	10U	4.6J	1.2J	NA	NA
5/5/2009	1.0U	1.0U	2.6	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	2.6	1.0U	1.0U	1.0U	3.0U	3.6	3.9	10U	50U	10U	NA	NA
8/5/2009	1.0U	1.0U	2.9	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	2.9	1.0U	1.0U	1.0U	3.0U	2.7	3.1	10U	50U	0.46J	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100.0	5.0	700	1,000	10,000	1.0	75	---	---	---	0.1	---

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference.
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
This monitoring well is being sampled quarterly for GWPS constituents as required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999).

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

PS-2																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
8/18/1999	3.0U	1.3I	41	1.0U	1.0U	5.6	1.0U	3.2I	1.0U	45.5	9.1	10	43	29	1.0U	1.0U	NA	NA	NA	NA	NA
11/9/1999	3.0U	1.4I	40	1.0U	1.0U	5.1	1.0U	2.9	1.0U	44.3	9.4	16	57	47	1.0U	1.0U	20U	50U	NA	NA	NA
2/7/2000	1.0U	2.0	52	1.0U	1.0U	5.0	1.0U	2.0	1.0U	56	8.0	14	37	40	1.0U	1.0U	5U	5U	NA	NA	NA
5/3/2000	1.0U	2.0	57	0.5	1.0U	5.0	1.0U	1.0U	1.0U	59.5	8.0	16	19	41	0.7	1.0U	5U	5U	NA	NA	NA
8/8/2000	1.0U	2.0	58	1.0U	1.0U	4.0	1.0U	2.0	1.0U	62	6.0	14	8.0	19	0.5	1.0U	10U	50U	NA	NA	NA
11/8/2000	3.0U	2.0	61	1.0U	1.0U	4.0	1.0U	3.0	1.0U	66	5.0	18	5.0	7.0	1.0	1.0U	10U	50U	NA	NA	NA
2/7/2001	1.0U	2.0	71	0.6J	1.0U	4.0	1.0U	3.0	1.0U	76.6	4.0	18	3.0	4.0	0.5J	1.0U	25U	50U	NA	NA	NA
5/2/2001	0.14J	1.9	79	0.60J	1.0U	4.1	1.0U	2.4	1.0U	84.04	3.7	22	2.9	3.6	0.59J	1.0U	5.0U	5.0U	NA	NA	NA
8/9/2001	1.0U	2.0	99	0.80J	1.0U	4.2	1.0U	2.4	1.0U	104.2	3.4	22	2.7	3.5	0.92J	1.0U	25U	50U	NA	NA	NA
11/7/2001	1.0U	2.0	110	0.84J	1.0U	4.1	1.0U	3.0	1.0U	115.8	2.7	20	1.9	2.4J	1.2	1.0	5.0U	10U	3.7JB	NA	NA
2/6/2002	1.0U	1.7	110	0.73J	1.0U	3.4	1.0U	2.7	1.0U	115.13	2.1	14	1.5	1.9J	1.6	1.0U	25U	50U	1.0U	NA	NA
5/6/2002	1.0U	1.6	120	0.80J	1.0U	3.6	0.85J	3.0	2.3	125.4	2.0	13	1.7	1.4J	1.8	1.0U	25U	50U	0.061J	0.00043	0.001U
8/6/2002	1.0U	1.5	110	1.0U	1.0U	2.8	1.0U	2.3	1.0U	113.8	1.7	12	1.3	3.0U	2.2	1.0U	10U	50U	1.0U	0.00053B	0.00003
11/5/2002	1.0U	1.3	120	1.0U	1.0U	2.9	1.0U	3.2	1.0U	124.5	1.6	11	1.2	3.0U	1.6	1.0U	10U	50U	10U	NA	NA
2/5/2003	1.0U	1.3	100	1.0U	1.0U	2.3	1.0U	2.9	1.0U	104.2	1.4	9.1	1.0U	3.0U	1.5	1.0U	10U	50U	10U	NA	NA
5/6/2003	1.0U	1.6	140	1.1	1.0U	2.5	1.0U	4.3	1.0U	147	1.6	9.7	1.2	3.0U	1.6	1.0U	10U	50U	10U	NA	NA
8/5/2003	1.0U	1.2	100	1	1.0U	2.0	1.0U	3.3	1.0U	105.5	1.3	7.7	0.89J	3.0U	1.1	1.0U	10U	50U	10U	NA	NA
11/4/2003	1.0U	1.6	120	1.2	1.0U	2.0	1.0U	4.2	1.0U	127.0	1.6	9.3	1.2	3.0U	1.1	1.0U	10U	50U	10U	NA	NA
2/4/2004	1.0U	1.4	93	1.0	1.0U	1.5	1.0U	3.3	1.0U	98.7	1.4	9.9	1.1	0.48J	1.1	1.0U	10U	50U	0.45J	NA	NA
5/4/2004	1.0U	1.3	82	1.0	1.0U	1.3	1.0U	1.5	1.0U	85.8	1.2	9.7	1.1	0.83J	0.98J	1.0U	10U	50U	10U	NA	NA
8/4/2004	1.0U	1.5	83	0.99J	1.0U	1.3	1.0U	2.7	1.0U	87.2	1.4	9.0	0.94J	0.75J	0.80J	1.0U	10U	50U	10U	NA	NA
11/2/2004	0.16J	1.3	75	0.98J	1.0U	1.1	1.0U	2.4	1.0U	79.8	1.2	9.8	1.0	0.63J	0.77J	1.0U	10U	50U	10U	NA	NA

Table 3
Analytical Summary, Groundwater Protection Standard Compounds

PS-2																					
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Total Chlorinated Ethenes	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene	Nickel (mg/L)	Cobalt (mg/L)
2/8/2005	0.26J	1.4	66	0.94J	1.0U	0.95J	1.0U	1.7	1.0U	70.3	1.1	10	0.90J	1.07J	0.79J	1.0U	10U	4.4J	0.52J	NA	NA
5/3/2005	0.24J	1.5	68	1.0	1.0U	**1.1**	1.0U	1.9	1.0U	72.6	1.3	10	0.92J	0.98J	0.77J	1.0U	10U	3.4J	10U	NA	NA
8/2/2005	1.0U	1.4	56	0.86J	1.0U	0.85J	1.0U	1.0U	1.0U	58.3	1.1	10	0.80J	0.37J	0.72J	1.0U	10U	2.9J	2.1J	NA	NA
11/1/2005	1.0U	1.1	51	0.79J	1.0U	0.72J	1.0U	1.3	1.0U	54.2	0.87J	11	0.84J	3.0U	0.69J	1.0U	10U	50U	10U	NA	NA
1/31/2006	1.0U	1.1	35	0.83J	1.0U	0.68J	1.0U	1.0U	1.0U	36.93	0.73J	8.9	0.69J	0.51J	0.67J	1.0U	10U	2.5J	10U	NA	NA
5/3/2006	1.0U	1.2	28	0.70J	1.0U	0.57J	1.0U	1.0U	1.0U	29.9	0.79J	8.3	0.52J	0.51J	0.79J	0.15J	10U	4.9J	2.0J	NA	NA
8/2/2006	1.0U	1.2	28	0.66J	1.0U	0.56J	1.0U	0.73J	1.0U	30.59	0.76J	8.5	0.40J	0.43J	0.77J	1.0U	10U	50U	10U	NA	NA
11/15/2006	1.0U	1.2	27	0.63J	1.0U	0.52J	1.0U	0.64J	1.0U	29.47	0.68J	9.0	0.49J	0.49J	0.94J	0.18J	10U	50U	10U	NA	NA
5/8/2007	1.0U	1.2	25	0.61J	1.0U	1.0U	1.0U	1.0U	1.0U	26.81	0.63J	7.2	0.47J	0.78J	0.85J	1.0U	10U	28J	1.7J	NA	NA
5/5/2008	1.0U	1.1	19	0.41J	1.0U	0.36J	1.0U	1.0U	1.0U	20.51	0.48J	5.7	0.40J	3.0U	**1.1**	1.0U	10U	50U	1.2J	NA	NA
5/5/2009	1.0U	0.88J	14	1.0U	1.0U	1.0U	1.0U	1.0U	5.0U	14.88	1.0U	4.4	1.0U	3.0U	1.0	1.0U	10U	50U	10U	NA	NA
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	100	5.0	700	1,000	10,000	1.0	75	—	—	—	0.1	—

Notes:
unless otherwise noted, units are expressed in micrograms per liter
I = interference
J = estimated value; 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 and highlight indicates result exceeds the groundwater protection standard.
B = possible blank contamination
E = estimated value
NA – Not analyzed
Total Chlorinated Ethenes = summation of tetrachloroethene, trichloroethene, cis-1,2 dichlorethene, trans-1,2 dichloroethene, and vinyl chloride
In calculating Total Chlorinated Ethenes concentrations (where some detectable concentartions are present), non-detectable concentrations were assumed to be zero
Beginning in 2007, this monitoring well will be sampled annually for GWPS constituents as required by the GADNR approved *Groundwater Monitoring Plan* (Bechtel, 1999).

Table 4
Analytical Summary, Subdivision Irrigation Wells

108 Cottage Court

Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
March-00	1.0U	1.0U	7.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
April-00	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
May-00	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
June-00	1.0U	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
July-00	1.0U	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
August-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
September-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
October-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
November-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
December-00	1.0U	1.0U	0.7J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
April-01	1.0U	1.0U	3.1	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	7.0U	1.0U	1.0U	5.0U	5.0U	NA
May-01	1.0U	1.0U	6.8	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
June-01	1.0U	1.0U	3.8	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
July-01	1.0U	1.0U	10	0.25J	1.0U	1.0U	1.0U	0.32J	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
September-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	NA
October-01	1.0U	1.0U	2.2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	NA
November-01	1.0U	1.0U	1.3	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	1.0U
December-01	1.0U	1.0U	0.37	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.34	5.0U	10U	3.1
January-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	10U
February-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	10U

Table 4
Analytical Summary, Subdivision Irrigation Wells

108 Cottage Court

Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
April-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
May-02	1.0U	1.0U	3.2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
June-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	25U	9.7J	10U
July-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
August-02	1.0U	1.0U	4.2	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10U	50U	10U
October-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10U	50U	10U
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	5.0	700	1,000	10,000	1.0	75	---	---	---

Notes:
unless otherwise noted all units are expressed in micrograms per liter
I = interference.
J = estimated value; 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.
B = possible blank contamination
E = estimated value
NA – Not analyzed
This irrigation well is no longer being monitored for GWPS constituents as approved by GADNR letter dated February 2004.

Table 4
Analytical Summary, Subdivision Irrigation Wells

122 Plantation Court																		
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
January-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA
February-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	8.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5U	5U	NA
March-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	8.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
April-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	6.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
May-00	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	8.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
June-00	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	7.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
July-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
August-00	1.0U	2.0	2.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
September-00	1.0U	1.0U	3.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
October-00	1.0U	0.9J	2.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
November-00	1.0U	0.93	2.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
December-00	1.0U	2.0	1.0	1.0	1.0U	1.0U	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	NA
January-01	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	7.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
February-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	4.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
February-01 (dup)	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	6.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
March-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	4.0E	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
March-01 (dup)	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	4.0E	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
April-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
April-01 (dup)	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	5.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
May-01	1.0U	1.0U	0.1	1.0U	1.0U	1.0U	1.0U	4.5	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
May-01 (dup)	1.0U	1.0U	0.94J	1.0U	1.0U	1.0U	1.0U	3.4	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
June-01	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	1.0U	4.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.23J	25U	50U	NA
June-01 (dup)	1.0U	1.0U	0.95	1.0U	1.0U	1.0U	1.0U	4.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.21J	25U	50U	NA
July-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	4.6	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.26J	25U	50U	NA
July-01 (dup)	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	4.6	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.27J	25U	50U	NA
August-01	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	1.0U	4.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.24J	25U	50U	NA
August-01 (dup)	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	4.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.22J	25U	50U	NA
September-01	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	0.32J	5.1	1.0U	1.0U	1.0U	1.0U	0.24J	1.0U	0.31J	5.0U	10U	NA
September-01 (dup)	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	1.0U	5.1	1.0U	1.0U	1.0U	1.0U	0.21J	1.0U	0.30J	5.0U	10U	NA
October-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	5.6	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.26J	5.0U	10U	NA
October-01 (dup)	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	5.9	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.27J	5.0U	10U	NA
November-01	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	6.4	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.29J	5.0U	10U	1.0U
November-01 (dup)	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	6.4	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.26J	5.0U	10U	1.0U
December-01	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	1.0U	5.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	10.0
December-01 (dup)	1.0U	1.0U	1.2	1.0U	1.0U	1.0U	1.0U	5.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.38J	5.0U	10U	10.0

Table 4
Analytical Summary, Subdivision Irrigation Wells

122 Plantation Court																		
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
January-02	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	7.4	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.6	25U	50U	10U
January-02 (dup)	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	7.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.46	25U	50U	10U
February-02	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	6.9	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.34JB	25U	50U	10U
February-02 (dup)	1.0U	1.0U	1.1	1.0U	1.0U	1.0U	1.0U	6.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.34JB	25U	50U	10U
March-02	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	6.3	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.40J	25U	50U	10U
March-02 (dup)	1.0U	1.0U	1.0	1.0U	1.0U	1.0U	0.66J	5.8	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.42J	25U	50U	10U
April-02	1.0U	1.0U	0.95J	1.0U	1.0U	1.0U	1.0U	5.4	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.50J	25U	50U	3.1JB
April-02 (dup)	1.0U	1.0U	0.79J	1.0U	1.0U	1.0U	1.0U	4.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	0.48J	25U	50U	10U
June-02	1.0U	1.0U	0.60J	1.0U	1.0U	1.0U	0.38J	4.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
June-02 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.6	3.9	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	10.0U
July-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.1	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.U
July-02 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.6	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
August-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.1	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
August-02 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.3	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
September-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.3	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
September-02 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
October-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.3	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
October-02 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	5.1	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
November-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
December-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.7	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U
December-02 (Dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.3	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U
January-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U
January-03 (dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.1	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	1.0U
February-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
February-03(Dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.2	2.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
March-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
March-03 (Dup)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
April-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	15	50U	10U
June-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20	50U	10U
July-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	31	50U	10U
August-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.39J	1.0U	1.0U	41	7.4J	10U
September-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	31	50U	10U
August-04	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.41J	1.0U	1.0U	4.6J	2.6J	10U
November-04	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.34J	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	140	5.4J	10U
March-05	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	4.2	6.7	1.0U	1.09J	1.0U	1.0U	10U	50U	38

Table 4
Analytical Summary, Subdivision Irrigation Wells

122 Plantation Court																		
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
May-05	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.64J	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	140	4.3J	10U
August-05	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	**2.6**	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	100	13J	10U
September-05	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	53	2.4J	10U
November-05	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.5J	2.0J	10U
August-06	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
May-07	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.21J	1.0U	1.0U	10U	50U	0.46J
May-08	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.21J	1.0U	1.0U	10U	50U	1.5J
May-09	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	5.0	700	1,000	10,000	1.0	75	—	—	—

Notes:
unless otherwise noted all units are expressed in micrograms per liter
Irrigation well at 122 Plantation Court was replaced on March 21, 2003 subsequent to March 2003 sampling event.
I = interference
J = estimated value; 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.
B = possible blank contamination
E = estimated value
NA – Not analyzed
This irrigation well is being sampled annually for GWPS constituents as approved by GADNR in letter dated December 2005.

Table 4
Analytical Summary, Subdivision Irrigation Wells

102 Plantation Court																		
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
January-00	1.0U	28	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	5U	5U	NA
February-00	1.0U	0.5J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	5U	5U	NA
March-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	5.0U	5.0U	NA
April-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	5.0U	5.0U	NA
May-00	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	5.0U	5.0U	NA
June-00	1.0U	1.OU	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	10U	50U	NA
July-00	1.0U	8.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	10U	50U	NA
August-00	1.0U	37	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	10U	50U	NA
September-00	1.0U	150	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	3.0U	10U	50U	NA
October-00	1.0U	4	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	3.0U	10U	50U	NA
November-00	1.0U	8.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	10U	50U	3.3J
December-00	1.0U	17	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	3.0U	10U	50U	10
January-01	1.0U	86	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
February-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
March-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
April-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.10J	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
May-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.10J	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	5.0U	NA
June-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
July-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
August-01	1.0U	9.9	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	NA
September-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	NA
October-01	1.0U	0.027J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	NA
November-01	1.0U	0.53J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	3.3J
December-01	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	5.0U	10U	10
March-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
April-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
May-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
June-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	25U	50U	1.0U
July-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
August-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
September-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U

Table 4
Analytical Summary, Subdivision Irrigation Wells

102 Plantation Court																		
Date	Tetrachloroethene	Trichloroethene	Cis -1,2-dichloroethene	Trans-1,2 dichloroethene	1,1-dichloroethene	1,1-dichloroethane	1,2-dichloroethane	Vinyl Chloride	Chloroethane	Benzene	Ethylbenzene	Toluene	Total xylenes	Chlorobenzene	1,4-dichlorobenzene	2-Butanone (MEK)	Acetone	Naphthalene
October-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
November-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
December-02	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
January-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10.0U
February-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
March-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	20U	50U	2.0U
April-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
April-03 (duplicate)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
June-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
June-03 (duplicate)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
July-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
July-03 (duplicate)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
August-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
August-03 (duplicate)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
September-03	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
September-03 (duplicate)	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	50U	10U
August-04	1.0U	0.35J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.0U	1.0U	1.0U	10U	4.5J	10U
May-05	1.0U	0.37J	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	0.21J	1.0U	1.0U	10U	2.1J	10U
Criteria	5.0	5.0	70	100	7.0	1.0	5.0	2.0	1.0	5.0	700	1,000	10,000	1.0	75	---	---	---

Notes:
unless otherwise noted all units are expressed in micrograms per liter
I = interference.
J = estimated value; 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.
B = possible blank contamination
E = estimated value
NA – Not analyzed
This irrigation well is no longer being monitored for GWPS constituents as approved by GADNR in letter dated December 2005.

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
3A-11-2	8-4-09	0825	8.44'	15.76'	
	8-4-09	1330	8.44'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
HBA-11-2	8-4-09	0825	78°F	86%	31.01	SUNNY
	8-4-09	1330	94°F	56%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-3B	8-4-08	0805	6.95'	47.58'	
	8-4-08	1320	6.95'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-3B	8-4-09	0805	77°F	86%	31.01	SUNNY
	8-4-09	1320	94°F	57%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
A-11-8B	8-4-09	0745	9.99'	43.56	
	8-4-09	1310	9.99'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
~~KBA~~-11-8B	8-4-09	0745	77°F	80%	31.01	SUNNY
			94°F	53%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KA-11-10B	8-4-09	0900	10.70'	51.44'	
	8-4-09	1340	10.70'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-10B	8-4-09	0900	82°F	78%	31.01	SUNNY
	8-4-09	1340	95°F	54%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-11A	8-4-09	0755	7.51'	36.51'	
		1315	7.51'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-11A	8-4-09	0755	77°F	81%	31.01	SUNNY
	8-4-09	1315	94°F	52%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-13A	8-4-09	0940	7.73'	42.36	
	8-4-09	1355	7.73'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-13A	8-4-09	0940	86°F	76%	31.01	SUNNY
	8-4-09	1355	95°F	55%	30.03	PARTLY CLOUDY

SAMPLING STATION

Well #	Station Type
KBA-11-13A	MONITORING WELL

SAMPLE

Sample ID	Sample Matrix	Sample Type	Collection Method	Date	Time	By
KBA-11-13A-AUG-09	WATER	GRAB		8-5-09	1220	TB

Instruments	Manufacturer/Mode	Serial No.	Date of Cal.	Calib.Due	Reference
pH/Eh	HORIBA U22	01402	7-7-09	CALIB DAILY	AUTO CAL SOLUTION
Conductivity/Temp					
Dissolved Oxygen					
Turbidity					
Redox					

GROUND LEVEL DATA (before purging)

Well Variables

Depth of water = (TD - H) = h (ft) [H = depth to top of water]

Inside diam. Of casing = d(in.); 1/2(d) = r(in.)

$\frac{r(in.)}{12(in.)}$ = R (ft); [7.48 gal/ft 3 constant)

WELL PURGE INFORMATION

PURGE EQUIPMENT: GeoPump 2 S/N: PURGE METHOD: PERISTALTIC Pump Pump Type:

Proq Cyc	Date	Time	Temp (C)	pH	Cond.	Units	Turb.	Units	D.O.	Units	Redox
2 GAL.	8-5-09	1232	16.84c	4.25	0.340	S/cm	74.1	NTU	2.87	g/L	-24mv
4 GAL.	8-5-09	1246	15.83c	4.38	0.352	S/cm	72.6	NTU	3.80	g/L	-24mv
6 GAL.	8-5-09	1259	15.97c	4.22	0.361	S/cm	79.7	NTU	4.87	g/L	-30mv
8 GAL.	8-5-09	1312	15.21c	4.24	0.362	S/cm	86.5	NTU	4.88	g/L	-36mv

Well purged to dryness: [ ] Yes [✓] No

Recorded by:	Date:	Reviewed by:	Date:
Tommy Bryant	8-5-09		

1325 1330 1335

206
207
208

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-13B	8-4-09	0955	11.57'	90.56'	
	8-4-09	1400	11.57'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-13B	8-4-09	0955	86°F	75%	30.50	sunny
	8-4-09	1400	95°F	54%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-15	8-4-09	1010	1.62'	38.97'	
	8-4-09	1410	1.62'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-15	8-4-09	1010	87°F	67%	30.50	SUNNY
	8-4-09	1410	95°F	54%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-16	8-4-09	1130	3.10'	44.60	
		1440	3.10'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-16	8-4-09	1130	90°F	63%	30.09	SUNNY
	8-4-09	1440	96°F	42%	30.03	PARTLY CLOUDY

SAMPLING STATION

Well #	Station Type
KBA-11-16	MONITORING WELL

SAMPLE

Sample ID	Sample Matrix	Sample Type	Collection Method	Date	Time	By
KBA-11-16-AUG-09	WATER	GRAB		8-5-09	1045	TB

Instruments	Manufacturer/Mode	Serial No.	Date of Cal.	Calib.Due	Reference
pH/Eh	HORIBA U22	01402	7-7-09	CALIB DAILY	AUTO CAL SOLUTION
Conductivity/Temp					
Dissolved Oxygen					
Turbidity					
Redox					

GROUND LEVEL DATA (before purging)

Well Variables

Depth of water = (TD - H) = h (ft) [H = depth to top of water]

Inside diam. Of casing = d(in.); 1/2(d) = r(in.)

$\frac{r(in.)}{12(in.)}$ = R (ft); [7.48 gal/ft 3 constant]

WELL PURGE INFORMATION

PURGE EQUIPMENT: GeoPump 2 S/N: PURGE METHOD: Peristaltic Pump Pump Type:

Proq Cyc	Date	Time	Temp (C)	pH	Cond.	Units	Turb.	Units	D.O.	Units	Redox
2GAL.	8-5-09	1053	17.25c	5.07	0.271	S/cm	25.1	NTU	3.84	g/L	56mv
4GAL.	8-5-09	1105	18.01c	5.08	0.288	S/cm	4.2	NTU	3.35	g/L	-5mv
6GAL.	8-5-09	1118	17.03c	5.13	0.365	S/cm	1.9	NTU	4.05	g/L	-38mv
8GAL	8-5-09	1130	17.50c	5.12	0.389	S/cm	5.7	NTU	4.21	g/L	-51mv

Well purged to dryness: [ ] Yes [✓] No

Recorded by:	Date:	Reviewed by:	Date:
Tommy Bryant	8-5-09		

1140 205

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
RA-11-17B	8-4-09	1115	1.50'	44.48'	
	8-4-09	1435	1.50'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-17B	8-4-09	1115	90°F	64%	30.24	SUNNY
	8-4-09	1435	96°F	52%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-18	8-4-09	1100	.75'	45.59'	
	8-4-09	1430	.75'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-18	8-4-09	1100	89°F	67%	30.24	SUNNY
	8-4-09	1430	95°F	48%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
BA-11-20	8-4-08	1035	.69'	39.92'	
	8-4-08	1420	.69'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-20	8-4-09	1035	88°F	63%	30.50	SUNNY
	8-4-09	1420	95°F	49%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
BA-11-21	8-4-09	1025	1.29'	40.35'	
	8-4-09	1415	1.29'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-21	8-4-09	1025	87°F	63%	30.50	sunny
	8-4-09	1415	95°F	50%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
BA-11-22B	8-4-09	0815	8.59'	52.40'	
	8-4-09	1325	8.59'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-22B	8-4-09	0815	78°F	84%	31.01	SUNNY
	8-4-09	1325	94°F	57%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-34	8-4-09	0915	10.61'	40.82'	
	8-4-09	1345	10.60'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-34	8-4-09	0915	84°F	77%	31.01	SUNNY
	8-4-09	1345	95°F	53%	30.03	PARTLY CLOUDY

SAMPLING STATION

Well #	Station Type
KBA-11-34	MONITORING WELL

SAMPLE

Sample ID	Sample Matrix	Sample Type	Collection Method	Date	Time	By
KBA 11-34-AG-09	WATER	GRAB		8-5-09	0825	TB

Instruments	Manufacturer/Mode	Serial No.	Date of Cal.	Calib.Due	Reference
pH/Eh	HORIBA U22	D1402	7-7-09 ~~GRAB~~	CALIB. DAILY	AUTO CAL SOLUTION
Conductivity/Temp					
Dissolved Oxygen					
Turbidity					
Redox					

GROUND LEVEL DATA (before purging)

Well Variables

Depth of water = (TD - H) = h (ft) [H = depth to top of water]

Inside diam. Of casing = d(in.); 1/2(d) = r(in.)

$\frac{r(in.)}{12(in.)}$ = R (ft); [7.48 gal/ft 3 constant]

WELL PURGE INFORMATION

PURGE EQUIPMENT: GeoPump 2 S/N: PURGE METHOD: PERISTALTIC Pump Pump Type:

Proq Cyc	Date	Time	Temp (C)	pH	Cond.	Units	Turb.	Units	D.O.	Units	Redox
2 GAL	8-5-09	0840	18.08c	5.65	0.308	S/cm	23.2	NTU	3.07	g/L	-64mv
4 GAL	8-5-09	0854	17.79c	5.61	0.301	S/cm	6.2	NTU	3.11	g/L	-48mv
6 GAL	8-5-09	0907	17.80c	5.55	0.295	S/cm	6.8	NTU	3.32	g/L	-43mv
8 GAL	8-5-09	0923	17.31c	5.53	0.302	S/cm	4.8	NTU	3.64	g/L	-42mv

Well purged to dryness: [ ] Yes [✓] No

Recorded by:	Date:	Reviewed by:	Date:
Tommy Bryant	8-5-09		

0930 203

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-36	8-4-09	0925	11.17'	41.43'	
	8-4-09	1350	11.17'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-36	8-4-09	0925	85°F	76%	31.01	SUNNY
	8-4-09	1350	95°F	57%	30.03	PARTLY CLOUDY

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
RA-11-37	8-4-09	10:45'	1.44'	38.25'	
	8-4-09	1425	1.44'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KRA-11-37	8-4-09	10:45	89°F	63%	30.50	SUNNY
	8-4-09	1425	95°F	49%	30.03	PARTLY CLOUDY

SAMPLING STATION

Well #	Station Type
KBA-11-37	MONITORING WELL

SAMPLE

Sample ID	Sample Matrix	Sample Type	Collection Method	Date	Time	By
KBA-11-37-AUG-09	WATER	GRAB		8-5-09	0940	TB

Instruments	Manufacturer/Mode	Serial No.	Date of Cal.	Calib.Due	Reference
pH/Eh	HORIBA U22	D1402	7-7-09	CALIB. DAILY	AUTO CAL SOLUTION
Conductivity/Temp					
Dissolved Oxygen					
Turbidity					
Redox					

GROUND LEVEL DATA (before purging)

Well Variables

Depth of water = (TD - H) = h (ft) [H = depth to top of water]

Inside diam. Of casing = d(in.); 1/2(d) = r(in.)

$\frac{r(in.)}{12(in.)}$ = R (ft); [7.48 gal/ft 3 constant]

WELL PURGE INFORMATION

PURGE EQUIPMENT: Geo Pump 2 S/N: PURGE METHOD: Peristaltic Pump Pump Type:

Proq Cyc	Date	Time	Temp (C)	pH	Cond.	Units	Turb.	Units	D.O.	Units	Redox
2 GAL	8-5-09	0954	17.87c	5.72	0.175	S/cm	0.8	NTU	3.68	g/L	-11mv
4 GAL.	8-5-09	1006	17.58c	5.94	0.274	S/cm	0.3	NTU	3.44	g/L	-65mv
6 GAL.	8-5-09	1018	17.35c	5.99	0.304	S/cm	0.9	NTU	3.60	g/L	-68mv
8 GAL	8-5-09	1029	17.	5.95	0.315	S/cm	1.5	NTU	3.35	g/L	-70mv

Well purged to dryness: [ ] Yes [~~✓~~ No

Recorded by: Tommy Bryant	Date: 8-5-09	Reviewed by:	Date:

1040 204

WELL MEASUREMENTS

WELL NUMBER ID	DATE	TIME	MEASURE TO WATER	MEASURE TO BOTTOM	PHOTO VAC
KBA-11-PS2	8-4-09	0835	6.13'	37.81'	
	8-4-09	1335	6.13'		

WEATHER CONDITIONS

WELL NUMBER ID	DATE	TIME	TEMPERATURE	HUMIDITY	BAR. PRESSEVE	SKY CONDITIONS
KBA-11-PS2	8-4-09	0835	79°F	85%	31.01	SUNNY
	8-4-09	1335	94°F	54%	30.03	PARTLY CLOUDY

APPENDIX B
ANALYTICAL REPORTS

Columbia Analytical Services™ 9143 Philips Hwy, Suite 200 | Jacksonville, FL 32256 | 904 739 2277 | 904 739 2011 fax | www.caslab.com

August 12, 2009

Service Request No: J0903855

Mr. Sam Ross
VT Griffin Services
P.O. Box 47248
Kings Bay, GA 31547

Laboratory Results for: NSB Kings Bay/Site 11 Aug 09

Dear Mr. Ross:

Enclosed are the results of the sample(s) submitted to our laboratory on August 6, 2009. For your reference, these analyses have been assigned our service request number **J0903855**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 4408. You may also contact me via email at TKissinger@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Tom Kissinger

Tom Kissinger
Project Manager

For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com.

100% Recycled Paper

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Non CLP Tier III (w/out Raw Data)

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Volatile Organic Compounds by GC/MS	48

This report contains a total of 91 pages

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	VT Griffin Services	**Service Request No.:**	J0903855
Project:	NSB Kings Bay	**Date Received:**	8/6/09
Sample Matrix:	water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III data deliverables including validation summary forms. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

5 water samples were received for analysis at Columbia Analytical Services on 8/6/09. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 4±2°C upon receipt at the lab.

Volatile Organic Compounds by GC-MS

Initial Calibration Exceptions

The primary evaluation criterion was exceeded for the following analytes in Initial Calibration (ICAL) ID CAL1904: Vinyl Chloride, Carbon Tetrachloride, trans-1,3-Dichloropropene, Dibromochloromethane, and Bromoform. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the calibration. The calibration meets the alternative evaluation criteria.

Continuing Calibration Verification Exceptions

The upper control criterion was exceeded for the following analyte in Continuing Calibration Verification (CCV) JWG0902580-2: Vinyl Acetate. The filed samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem equates to a potential high bias, the data quality is not affected. No further corrective action was required.

Matrix Spike Recovery Exceptions

The matrix spike recovery of trans-1,4-Dichloro-2-butene for sample KBA-11-13A-AUG-09 was outside the lower control criterion. The analyte in question was not detected in the associated field samples. Since the analyte was detected in the MRL check standard, instrument sensitivity was documented. The data quality was not significantly affected and no further corrective action was taken.

Laboratory Control Sample Exceptions

The spike recovery of Vinyl Acetate for Laboratory Control Sample (LCS) JWG0902579-3 was outside the upper control criterion. The analyte in question was not detected in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data are not significantly affected. No further corrective action was appropriate.

Approved by Tam D. Huising Date 8/13/09

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J0903855-001	KBA-11-34-AUG-09	8/5/09	09:30
J0903855-002	KBA-11-37-AUG-09	8/5/09	10:40
J0903855-003	KBA-11-16-AUG-09	8/5/09	11:40
J0903855-004	KBA-11-13A-AUG-09	8/5/09	13:25
J0903855-005	KBA-11-13A-AUG-09-DUP	8/5/09	13:30

Data Qualifiers

Inorganic Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimated amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- Z Too many colonies were present (TNTC). The numeric value represents the filtration volume.
- i The MRL/MDL has been elevated due to matrix interference.
- X See case narrative.

Metals Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The reported value is estimated because of the presence of matrix interference.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The result was determined by Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- A The tentatively identified compound is a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Petroleum Hydrocarbon Specific

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Columbia Analytical Services™

Chain of Custody Documentation

9143 Philips Highway, Suite 200
Jacksonville, Florida 32256
Phone: (904) 739-2277 Fax (904) 739-2011
www.caslab.com

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011 PAGE 1 OF 1

www.caslab.com

SR # J0903855
CAS Contact

Project Name: NSB King Bay
Project Number: SITE 11 AUG 09
Project Manager: Fitzgerald
Email Address:
Company/Address: VT Griffin, PO Box 47248, Kings Bay, GA 31547
Phone #: 912-573-8686
FAX#: 912-573-4037
Sampler's Signature: Tommy Bryant
Sampler's Printed Name: TOMMY BRYANT

ANALYSIS REQUESTED (Include Method Number an [redacted]

PRESERVATIVE

NUMBER OF CONTAINERS: GWPS

1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GWPS	REMARKS/ ALTERNATE DESCRIPTION
KBA-11-34-AUG-09		8/5/09	0930	WATER	3	✓	2009HW-203
KBA-11-37-AUG-09		8/5/09	1040	WATER	3	✓	2009HW-204
KBA-11-16-AUG-09		8/5/09	1140	WATER	3	✓	2009HW-205
KBA-11-13A-AUG-09		8/5/09	1325	WATER	3	✓	2009HW-206
KBA-11-13A-AUG-09	DUP	8/5/09	1330	WATER	3	✓	2009HW-207
KBA-11-13A-AUG-09	MS/MSD	8/5/09	1335	WATER	3	✓	2009HW-208

SPECIAL INSTRUCTIONS/COMMENTS

GROUND WATER PROTECTION STANDARDS

WO# 19QGEN

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO# MR 118237
BILL TO: VT Griffin, PO Box 47248, Kings Bay, GA 31547

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Tommy Bryant	Signature: Eddie Smith	Signature: Donna Marr	Signature: [illegible]	Signature	Signature
Printed Name: TOMMY BRYANT	Printed Name: Eddie Smith	Printed Name: Donna Marr	Printed Name: [illegible]	Printed Name	Printed Name
Firm: V.T. GRIFFIN	Firm	Firm	Firm: CAS	Firm	Firm
Date/Time: 8-6-09 / 0735	Date/Time: 8/6/09 7:40	Date/Time: 8-6-09 1000	Date/Time: 8-6-09 1000	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

JSCOC-06/20/08

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client: VT Griffin Service Request # J0903855

Project: NSB Kings Bay

Cooler received on 8/6/09 and opened on 8/6/09 by SC

COURIER: CAS UPS FEDEX DHL CLIENT Tracking #

1	Were custody seals on outside of cooler?	Yes	No	N/A
2	Were seals intact, signed and dated?	Yes	No	N/A
3	Were custody papers properly filled out?	Yes	No	N/A
4	Temperature of cooler(s) upon receipt (Should be 4 +/- 2 degrees C) 0.4			
5	Correct Temperature?	Yes	No	N/A
6	Were Ice or Ice Packs present	Yes	No	N/A
7	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A
8	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A
9	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A
10	Were the correct bottles used for the tests indicated?	Yes	No	N/A
11	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A
	HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2			
	Preservative additions noted below			
12	Were all samples received within analysis holding times?	Yes	No	N/A
13	Were VOA vials checked for absence of air bubbles? If present, note below	Yes	No	N/A
14	Where did the bottles originate?	CAS	Client	

Sample ID	Reagent	Manuf. Lot # or CAS Chem ID	ml added	Inititials

Additional comments and/or explanation of all discrepancies noted above:

All vials have a small amount of headspace

Client approval to run samples if discrepancies noted: Date:

SR #: J 0903855 Date: 8/6/09 Initials: SC

Note that pH is checked and meets the required pH criterion listed in the column heading unless otherwise noted on cooler receipt form.

	Bottle Code																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	40mL	40mL	40mL	40mL	125mL	125mL	125mL	125mL	250mL	250mL	250mL	250mL	250mL	250mL	250mL	500mL	500mL	500mL	1L	1L	1L	1L	1L	2oz	4oz	8oz	16oz	5g	100mL	Misc.
Container	G	G	G	G	P	P	P	P	P	P	P	P	P	G	G	P	P	P	P	P	G	G	G	G	G	G	G	ENC	P	Misc.
Pres.		HCl	Sodium Thiosulfate	H2SO4		HCl	H2SO4	HNO3		H2SO4	HNO3	ZnAcetate NaOH	NaOH		HNO3		H2SO4	HNO3		HNO3		HCl	H2SO4						Sodium Thiosulfate	
Req. pH	N/A	<2		<2		<2	<2	<2	N/A	<2	<2	>9	>12	N/A	<2	N/A	<2	<2		<2	N/A	<2	<2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sample #	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-		-	-	-				-	-
-001		3																												
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Columbia Analytical Services™

Summary Package

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Organic Analysis:
Volatile Organic Compounds by GC/MS

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855

Cover Page - Organic Analysis Data Package
Volatile Organic Compounds by GC/MS

Sample Name	Lab Code	Date Collected	Date Received
KBA-11-34-AUG-09	J0903855-001	08/05/2009	08/06/2009
KBA-11-37-AUG-09	J0903855-002	08/05/2009	08/06/2009
KBA-11-16-AUG-09	J0903855-003	08/05/2009	08/06/2009
KBA-11-13A-AUG-09	J0903855-004	08/05/2009	08/06/2009
KBA-11-13A-AUG-09-DUP	J0903855-005	08/05/2009	08/06/2009
KBA-11-13A-AUG-09MS	JWG0902579-1	08/05/2009	08/06/2009
KBA-11-13A-AUG-09DMS	JWG0902579-2	08/05/2009	08/06/2009

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Scott Allen Name: Scott Allen

Date: 8-11-09 Title: Scientist

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-34-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	**0.83**	J	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**180**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**0.76**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**4.2**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-34-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**1.3**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	ND	U	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	92	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	85	75-120	08/08/09	Acceptable
Dibromofluoromethane	88	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-37-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**2.9**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-37-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**2.7**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**3.1**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	**0.35**	J	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**0.46**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-16-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	**3.9**	J	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	**0.88**	J	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**1.6**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-16-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.83**	J	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**2.8**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	96	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	105	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**17**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**7.9**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**9.5**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**0.63**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.48**	J	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**0.82**	J	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**3.3**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09-DUP	**Units:**	ug/L
Lab Code:	J0903855-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**18**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**9.0**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**13**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09-DUP	**Units:**	ug/L
Lab Code:	J0903855-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**0.60**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.48**	J	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**0.96**	J	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**3.3**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	95	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	88	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	100	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	JWG0902579-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	JWG0902579-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	ND	U	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	105	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09
Sample Matrix: Water

Service Request: J0903855

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4
KBA-11-34-AUG-09	J0903855-001	92	85	88	103
KBA-11-37-AUG-09	J0903855-002	97	89	92	103
KBA-11-16-AUG-09	J0903855-003	96	89	92	105
KBA-11-13A-AUG-09	J0903855-004	97	89	92	103
KBA-11-13A-AUG-09-DUP	J0903855-005	95	88	92	100
Method Blank	JWG0902579-4	97	89	92	105
KBA-11-13A-AUG-09MS	JWG0902579-1	99	89	94	101
KBA-11-13A-AUG-09DMS	JWG0902579-2	97	89	96	102
Lab Control Sample	JWG0902579-3	94	87	93	99

Surrogate Recovery Control Limits (%)

Sur1 = 1,2-Dichloroethane-d4	71-122
Sur2 = 4-Bromofluorobenzene	75-120
Sur3 = Dibromofluoromethane	82-116
Sur4 = Toluene-d8	88-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Analyzed:**	08/08/2009
		Time Analyzed:	11:43

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID:	\\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0	**Lab Code:**	JWG0902580-2
Instrument ID:	MS52.i	**Analysis Lot:**	JWG0902580
Analysis Method:	8260B	**Column :**	DB-VRX

		1,4-Dichlorobenzene-d4		Chlorobenzene-d5		Fluorobenzene	
		Area	RT	Area	RT	Area	RT
	Results ==>	132,403	11.33	156,009	8.90	352,164	5.55
	Upper Limit ==>	264,806	11.83	312,018	9.40	704,328	6.05
	Lower Limit ==>	66,202	10.83	78,005	8.40	176,082	5.05
	ICAL Result ==>	146,599	11.33	154,420	8.90	372,570	5.55
Associated Analyses							
Lab Control Sample	JWG0902579-3	127,365	11.33	148,790	8.90	347,710	5.54
Method Blank	JWG0902579-4	110,214	11.33	134,507	8.89	324,822	5.55
KBA-11-34-AUG-09	J0903855-001	110,617	11.33	132,174	8.90	327,214	5.55
KBA-11-37-AUG-09	J0903855-002	111,673	11.33	137,048	8.90	323,628	5.55
KBA-11-16-AUG-09	J0903855-003	111,736	11.33	132,676	8.90	327,206	5.55
KBA-11-13A-AUG-09	J0903855-004	112,088	11.33	135,684	8.90	323,223	5.54
KBA-11-13A-AUG-09-DUP	J0903855-005	113,332	11.33	136,678	8.90	323,843	5.54
KBA-11-13A-AUG-09MS	JWG0902579-1	127,902	11.33	145,582	8.90	337,116	5.54
KBA-11-13A-AUG-09DMS	JWG0902579-2	129,254	11.33	146,299	8.90	338,309	5.55

Results flagged with an asterisk (*) indicate values outside control criteria.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

		KBA-11-13A-AUG-09MS JWG0902579-1 Matrix Spike			KBA-11-13A-AUG-09DMS JWG0902579-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	19.1	20.0	96	17.8	20.0	89	67-151	7	30
Chloromethane	ND	19.8	20.0	99	23.7	20.0	119	73-139	18	30
Vinyl Chloride	ND	21.8	20.0	109	23.7	20.0	118	78-141	8	30
Bromomethane	ND	16.3	20.0	82	15.8	20.0	79	78-129	3	30
Chloroethane	ND	22.7	20.0	114	25.5	20.0	127	76-129	12	30
Trichlorofluoromethane	ND	22.0	20.0	110	21.8	20.0	109	81-133	1	30
1,1-Dichloroethene	ND	23.2	20.0	116	22.9	20.0	115	79-133	1	30
Acetone	ND	112	100	112	119	100	119	56-139	6	30
Iodomethane (Methyl Iodide)	ND	93.3	100	93	93.5	100	93	74-134	0	30
Carbon Disulfide	ND	99.4	100	99	97.0	100	97	71-146	2	30
Methylene Chloride	ND	20.5	20.0	102	20.0	20.0	100	75-123	3	30
Methyl tert-Butyl Ether	ND	21.9	20.0	109	22.1	20.0	110	69-126	1	30
trans-1,2-Dichloroethene	ND	23.8	20.0	119	23.7	20.0	119	76-125	0	30
1,1-Dichloroethane	ND	22.2	20.0	111	22.3	20.0	111	78-125	1	30
Vinyl Acetate	ND	123	100	123	133	100	133	43-163	8	30
cis-1,2-Dichloroethene	17	39.6	20.0	114	40.5	20.0	119	75-127	2	30
2-Butanone (MEK)	ND	108	100	108	115	100	115	63-134	6	30
Bromochloromethane	ND	21.0	20.0	105	21.2	20.0	106	80-124	1	30
Chloroform	ND	22.1	20.0	111	22.0	20.0	110	81-124	1	30
1,1,1-Trichloroethane (TCA)	ND	23.1	20.0	115	23.4	20.0	117	76-130	2	30
Carbon Tetrachloride	ND	22.3	20.0	112	22.2	20.0	111	76-131	0	30
Benzene	ND	21.7	20.0	108	21.3	20.0	107	78-123	2	30
1,2-Dichloroethane (EDC)	ND	21.0	20.0	105	23.9	20.0	120	74-126	13	30
Trichloroethene (TCE)	7.9	30.2	20.0	112	30.7	20.0	114	77-128	1	30
1,2-Dichloropropane	ND	21.0	20.0	105	21.4	20.0	107	77-122	2	30
Dibromomethane	ND	21.3	20.0	106	21.7	20.0	108	78-124	2	30
Bromodichloromethane	ND	21.5	20.0	108	21.5	20.0	107	79-125	0	30
cis-1,3-Dichloropropene	ND	18.2	20.0	91	17.9	20.0	90	77-117	1	30
4-Methyl-2-pentanone (MIBK)	ND	112	100	112	115	100	115	65-138	2	30
Toluene	ND	21.1	20.0	106	21.5	20.0	108	86-119	2	30
trans-1,3-Dichloropropene	ND	16.4	20.0	82	16.9	20.0	85	75-120	3	30
1,1,2-Trichloroethane	ND	21.8	20.0	109	20.9	20.0	105	77-124	4	30
Tetrachloroethene (PCE)	9.5	31.9	20.0	112	33.5	20.0	120	79-123	5	30
2-Hexanone	ND	116	100	116	119	100	119	63-142	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

		KBA-11-13A-AUG-09MS JWG0902579-1 Matrix Spike			KBA-11-13A-AUG-09DMS JWG0902579-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dibromochloromethane	ND	19.6	20.0	98	19.2	20.0	96	78-124	2	30
1,2-Dibromoethane (EDB)	ND	21.8	20.0	109	21.8	20.0	109	81-119	0	30
Chlorobenzene	0.63	21.0	20.0	102	20.9	20.0	101	81-120	0	30
1,1,1,2-Tetrachloroethane	ND	20.3	20.0	102	20.1	20.0	101	82-118	1	30
Ethylbenzene	0.48	22.1	20.0	108	21.9	20.0	107	87-122	1	30
m,p-Xylenes	ND	40.4	40.0	101	40.1	40.0	100	82-120	1	30
o-Xylene	ND	20.6	20.0	103	20.6	20.0	103	85-119	0	30
Styrene	ND	17.8	20.0	89	17.1	20.0	86	84-126	4	30
Bromoform	ND	15.3	20.0	77	14.9	20.0	74	70-129	3	30
1,1,2,2-Tetrachloroethane	ND	21.3	20.0	107	21.7	20.0	108	72-127	2	30
1,2,3-Trichloropropane	ND	21.4	20.0	107	21.5	20.0	108	76-123	1	30
trans-1,4-Dichloro-2-butene	ND	ND	20.0	0 *	ND	20.0	0 *	22-135		30
1,3-Dichlorobenzene	ND	19.0	20.0	95	19.1	20.0	95	76-114	1	30
1,4-Dichlorobenzene	0.82	20.5	20.0	98	20.2	20.0	97	75-115	2	30
1,2-Dichlorobenzene	ND	20.3	20.0	101	20.3	20.0	101	77-116	0	30
1,2-Dibromo-3-chloropropane (DBCP	ND	19.4	20.0	97	20.6	20.0	103	54-120	6	30
Naphthalene	3.3	27.1	20.0	119	27.6	20.0	122	46-133	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Lab Control Spike Summary
Volatile Organic Compounds by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	JWG0902579

	Lab Control Sample JWG0902579-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	17.7	20.0	88	69-138
Chloromethane	20.9	20.0	105	67-135
Vinyl Chloride	22.5	20.0	112	78-132
Bromomethane	20.0	20.0	100	79-130
Chloroethane	20.4	20.0	102	74-126
Trichlorofluoromethane	20.6	20.0	103	74-134
1,1-Dichloroethene	22.1	20.0	111	78-130
Acetone	108	100	108	67-133
Iodomethane (Methyl Iodide)	93.7	100	94	68-134
Carbon Disulfide	92.2	100	92	76-138
Methylene Chloride	20.4	20.0	102	72-124
Methyl tert-Butyl Ether	21.4	20.0	107	75-129
trans-1,2-Dichloroethene	23.0	20.0	115	77-124
1,1-Dichloroethane	22.1	20.0	110	80-128
Vinyl Acetate	150	100	150 *	61-148
cis-1,2-Dichloroethene	21.5	20.0	108	80-126
2-Butanone (MEK)	108	100	108	73-127
Bromochloromethane	21.4	20.0	107	79-129
Chloroform	21.5	20.0	108	83-124
1,1,1-Trichloroethane (TCA)	22.2	20.0	111	79-124
Carbon Tetrachloride	21.7	20.0	108	81-125
Benzene	21.2	20.0	106	79-119
1,2-Dichloroethane (EDC)	21.1	20.0	106	80-124
Trichloroethene (TCE)	20.9	20.0	105	76-124
1,2-Dichloropropane	21.6	20.0	108	79-123
Dibromomethane	21.5	20.0	107	83-123
Bromodichloromethane	21.2	20.0	106	81-123
cis-1,3-Dichloropropene	21.5	20.0	107	86-123
4-Methyl-2-pentanone (MIBK)	113	100	113	72-136
Toluene	21.6	20.0	108	86-117
trans-1,3-Dichloropropene	21.0	20.0	105	83-124
1,1,2-Trichloroethane	21.6	20.0	108	86-114
Tetrachloroethene (PCE)	21.1	20.0	105	80-121
2-Hexanone	114	100	114	71-138
Dibromochloromethane	20.4	20.0	102	82-121
1,2-Dibromoethane (EDB)	22.0	20.0	110	88-117

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Lab Control Spike Summary
Volatile Organic Compounds by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	JWG0902579

	Lab Control Sample JWG0902579-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Chlorobenzene	20.4	20.0	102	86-113
1,1,1,2-Tetrachloroethane	20.5	20.0	103	85-117
Ethylbenzene	21.6	20.0	108	90-118
m,p-Xylenes	40.6	40.0	101	86-121
o-Xylene	21.0	20.0	105	89-119
Styrene	21.0	20.0	105	89-122
Bromoform	17.5	20.0	87	68-129
1,1,2,2-Tetrachloroethane	20.9	20.0	104	83-120
1,2,3-Trichloropropane	22.2	20.0	111	83-123
trans-1,4-Dichloro-2-butene	20.3	20.0	102	53-143
1,3-Dichlorobenzene	20.6	20.0	103	83-112
1,4-Dichlorobenzene	20.1	20.0	100	83-113
1,2-Dichlorobenzene	21.5	20.0	108	84-115
1,2-Dibromo-3-chloropropane (DBCP	20.8	20.0	104	62-123
Naphthalene	23.6	20.0	118	59-135

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009
		Time Analyzed:	13:03

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**File ID:**	J:\MS52\DATA\MS529H08.B\0808-52.D
Lab Code:	JWG0902579-4	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	JWG0902579-3	J:\MS52\DATA\MS529H08.B\0808-50.D	08/08/09	12:10
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-53.D	08/08/09	13:30
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-54.D	08/08/09	13:57
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-55.D	08/08/09	14:23
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-56.D	08/08/09	14:50
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-57.D	08/08/09	15:17
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-70.D	08/08/09	21:03
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-71.D	08/08/09	21:30

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009
		Time Analyzed:	12:10

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**File ID:**	J:\MS52\DATA\MS529H08.B\0808-50.D
Lab Code:	JWG0902579-3	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	JWG0902579-4	J:\MS52\DATA\MS529H08.B\0808-52.D	08/08/09	13:03
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-53.D	08/08/09	13:30
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-54.D	08/08/09	13:57
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-55.D	08/08/09	14:23
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-56.D	08/08/09	14:50
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-57.D	08/08/09	15:17
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-70.D	08/08/09	21:03
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-71.D	08/08/09	21:30

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009
Time Analyzed: 10:42

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0808-48.D
Instrument ID: MS52.i
Column:

Analysis Method: 8260B
Analysis Lot: JWG0902580

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.3	2775	PASS
75	95	30	60	54.4	7433	PASS
95	95	100	100	100.0	13662	PASS
96	95	5	9	7.2	983	PASS
173	174	0	2	0.8	115	PASS
174	95	50	120	104.5	14283	PASS
175	174	5	9	6.6	949	PASS
176	174	95	101	98.1	14010	PASS
177	176	5	9	5.3	744	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	JWG0902580-2	J:\MS52\DATA\MS529H08.B\0808-4	08/08/2009	11:43	
Lab Control Sample	JWG0902579-3	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	12:10	
Method Blank	JWG0902579-4	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:03	
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:30	
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:57	
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	14:23	
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	14:50	
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	15:17	
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-7	08/08/2009	21:03	
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-7	08/08/2009	21:30	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Level ID	File ID	Level ID	File ID
A	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	E	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
B	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	F	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
C	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	G	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
D	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	H	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dichlorodifluoromethane				B	2.0	0.344	C	5.0	0.403	D	20	0.480	E	50	0.483
	F	100	0.446	G	150	0.410	H	200	0.371						
† Chloromethane	A	1.0	0.382	B	2.0	0.425	C	5.0	0.423	D	20	0.478	E	50	0.482
	F	100	0.443	G	150	0.426	H	200	0.392						
‡ Vinyl Chloride	A	1.0	0.447	B	2.0	0.442	C	5.0	0.448	D	20	0.530	E	50	0.588
	F	100	0.606	G	150	0.498	H	200	0.340						
Bromomethane	A	1.0	0.249	B	2.0	0.258	C	5.0	0.280	D	20	0.311	E	50	0.323
	F	100	0.323	G	150	0.318	H	200	0.314						
Chloroethane	A	1.0	0.357	B	2.0	0.276	C	5.0	0.297	D	20	0.310	E	50	0.316
	F	100	0.307	G	150	0.304	H	200	0.295						
Trichlorofluoromethane							C	5.0	0.639	D	20	0.714	E	50	0.724
	F	100	0.686	G	150	0.676	H	200	0.642						
‡ 1,1-Dichloroethene	A	1.0	0.431	B	2.0	0.416	C	5.0	0.438	D	20	0.496	E	50	0.503
	F	100	0.502	G	150	0.514	H	200	0.514						
Acetone							C	25	0.0224	D	100	0.0248	E	250	0.0259
	F	500	0.0251	G	750	0.0240	H	1000	0.0234						
Iodomethane (Methyl Iodide)	A	5.0	0.492	B	10	0.490	C	25	0.481	D	100	0.515	E	250	0.530
	F	500	0.523	G	750	0.521	H	1000	0.523						
Carbon Disulfide	A	5.0	0.992	B	10	0.930	C	25	0.937	D	100	1.01	E	250	1.01
	F	500	0.960	G	750	0.940	H	1000	0.913						
Methylene Chloride							C	5.0	0.352	D	20	0.369	E	50	0.363
	F	100	0.353	G	150	0.354	H	200	0.351						
Methyl tert-Butyl Ether	A	1.0	0.826	B	2.0	0.861	C	5.0	0.852	D	20	0.911	E	50	0.920
	F	100	0.904	G	150	0.907	H	200	0.906						
trans-1,2-Dichloroethene	A	1.0	0.371	B	2.0	0.379	C	5.0	0.407	D	20	0.433	E	50	0.437
	F	100	0.424	G	150	0.421	H	200	0.415						
† 1,1-Dichloroethane	A	1.0	0.529	B	2.0	0.519	C	5.0	0.523	D	20	0.579	E	50	0.581
	F	100	0.561	G	150	0.552	H	200	0.553						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Vinyl Acetate	A	5.0	0.255	B	10	0.253	C	25	0.277	D	100	0.320	E	250	0.336
	F	500	0.337	G	750	0.333	H	1000	0.325						
cis-1,2-Dichloroethene	A	1.0	0.298	B	2.0	0.301	C	5.0	0.306	D	20	0.350	E	50	0.349
	F	100	0.342	G	150	0.339	H	200	0.341						
2-Butanone (MEK)	A	5.0	0.126	B	10	0.116	C	25	0.126	D	100	0.133	E	250	0.133
	F	500	0.130	G	750	0.126	H	1000	0.123						
Bromochloromethane	A	1.0	0.170	B	2.0	0.168	C	5.0	0.192	D	20	0.217	E	50	0.217
	F	100	0.211	G	150	0.212	H	200	0.213						
‡ Chloroform	A	1.0	0.519	B	2.0	0.539	C	5.0	0.509	D	20	0.564	E	50	0.566
	F	100	0.554	G	150	0.554	H	200	0.553						
1,1,1-Trichloroethane (TCA)	A	1.0	0.376	B	2.0	0.357	C	5.0	0.384	D	20	0.432	E	50	0.442
	F	100	0.440	G	150	0.451	H	200	0.452						
Carbon Tetrachloride	A	1.0	0.257	B	2.0	0.254	C	5.0	0.262	D	20	0.310	E	50	0.344
	F	100	0.356	G	150	0.371	H	200	0.383						
Benzene	A	1.0	1.24	B	2.0	1.25	C	5.0	1.22	D	20	1.29	E	50	1.28
	F	100	1.23	G	150	1.22	H	200	1.21						
1,2-Dichloroethane (EDC)	A	1.0	0.377	B	2.0	0.356	C	5.0	0.397	D	20	0.458	E	50	0.462
	F	100	0.402	G	150	0.449	H	200	0.400						
Trichloroethene (TCE)	A	1.0	0.287	B	2.0	0.297	C	5.0	0.288	D	20	0.322	E	50	0.321
	F	100	0.312	G	150	0.314	H	200	0.316						
‡ 1,2-Dichloropropane	A	1.0	0.282	B	2.0	0.288	C	5.0	0.288	D	20	0.315	E	50	0.320
	F	100	0.309	G	150	0.310	H	200	0.308						
Dibromomethane	A	1.0	0.158	B	2.0	0.160	C	5.0	0.165	D	20	0.187	E	50	0.188
	F	100	0.184	G	150	0.187	H	200	0.187						
Bromodichloromethane	A	1.0	0.340	B	2.0	0.349	C	5.0	0.362	D	20	0.411	E	50	0.426
	F	100	0.425	G	150	0.428	H	200	0.431						
cis-1,3-Dichloropropene	A	1.0	0.876	B	2.0	0.825	C	5.0	0.871	D	20	1.09	E	50	1.13
	F	100	1.04	G	150	0.989	H	200	0.951						
4-Methyl-2-pentanone (MIBK)	A	5.0	0.550	B	10	0.535	C	25	0.556	D	100	0.632	E	250	0.590
	F	500	0.530	G	750	0.466	H	1000	0.425						
‡ Toluene	A	1.0	3.12	B	2.0	2.96	C	5.0	2.92	D	20	3.33	E	50	3.18
	F	100	2.87	G	150	2.57	H	200	2.43						
trans-1,3-Dichloropropene	A	1.0	0.597	B	2.0	0.608	C	5.0	0.641	D	20	0.882	E	50	0.967
	F	100	0.938	G	150	0.884	H	200	0.854						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,1,2-Trichloroethane	A	1.0	0.501	B	2.0	0.563	C	5.0	0.561	D	20	0.659	E	50	0.623
	F	100	0.565	G	150	0.510	H	200	0.488						
Tetrachloroethene (PCE)	A	1.0	0.529	B	2.0	0.520	C	5.0	0.493	D	20	0.580	E	50	0.552
	F	100	0.505	G	150	0.469	H	200	0.449						
2-Hexanone	A	5.0	0.335	B	10	0.302	C	25	0.351	D	100	0.409	E	250	0.400
	F	500	0.363	G	750	0.318	H	1000	0.295						
Dibromochloromethane	A	1.0	0.503	B	2.0	0.490	C	5.0	0.565	D	20	0.711	E	50	0.728
	F	100	0.711	G	150	0.667	H	200	0.654						
1,2-Dibromoethane (EDB)	A	1.0	0.510	B	2.0	0.481	C	5.0	0.539	D	20	0.647	E	50	0.642
	F	100	0.585	G	150	0.542	H	200	0.517						
† Chlorobenzene	A	1.0	2.08	B	2.0	1.94	C	5.0	1.88	D	20	2.13	E	50	2.05
	F	100	1.85	G	150	1.73	H	200	1.64						
1,1,1,2-Tetrachloroethane	A	1.0	0.483	B	2.0	0.549	C	5.0	0.517	D	20	0.649	E	50	0.673
	F	100	0.650	G	150	0.618	H	200	0.604						
† Ethylbenzene	A	1.0	2.96	B	2.0	2.95	C	5.0	2.93	D	20	3.41	E	50	3.29
	F	100	3.01	G	150	2.76	H	200	2.60						
m,p-Xylenes	A	2.0	1.11	B	4.0	1.09	C	10	1.10	D	40	1.29	E	100	1.28
	F	200	1.23	G	300	1.16	H	400	1.13						
o-Xylene	A	1.0	2.58	B	2.0	2.51	C	5.0	2.48	D	20	2.82	E	50	2.74
	F	100	2.56	G	150	2.37	H	200	2.26						
Styrene	A	1.0	1.57	B	2.0	1.52	C	5.0	1.61	D	20	2.00	E	50	1.96
	F	100	1.86	G	150	1.73	H	200	1.66						
† Bromoform				B	2.0	0.281	C	5.0	0.296	D	20	0.410	E	50	0.450
	F	100	0.476	G	150	0.469	H	200	0.468						
† 1,1,2,2-Tetrachloroethane	A	1.0	0.684	B	2.0	0.714	C	5.0	0.722	D	20	0.852	E	50	0.824
	F	100	0.765	G	150	0.706	H	200	0.641						
1,2,3-Trichloropropane				B	2.0	0.171	C	5.0	0.208	D	20	0.252	E	50	0.246
	F	100	0.228	G	150	0.212	H	200	0.202						
trans-1,4-Dichloro-2-butene							C	5.0	0.0708	D	20	0.123	E	50	0.150
	F	100	0.168	G	150	0.178	H	200	0.184						
1,3-Dichlorobenzene	A	1.0	1.54	B	2.0	1.49	C	5.0	1.55	D	20	1.59	E	50	1.61
	F	100	1.59	G	150	1.57	H	200	1.63						
1,4-Dichlorobenzene	A	1.0	1.67	B	2.0	1.65	C	5.0	1.55	D	20	1.62	E	50	1.61
	F	100	1.59	G	150	1.61	H	200	1.59						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,2-Dichlorobenzene	A	1.0	1.47	B	2.0	1.48	C	5.0	1.45	D	20	1.58	E	50	1.57
	F	100	1.50	G	150	1.52	H	200	1.51						
1,2-Dibromo-3-chloropropane (DBCP							C	5.0	0.0968	D	20	0.135	E	50	0.143
	F	100	0.143	G	150	0.149	H	200	0.148						
Naphthalene							C	5.0	1.06	D	20	1.49	E	50	1.57
	F	100	1.43	G	150	1.46	H	200	1.41						
1,2-Dichloroethane-d4							C	10	0.159	D	20	0.171	E	50	0.181
	F	100	0.182	G	150	0.184	H	200	0.185						
4-Bromofluorobenzene							C	10	0.907	D	20	0.949	E	50	1.01
	F	100	1.06	G	150	1.12	H	200	1.16						
Dibromofluoromethane							C	10	0.265	D	20	0.286	E	50	0.306
	F	100	0.307	G	150	0.310	H	200	0.314						
Toluene-d8							C	10	2.15	D	20	2.59	E	50	2.58
	F	100	2.40	G	150	2.20	H	200	2.09						

Results flagged with an asterisk (*) indicate values outside control criteria.

† **SPCC Compound** ‡ **CCC Compound**

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

		Calibration Evaluation					RRF Evaluation		
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
Dichlorodifluoromethane	MS	AverageRF	% RSD	12.6		≤ 15	0.420		0.01
† Chloromethane	MS	AverageRF	% RSD	8.3		≤ 15	0.431		0.1
‡ Vinyl Chloride	MS	AverageRF	% RSD	17.9	*	≤ 15	0.488		0.01
Bromomethane	MS	AverageRF	% RSD	10.2		≤ 15	0.297		0.01
Chloroethane	MS	AverageRF	% RSD	7.6		≤ 15	0.308		0.01
Trichlorofluoromethane	MS	AverageRF	% RSD	5.2		≤ 15	0.680		0.01
‡ 1,1-Dichloroethene	MS	AverageRF	% RSD	8.6		≤ 15	0.477		0.01
Acetone	MS	AverageRF	% RSD	5.2		≤ 15	0.0243		0.01
Iodomethane (Methyl Iodide)	MS	AverageRF	% RSD	3.7		≤ 15	0.510		0.01
Carbon Disulfide	MS	AverageRF	% RSD	4.0		≤ 15	0.962		0.01
Methylene Chloride	MS	AverageRF	% RSD	2.0		≤ 15	0.357		0.01
Methyl tert-Butyl Ether	MS	AverageRF	% RSD	3.9		≤ 15	0.886		0.01
trans-1,2-Dichloroethene	MS	AverageRF	% RSD	5.9		≤ 15	0.411		0.01
† 1,1-Dichloroethane	MS	AverageRF	% RSD	4.4		≤ 15	0.550		0.1
Vinyl Acetate	MS	AverageRF	% RSD	12.0		≤ 15	0.304		0.01
cis-1,2-Dichloroethene	MS	AverageRF	% RSD	6.8		≤ 15	0.328		0.01
2-Butanone (MEK)	MS	AverageRF	% RSD	4.5		≤ 15	0.127		0.01
Bromochloromethane	MS	AverageRF	% RSD	10.3		≤ 15	0.200		0.01
‡ Chloroform	MS	AverageRF	% RSD	3.8		≤ 15	0.545		0.01
1,1,1-Trichloroethane (TCA)	MS	AverageRF	% RSD	9.1		≤ 15	0.417		0.01
Carbon Tetrachloride	MS	AverageRF	% RSD	16.9	*	≤ 15	0.317		0.01
Benzene	MS	AverageRF	% RSD	2.3		≤ 15	1.24		0.01
1,2-Dichloroethane (EDC)	MS	AverageRF	% RSD	9.5		≤ 15	0.412		0.01
Trichloroethene (TCE)	MS	AverageRF	% RSD	4.7		≤ 15	0.307		0.01
‡ 1,2-Dichloropropane	MS	AverageRF	% RSD	4.7		≤ 15	0.303		0.01
Dibromomethane	MS	AverageRF	% RSD	7.7		≤ 15	0.177		0.01
Bromodichloromethane	MS	AverageRF	% RSD	9.9		≤ 15	0.396		0.01
cis-1,3-Dichloropropene	MS	AverageRF	% RSD	11.5		≤ 15	0.972		0.01
4-Methyl-2-pentanone (MIBK)	MS	AverageRF	% RSD	12.2		≤ 15	0.535		0.01
‡ Toluene	MS	AverageRF	% RSD	10.3		≤ 15	2.92		0.01
trans-1,3-Dichloropropene	MS	AverageRF	% RSD	19.4	*	≤ 15	0.796		0.01
1,1,2-Trichloroethane	MS	AverageRF	% RSD	10.6		≤ 15	0.559		0.01
Tetrachloroethene (PCE)	MS	AverageRF	% RSD	8.4		≤ 15	0.512		0.01
2-Hexanone	MS	AverageRF	% RSD	12.3		≤ 15	0.347		0.01
Dibromochloromethane	MS	AverageRF	% RSD	15.3	*	≤ 15	0.629		0.01
1,2-Dibromoethane (EDB)	MS	AverageRF	% RSD	11.0		≤ 15	0.558		0.01
† Chlorobenzene	MS	AverageRF	% RSD	9.0		≤ 15	1.91		0.3
1,1,1,2-Tetrachloroethane	MS	AverageRF	% RSD	11.7		≤ 15	0.593		0.01
‡ Ethylbenzene	MS	AverageRF	% RSD	8.7		≤ 15	2.99		0.01
m,p-Xylenes	MS	AverageRF	% RSD	7.0		≤ 15	1.17		0.01
o-Xylene	MS	AverageRF	% RSD	7.2		≤ 15	2.54		0.01
Styrene	MS	AverageRF	% RSD	10.5		≤ 15	1.74		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

		Calibration Evaluation					RRF Evaluation		
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
† Bromoform	MS	AverageRF	% RSD	20.6	*	≤ 15	0.407		0.1
† 1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	9.6		≤ 15	0.739		0.3
1,2,3-Trichloropropane	MS	AverageRF	% RSD	12.7		≤ 15	0.217		0.01
trans-1,4-Dichloro-2-butene	MS	Linear	R2	0.998		≥ 0.99	0.146		0.01
1,3-Dichlorobenzene	MS	AverageRF	% RSD	2.8		≤ 15	1.57		0.01
1,4-Dichlorobenzene	MS	AverageRF	% RSD	2.3		≤ 15	1.61		0.01
1,2-Dichlorobenzene	MS	AverageRF	% RSD	3.1		≤ 15	1.51		0.01
1,2-Dibromo-3-chloropropane (DBCP)	MS	AverageRF	% RSD	14.6		≤ 15	0.136		0.01
Naphthalene	MS	AverageRF	% RSD	12.5		≤ 15	1.40		0.01
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	5.7		≤ 15	0.177		
4-Bromofluorobenzene	SURR	AverageRF	% RSD	9.5		≤ 15	1.04		
Dibromofluoromethane	SURR	AverageRF	% RSD	6.3		≤ 15	0.298		
Toluene-d8	SURR	AverageRF	% RSD	9.5		≤ 15	2.34		

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009
Date Analyzed: 07/27/2009

Second Source Calibration Verification
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL ID: CAL1904
Units: ug/L

File ID: \\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\0727-12.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	50	55	0.420	0.463	10	NA	± 30 %	AverageRF
† Chloromethane	50	51	0.431	0.442	3	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	56	0.488	0.547	12	NA	± 30 %	AverageRF
Bromomethane	50	52	0.297	0.306	3	NA	± 30 %	AverageRF
Chloroethane	50	49	0.308	0.303	-2	NA	± 30 %	AverageRF
Trichlorofluoromethane	50	51	0.680	0.699	3	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	53	0.477	0.508	7	NA	± 30 %	AverageRF
Acetone	250	230	0.0243	0.0227	-6	NA	± 30 %	AverageRF
Iodomethane (Methyl Iodide)	250	260	0.510	0.528	4	NA	± 30 %	AverageRF
Carbon Disulfide	250	260	0.962	1.01	5	NA	± 30 %	AverageRF
Methylene Chloride	50	50	0.357	0.358	0	NA	± 30 %	AverageRF
Methyl tert-Butyl Ether	50	51	0.886	0.896	1	NA	± 30 %	AverageRF
trans-1,2-Dichloroethene	50	54	0.411	0.444	8	NA	± 30 %	AverageRF
† 1,1-Dichloroethane	50	53	0.550	0.580	5	NA	± 30 %	AverageRF
Vinyl Acetate	250	270	0.304	0.325	7	NA	± 30 %	AverageRF
cis-1,2-Dichloroethene	50	53	0.328	0.346	5	NA	± 30 %	AverageRF
2-Butanone (MEK)	250	250	0.127	0.125	-2	NA	± 30 %	AverageRF
Bromochloromethane	50	53	0.200	0.212	6	NA	± 30 %	AverageRF
‡ Chloroform	50	52	0.545	0.567	4	NA	± 30 %	AverageRF
1,1,1-Trichloroethane (TCA)	50	55	0.417	0.459	10	NA	± 30 %	AverageRF
Carbon Tetrachloride	50	55	0.317	0.349	10	NA	± 30 %	AverageRF
Benzene	50	51	1.24	1.26	1	NA	± 30 %	AverageRF
1,2-Dichloroethane (EDC)	50	48	0.412	0.400	-3	NA	± 30 %	AverageRF
Trichloroethene (TCE)	50	52	0.307	0.320	4	NA	± 30 %	AverageRF
‡ 1,2-Dichloropropane	50	52	0.303	0.315	4	NA	± 30 %	AverageRF
Dibromomethane	50	51	0.177	0.180	2	NA	± 30 %	AverageRF
Bromodichloromethane	50	52	0.396	0.416	5	NA	± 30 %	AverageRF
cis-1,3-Dichloropropene	50	58	0.972	1.13	16	NA	± 30 %	AverageRF
4-Methyl-2-pentanone (MIBK)	250	260	0.535	0.557	4	NA	± 30 %	AverageRF
‡ Toluene	50	55	2.92	3.23	10	NA	± 30 %	AverageRF
trans-1,3-Dichloropropene	50	61	0.796	0.966	21	NA	± 30 %	AverageRF
1,1,2-Trichloroethane	50	54	0.559	0.603	8	NA	± 30 %	AverageRF
Tetrachloroethene (PCE)	50	55	0.512	0.565	10	NA	± 30 %	AverageRF
2-Hexanone	250	270	0.347	0.368	6	NA	± 30 %	AverageRF
Dibromochloromethane	50	57	0.629	0.715	14	NA	± 30 %	AverageRF
1,2-Dibromoethane (EDB)	50	56	0.558	0.625	12	NA	± 30 %	AverageRF
† Chlorobenzene	50	54	1.91	2.06	8	NA	± 30 %	AverageRF
1,1,1,2-Tetrachloroethane	50	58	0.593	0.688	16	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	56	2.99	3.33	11	NA	± 30 %	AverageRF
m,p-Xylenes	100	110	1.17	1.29	10	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009
Date Analyzed: 07/27/2009

Second Source Calibration Verification
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL ID: CAL1904
Units: ug/L

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
o-Xylene	50	54	2.54	2.74	8	NA	± 30 %	AverageRF
Styrene	50	56	1.74	1.96	13	NA	± 30 %	AverageRF
† Bromoform	50	53	0.407	0.431	6	NA	± 30 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	52	0.739	0.766	4	NA	± 30 %	AverageRF
1,2,3-Trichloropropane	50	55	0.217	0.237	9	NA	± 30 %	AverageRF
trans-1,4-Dichloro-2-butene	50	44	0.146	0.139	NA	-12	± 30 %	Linear
1,3-Dichlorobenzene	50	51	1.57	1.60	2	NA	± 30 %	AverageRF
1,4-Dichlorobenzene	50	50	1.61	1.62	0	NA	± 30 %	AverageRF
1,2-Dichlorobenzene	50	52	1.51	1.56	3	NA	± 30 %	AverageRF
1,2-Dibromo-3-chloropropane (DBCP	50	50	0.136	0.135	-1	NA	± 30 %	AverageRF
Naphthalene	50	52	1.40	1.45	3	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL Date: 07/27/2009
ICAL ID: CAL1904
Analysis Lot: JWG0902580
Units: ug/L

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0808-49.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	50	39	0.01	0.420	0.328	-22	NA	± 30 %	AverageRF
† Chloromethane	50	48	0.1	0.431	0.414	-4	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	56	0.01	0.488	0.541	11	NA	± 20 %	AverageRF
Bromomethane	50	48	0.01	0.297	0.286	-4	NA	± 30 %	AverageRF
Chloroethane	50	48	0.01	0.308	0.293	-5	NA	± 30 %	AverageRF
Trichlorofluoromethane	50	46	0.01	0.680	0.627	-8	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	51	0.01	0.477	0.483	1	NA	± 20 %	AverageRF
Acetone	250	250	0.01	0.0243	0.0244	1	NA	± 30 %	AverageRF
Iodomethane (Methyl Iodide)	250	220	0.01	0.510	0.455	-11	NA	± 30 %	AverageRF
Carbon Disulfide	250	210	0.01	0.962	0.820	-15	NA	± 30 %	AverageRF
Methylene Chloride	50	50	0.01	0.357	0.355	0	NA	± 30 %	AverageRF
Methyl tert-Butyl Ether	50	52	0.01	0.886	0.925	4	NA	± 30 %	AverageRF
trans-1,2-Dichloroethene	50	52	0.01	0.411	0.431	5	NA	± 30 %	AverageRF
† 1,1-Dichloroethane	50	52	0.1	0.550	0.574	4	NA	± 30 %	AverageRF
Vinyl Acetate	250	380	0.01	0.304	0.459	51 *	NA	± 30 %	AverageRF
cis-1,2-Dichloroethene	50	51	0.01	0.328	0.338	3	NA	± 30 %	AverageRF
2-Butanone (MEK)	250	270	0.01	0.127	0.136	7	NA	± 30 %	AverageRF
Bromochloromethane	50	52	0.01	0.200	0.208	4	NA	± 30 %	AverageRF
‡ Chloroform	50	53	0.01	0.545	0.575	5	NA	± 20 %	AverageRF
1,1,1-Trichloroethane (TCA)	50	52	0.01	0.417	0.437	5	NA	± 30 %	AverageRF
Carbon Tetrachloride	50	52	0.01	0.317	0.330	4	NA	± 30 %	AverageRF
Benzene	50	50	0.01	1.24	1.25	0	NA	± 30 %	AverageRF
1,2-Dichloroethane (EDC)	50	51	0.01	0.412	0.425	3	NA	± 30 %	AverageRF
Trichloroethene (TCE)	50	50	0.01	0.307	0.306	0	NA	± 30 %	AverageRF
‡ 1,2-Dichloropropane	50	52	0.01	0.303	0.314	4	NA	± 20 %	AverageRF
Dibromomethane	50	53	0.01	0.177	0.188	6	NA	± 30 %	AverageRF
Bromodichloromethane	50	53	0.01	0.396	0.424	7	NA	± 30 %	AverageRF
cis-1,3-Dichloropropene	50	53	0.01	0.972	1.02	5	NA	± 30 %	AverageRF
4-Methyl-2-pentanone (MIBK)	250	260	0.01	0.535	0.556	4	NA	± 30 %	AverageRF
‡ Toluene	50	49	0.01	2.92	2.85	-3	NA	± 20 %	AverageRF
trans-1,3-Dichloropropene	50	53	0.01	0.796	0.845	6	NA	± 30 %	AverageRF
1,1,2-Trichloroethane	50	51	0.01	0.559	0.570	2	NA	± 30 %	AverageRF
Tetrachloroethene (PCE)	50	47	0.01	0.512	0.479	-6	NA	± 30 %	AverageRF
2-Hexanone	250	260	0.01	0.347	0.367	6	NA	± 30 %	AverageRF
Dibromochloromethane	50	52	0.01	0.629	0.653	4	NA	± 30 %	AverageRF
1,2-Dibromoethane (EDB)	50	52	0.01	0.558	0.577	3	NA	± 30 %	AverageRF
† Chlorobenzene	50	47	0.3	1.91	1.79	-7	NA	± 30 %	AverageRF
1,1,1,2-Tetrachloroethane	50	51	0.01	0.593	0.604	2	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	49	0.01	2.99	2.94	-1	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL Date: 07/27/2009
ICAL ID: CAL1904
Analysis Lot: JWG0902580
Units: ug/L

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
m,p-Xylenes	100	95	0.01	1.17	1.12	-5	NA	± 30 %	AverageRF
o-Xylene	50	49	0.01	2.54	2.47	-3	NA	± 30 %	AverageRF
Styrene	50	50	0.01	1.74	1.72	-1	NA	± 30 %	AverageRF
† Bromoform	50	48	0.1	0.407	0.391	-4	NA	± 30 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	48	0.3	0.739	0.706	-4	NA	± 30 %	AverageRF
1,2,3-Trichloropropane	50	51	0.01	0.217	0.223	3	NA	± 30 %	AverageRF
trans-1,4-Dichloro-2-butene	50	42	0.01	0.146	0.130	NA	-16	± 30 %	Linear
1,3-Dichlorobenzene	50	48	0.01	1.57	1.53	-3	NA	± 30 %	AverageRF
1,4-Dichlorobenzene	50	47	0.01	1.61	1.53	-5	NA	± 30 %	AverageRF
1,2-Dichlorobenzene	50	50	0.01	1.51	1.52	1	NA	± 30 %	AverageRF
1,2-Dibromo-3-chloropropane (DBCP	50	53	0.01	0.136	0.143	5	NA	± 30 %	AverageRF
Naphthalene	50	57	0.01	1.40	1.59	13	NA	± 30 %	AverageRF
1,2-Dichloroethane-d4	50	48		0.177	0.168	-5	NA	± 30 %	AverageRF
4-Bromofluorobenzene	50	44		1.04	0.917	-12	NA	± 30 %	AverageRF
Dibromofluoromethane	50	46		0.298	0.274	-8	NA	± 30 %	AverageRF
Toluene-d8	50	48		2.34	2.23	-5	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855

Analysis Run Log
Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analysis Lot: JWG0902580
Instrument ID: MS52.i
Column: DB-VRX

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
\0808-48.D	GC/MS Tuning - Bromofluorobenzene	JWG0902580-1	8/8/2009	10:42		8/8/2009	10:42
\0808-49.D	Continuing Calibration Verification	JWG0902580-2	8/8/2009	11:43		8/8/2009	11:43
\0808-50.D	Lab Control Sample	JWG0902579-3	8/8/2009	12:10		8/8/2009	12:10
\0808-52.D	Method Blank	JWG0902579-4	8/8/2009	13:03		8/8/2009	13:03
\0808-53.D	KBA-11-34-AUG-09	J0903855-001	8/8/2009	13:30		8/8/2009	13:30
\0808-54.D	KBA-11-37-AUG-09	J0903855-002	8/8/2009	13:57		8/8/2009	13:57
\0808-55.D	KBA-11-16-AUG-09	J0903855-003	8/8/2009	14:23		8/8/2009	14:23
\0808-56.D	KBA-11-13A-AUG-09	J0903855-004	8/8/2009	14:50		8/8/2009	14:50
\0808-57.D	KBA-11-13A-AUG-09-DUP	J0903855-005	8/8/2009	15:17		8/8/2009	15:17
\0808-58.D	ZZZZZZ	ZZZZZZ	8/8/2009	15:44		8/8/2009	15:44
\0808-59.D	ZZZZZZ	ZZZZZZ	8/8/2009	16:10		8/8/2009	16:10
\0808-60.D	ZZZZZZ	ZZZZZZ	8/8/2009	16:37		8/8/2009	16:37
\0808-61.D	ZZZZZZ	ZZZZZZ	8/8/2009	17:04		8/8/2009	17:04
\0808-62.D	ZZZZZZ	ZZZZZZ	8/8/2009	17:30		8/8/2009	17:30
\0808-63.D	ZZZZZZ	ZZZZZZ	8/8/2009	17:56		8/8/2009	17:56
\0808-64.D	ZZZZZZ	ZZZZZZ	8/8/2009	18:23		8/8/2009	18:23
\0808-65.D	ZZZZZZ	ZZZZZZ	8/8/2009	18:50		8/8/2009	18:50
\0808-66.D	ZZZZZZ	ZZZZZZ	8/8/2009	19:16		8/8/2009	19:16
\0808-67.D	ZZZZZZ	ZZZZZZ	8/8/2009	19:43		8/8/2009	19:43
\0808-68.D	ZZZZZZ	ZZZZZZ	8/8/2009	20:10		8/8/2009	20:10
\0808-69.D	ZZZZZZ	ZZZZZZ	8/8/2009	20:37		8/8/2009	20:37
\0808-70.D	KBA-11-13A-AUG-09MS	JWG0902579-1	8/8/2009	21:03		8/8/2009	21:03
\0808-71.D	KBA-11-13A-AUG-09DMS	JWG0902579-2	8/8/2009	21:30		8/8/2009	21:30

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09
Sample Matrix: Water

Service Request: J0903855
Date Extracted: 08/08/2009

Extraction Prep Log
Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Extraction Lot: JWG0902579
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
KBA-11-34-AUG-09	J0903855-001	08/05/09	08/06/09	5ml	5ml	NA	
KBA-11-37-AUG-09	J0903855-002	08/05/09	08/06/09	5ml	5ml	NA	
KBA-11-16-AUG-09	J0903855-003	08/05/09	08/06/09	5ml	5ml	NA	
KBA-11-13A-AUG-09	J0903855-004	08/05/09	08/06/09	5ml	5ml	NA	
KBA-11-13A-AUG-09-DUP	J0903855-005	08/05/09	08/06/09	5ml	5ml	NA	
Method Blank	JWG0902579-4	NA	NA	5ml	5ml	NA	
KBA-11-13A-AUG-09MS	JWG0902579-1	08/05/09	08/06/09	5ml	5ml	NA	
KBA-11-13A-AUG-09DMS	JWG0902579-2	08/05/09	08/06/09	5ml	5ml	NA	
Lab Control Sample	JWG0902579-3	NA	NA	5ml	5ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Columbia Analytical Services™

Validation Package

9143 Philips Highway, Suite 200
Jacksonville, Florida 32256
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Organic Analysis:
Volatile Organic Compounds by GC/MS

Validation Package

Organic Analysis:
Volatile Organic Compounds by GC/MS

Validation Package

QC Reports

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09
Sample Matrix: Water

Service Request: J0903855

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4
KBA-11-34-AUG-09	J0903855-001	92	85	88	103
KBA-11-37-AUG-09	J0903855-002	97	89	92	103
KBA-11-16-AUG-09	J0903855-003	96	89	92	105
KBA-11-13A-AUG-09	J0903855-004	97	89	92	103
KBA-11-13A-AUG-09-DUP	J0903855-005	95	88	92	100
Method Blank	JWG0902579-4	97	89	92	105
KBA-11-13A-AUG-09MS	JWG0902579-1	99	89	94	101
KBA-11-13A-AUG-09DMS	JWG0902579-2	97	89	96	102
Lab Control Sample	JWG0902579-3	94	87	93	99

Surrogate Recovery Control Limits (%)

Sur1 =	1,2-Dichloroethane-d4	71-122
Sur2 =	4-Bromofluorobenzene	75-120
Sur3 =	Dibromofluoromethane	82-116
Sur4 =	Toluene-d8	88-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009
Time Analyzed: 11:43

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0
Instrument ID: MS52.i
Analysis Method: 8260B

Lab Code: JWG0902580-2
Analysis Lot: JWG0902580
Column : DB-VRX

		1,4-Dichlorobenzene-d4		Chlorobenzene-d5		Fluorobenzene	
		Area	RT	Area	RT	Area	RT
	Results ==>	132,403	11.33	156,009	8.90	352,164	5.55
	Upper Limit ==>	264,806	11.83	312,018	9.40	704,328	6.05
	Lower Limit ==>	66,202	10.83	78,005	8.40	176,082	5.05
	ICAL Result ==>	146,599	11.33	154,420	8.90	372,570	5.55
Associated Analyses							
Lab Control Sample	JWG0902579-3	127,365	11.33	148,790	8.90	347,710	5.54
Method Blank	JWG0902579-4	110,214	11.33	134,507	8.89	324,822	5.55
KBA-11-34-AUG-09	J0903855-001	110,617	11.33	132,174	8.90	327,214	5.55
KBA-11-37-AUG-09	J0903855-002	111,673	11.33	137,048	8.90	323,628	5.55
KBA-11-16-AUG-09	J0903855-003	111,736	11.33	132,676	8.90	327,206	5.55
KBA-11-13A-AUG-09	J0903855-004	112,088	11.33	135,684	8.90	323,223	5.54
KBA-11-13A-AUG-09-DUP	J0903855-005	113,332	11.33	136,678	8.90	323,843	5.54
KBA-11-13A-AUG-09MS	JWG0902579-1	127,902	11.33	145,582	8.90	337,116	5.54
KBA-11-13A-AUG-09DMS	JWG0902579-2	129,254	11.33	146,299	8.90	338,309	5.55

Results flagged with an asterisk (*) indicate values outside control criteria.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

		KBA-11-13A-AUG-09MS JWG0902579-1 Matrix Spike			KBA-11-13A-AUG-09DMS JWG0902579-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	19.1	20.0	96	17.8	20.0	89	67-151	7	30
Chloromethane	ND	19.8	20.0	99	23.7	20.0	119	73-139	18	30
Vinyl Chloride	ND	21.8	20.0	109	23.7	20.0	118	78-141	8	30
Bromomethane	ND	16.3	20.0	82	15.8	20.0	79	78-129	3	30
Chloroethane	ND	22.7	20.0	114	25.5	20.0	127	76-129	12	30
Trichlorofluoromethane	ND	22.0	20.0	110	21.8	20.0	109	81-133	1	30
1,1-Dichloroethene	ND	23.2	20.0	116	22.9	20.0	115	79-133	1	30
Acetone	ND	112	100	112	119	100	119	56-139	6	30
Iodomethane (Methyl Iodide)	ND	93.3	100	93	93.5	100	93	74-134	0	30
Carbon Disulfide	ND	99.4	100	99	97.0	100	97	71-146	2	30
Methylene Chloride	ND	20.5	20.0	102	20.0	20.0	100	75-123	3	30
Methyl tert-Butyl Ether	ND	21.9	20.0	109	22.1	20.0	110	69-126	1	30
trans-1,2-Dichloroethene	ND	23.8	20.0	119	23.7	20.0	119	76-125	0	30
1,1-Dichloroethane	ND	22.2	20.0	111	22.3	20.0	111	78-125	1	30
Vinyl Acetate	ND	123	100	123	133	100	133	43-163	8	30
cis-1,2-Dichloroethene	17	39.6	20.0	114	40.5	20.0	119	75-127	2	30
2-Butanone (MEK)	ND	108	100	108	115	100	115	63-134	6	30
Bromochloromethane	ND	21.0	20.0	105	21.2	20.0	106	80-124	1	30
Chloroform	ND	22.1	20.0	111	22.0	20.0	110	81-124	1	30
1,1,1-Trichloroethane (TCA)	ND	23.1	20.0	115	23.4	20.0	117	76-130	2	30
Carbon Tetrachloride	ND	22.3	20.0	112	22.2	20.0	111	76-131	0	30
Benzene	ND	21.7	20.0	108	21.3	20.0	107	78-123	2	30
1,2-Dichloroethane (EDC)	ND	21.0	20.0	105	23.9	20.0	120	74-126	13	30
Trichloroethene (TCE)	7.9	30.2	20.0	112	30.7	20.0	114	77-128	1	30
1,2-Dichloropropane	ND	21.0	20.0	105	21.4	20.0	107	77-122	2	30
Dibromomethane	ND	21.3	20.0	106	21.7	20.0	108	78-124	2	30
Bromodichloromethane	ND	21.5	20.0	108	21.5	20.0	107	79-125	0	30
cis-1,3-Dichloropropene	ND	18.2	20.0	91	17.9	20.0	90	77-117	1	30
4-Methyl-2-pentanone (MIBK)	ND	112	100	112	115	100	115	65-138	2	30
Toluene	ND	21.1	20.0	106	21.5	20.0	108	86-119	2	30
trans-1,3-Dichloropropene	ND	16.4	20.0	82	16.9	20.0	85	75-120	3	30
1,1,2-Trichloroethane	ND	21.8	20.0	109	20.9	20.0	105	77-124	4	30
Tetrachloroethene (PCE)	9.5	31.9	20.0	112	33.5	20.0	120	79-123	5	30
2-Hexanone	ND	116	100	116	119	100	119	63-142	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

Analyte Name	Sample Result	KBA-11-13A-AUG-09MS JWG0902579-1 Matrix Spike			KBA-11-13A-AUG-09DMS JWG0902579-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Expected	%Rec	Result	Expected	%Rec			
Dibromochloromethane	ND	19.6	20.0	98	19.2	20.0	96	78-124	2	30
1,2-Dibromoethane (EDB)	ND	21.8	20.0	109	21.8	20.0	109	81-119	0	30
Chlorobenzene	0.63	21.0	20.0	102	20.9	20.0	101	81-120	0	30
1,1,1,2-Tetrachloroethane	ND	20.3	20.0	102	20.1	20.0	101	82-118	1	30
Ethylbenzene	0.48	22.1	20.0	108	21.9	20.0	107	87-122	1	30
m,p-Xylenes	ND	40.4	40.0	101	40.1	40.0	100	82-120	1	30
o-Xylene	ND	20.6	20.0	103	20.6	20.0	103	85-119	0	30
Styrene	ND	17.8	20.0	89	17.1	20.0	86	84-126	4	30
Bromoform	ND	15.3	20.0	77	14.9	20.0	74	70-129	3	30
1,1,2,2-Tetrachloroethane	ND	21.3	20.0	107	21.7	20.0	108	72-127	2	30
1,2,3-Trichloropropane	ND	21.4	20.0	107	21.5	20.0	108	76-123	1	30
trans-1,4-Dichloro-2-butene	ND	ND	20.0	0 *	ND	20.0	0 *	22-135		30
1,3-Dichlorobenzene	ND	19.0	20.0	95	19.1	20.0	95	76-114	1	30
1,4-Dichlorobenzene	0.82	20.5	20.0	98	20.2	20.0	97	75-115	2	30
1,2-Dichlorobenzene	ND	20.3	20.0	101	20.3	20.0	101	77-116	0	30
1,2-Dibromo-3-chloropropane (DBCP	ND	19.4	20.0	97	20.6	20.0	103	54-120	6	30
Naphthalene	3.3	27.1	20.0	119	27.6	20.0	122	46-133	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Lab Control Spike Summary
Volatile Organic Compounds by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	JWG0902579

	Lab Control Sample JWG0902579-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	17.7	20.0	88	69-138
Chloromethane	20.9	20.0	105	67-135
Vinyl Chloride	22.5	20.0	112	78-132
Bromomethane	20.0	20.0	100	79-130
Chloroethane	20.4	20.0	102	74-126
Trichlorofluoromethane	20.6	20.0	103	74-134
1,1-Dichloroethene	22.1	20.0	111	78-130
Acetone	108	100	108	67-133
Iodomethane (Methyl Iodide)	93.7	100	94	68-134
Carbon Disulfide	92.2	100	92	76-138
Methylene Chloride	20.4	20.0	102	72-124
Methyl tert-Butyl Ether	21.4	20.0	107	75-129
trans-1,2-Dichloroethene	23.0	20.0	115	77-124
1,1-Dichloroethane	22.1	20.0	110	80-128
Vinyl Acetate	150	100	150 *	61-148
cis-1,2-Dichloroethene	21.5	20.0	108	80-126
2-Butanone (MEK)	108	100	108	73-127
Bromochloromethane	21.4	20.0	107	79-129
Chloroform	21.5	20.0	108	83-124
1,1,1-Trichloroethane (TCA)	22.2	20.0	111	79-124
Carbon Tetrachloride	21.7	20.0	108	81-125
Benzene	21.2	20.0	106	79-119
1,2-Dichloroethane (EDC)	21.1	20.0	106	80-124
Trichloroethene (TCE)	20.9	20.0	105	76-124
1,2-Dichloropropane	21.6	20.0	108	79-123
Dibromomethane	21.5	20.0	107	83-123
Bromodichloromethane	21.2	20.0	106	81-123
cis-1,3-Dichloropropene	21.5	20.0	107	86-123
4-Methyl-2-pentanone (MIBK)	113	100	113	72-136
Toluene	21.6	20.0	108	86-117
trans-1,3-Dichloropropene	21.0	20.0	105	83-124
1,1,2-Trichloroethane	21.6	20.0	108	86-114
Tetrachloroethene (PCE)	21.1	20.0	105	80-121
2-Hexanone	114	100	114	71-138
Dibromochloromethane	20.4	20.0	102	82-121
1,2-Dibromoethane (EDB)	22.0	20.0	110	88-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009

Lab Control Spike Summary
Volatile Organic Compounds by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	JWG0902579

	Lab Control Sample JWG0902579-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Chlorobenzene	20.4	20.0	102	86-113
1,1,1,2-Tetrachloroethane	20.5	20.0	103	85-117
Ethylbenzene	21.6	20.0	108	90-118
m,p-Xylenes	40.6	40.0	101	86-121
o-Xylene	21.0	20.0	105	89-119
Styrene	21.0	20.0	105	89-122
Bromoform	17.5	20.0	87	68-129
1,1,2,2-Tetrachloroethane	20.9	20.0	104	83-120
1,2,3-Trichloropropane	22.2	20.0	111	83-123
trans-1,4-Dichloro-2-butene	20.3	20.0	102	53-143
1,3-Dichlorobenzene	20.6	20.0	103	83-112
1,4-Dichlorobenzene	20.1	20.0	100	83-113
1,2-Dichlorobenzene	21.5	20.0	108	84-115
1,2-Dibromo-3-chloropropane (DBCP	20.8	20.0	104	62-123
Naphthalene	23.6	20.0	118	59-135

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009
		Time Analyzed:	13:03

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**File ID:**	J:\MS52\DATA\MS529H08.B\0808-52.D
Lab Code:	JWG0902579-4	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	JWG0902579-3	J:\MS52\DATA\MS529H08.B\0808-50.D	08/08/09	12:10
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-53.D	08/08/09	13:30
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-54.D	08/08/09	13:57
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-55.D	08/08/09	14:23
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-56.D	08/08/09	14:50
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-57.D	08/08/09	15:17
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-70.D	08/08/09	21:03
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-71.D	08/08/09	21:30

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Extracted:**	08/08/2009
Sample Matrix:	Water	**Date Analyzed:**	08/08/2009
		Time Analyzed:	12:10

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**File ID:**	J:\MS52\DATA\MS529H08.B\0808-50.D
Lab Code:	JWG0902579-3	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0902579

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	JWG0902579-4	J:\MS52\DATA\MS529H08.B\0808-52.D	08/08/09	13:03
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-53.D	08/08/09	13:30
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-54.D	08/08/09	13:57
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-55.D	08/08/09	14:23
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-56.D	08/08/09	14:50
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-57.D	08/08/09	15:17
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-70.D	08/08/09	21:03
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-71.D	08/08/09	21:30

Organic Analysis:
Volatile Organic Compounds by GC/MS

Validation Package

Raw Data

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-34-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	**0.83**	J	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**180**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**0.76**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**4.2**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-34-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**1.3**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	ND	U	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	92	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	85	75-120	08/08/09	Acceptable
Dibromofluoromethane	88	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-37-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**2.9**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-37-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**2.7**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**3.1**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	**0.35**	J	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**0.46**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-16-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	**3.9**	J	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	**0.88**	J	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**1.6**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-16-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.83**	**J**	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**2.8**	**J**	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	96	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	105	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**17**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**7.9**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**9.5**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09	**Units:**	ug/L
Lab Code:	J0903855-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**0.63**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.48**	J	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**0.82**	J	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**3.3**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	103	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09-DUP	**Units:**	ug/L
Lab Code:	J0903855-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**18**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**9.0**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**13**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09-DUP	**Units:**	ug/L
Lab Code:	J0903855-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**0.60**	J	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**0.48**	J	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**0.96**	J	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**3.3**	J	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	95	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	88	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	100	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09
Sample Matrix: Water

Service Request: J0903855
Date Collected: NA
Date Received: NA

Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: JWG0902579-4

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260B

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	ND	U	1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	ND	U	5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	ND	U	20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	ND	U	1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	ND	U	50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	ND	U	10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	ND	U	5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	ND	U	2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	ND	U	1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	ND	U	1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	ND	U	10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	ND	U	10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	ND	U	5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	ND	U	1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	ND	U	5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	ND	U	25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	ND	U	1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	ND	U	1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	ND	U	1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	ND	U	1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	ND	U	25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	JWG0902579-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	ND	U	1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	ND	U	1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	ND	U	2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	ND	U	1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	ND	U	1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	ND	U	2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	ND	U	2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	ND	U	1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	ND	U	1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	ND	U	10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	92	82-116	08/08/09	Acceptable
Toluene-d8	105	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09MS	**Units:**	ug/L
Lab Code:	JWG0902579-1	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	19.1	J	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	19.8		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	21.8		1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	16.3		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	22.7		5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	22.0		20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	23.2		1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	112		50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	93.3		5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	99.4		10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	20.5		5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	21.9		2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	23.8		1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	22.2		1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	123		10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	39.6		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	108		10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	21.0		5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	22.1		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	23.1		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	22.3		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	21.7		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	21.0		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	30.2		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	21.0		1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	21.3		5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	21.5		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	18.2		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	112		25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	21.1		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	16.4		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	21.8		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	31.9		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	116		25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09MS	**Units:**	ug/L
Lab Code:	JWG0902579-1	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	**19.6**		1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	**21.8**		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**21.0**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	**20.3**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**22.1**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	**40.4**		2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	**20.6**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	**17.8**		1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	**15.3**		2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	**21.3**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	**21.4**		2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	**19.0**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**20.5**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	**20.3**		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBC	**19.4**		5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**27.1**		10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	99	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	94	82-116	08/08/09	Acceptable
Toluene-d8	101	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09DMS	**Units:**	ug/L
Lab Code:	JWG0902579-2	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	**17.8**	J	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	**23.7**		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	**23.7**		1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	**15.8**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	**25.5**		5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	**21.8**		20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	**22.9**		1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	**119**		50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	**93.5**		5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	**97.0**		10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	**20.0**		5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	**22.1**		2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	**23.7**		1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	**22.3**		1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	**133**		10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	**40.5**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	**115**		10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	**21.2**		5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	**22.0**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	**23.4**		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	**22.2**		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	**21.3**		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	**23.9**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	**30.7**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	**21.4**		1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	**21.7**		5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	**21.5**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	**17.9**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	**115**		25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	**21.5**		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	**16.9**		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	**20.9**		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	**33.5**		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	**119**		25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	08/05/2009
Sample Matrix:	Water	**Date Received:**	08/06/2009

Volatile Organic Compounds by GC/MS

Sample Name:	KBA-11-13A-AUG-09DMS	**Units:**	ug/L
Lab Code:	JWG0902579-2	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	**19.2**		1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	**21.8**		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**20.9**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	**20.1**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**21.9**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	**40.1**		2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	**20.6**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	**17.1**		1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	**14.9**		2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	**21.7**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	**21.5**		2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	ND	U	20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	**19.1**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**20.2**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	**20.3**		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBC	**20.6**		5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**27.6**		10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	97	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	89	75-120	08/08/09	Acceptable
Dibromofluoromethane	96	82-116	08/08/09	Acceptable
Toluene-d8	102	88-117	08/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Units:**	ug/L
Lab Code:	JWG0902579-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	17.7	J	20	0.23	1	08/08/09	08/08/09	JWG0902579	
Chloromethane	20.9		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
Vinyl Chloride	22.5		1.0	0.25	1	08/08/09	08/08/09	JWG0902579	
Bromomethane	20.0		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroethane	20.4		5.0	0.19	1	08/08/09	08/08/09	JWG0902579	
Trichlorofluoromethane	20.6		20	0.25	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethene	22.1		1.0	0.16	1	08/08/09	08/08/09	JWG0902579	
Acetone	108		50	2.4	1	08/08/09	08/08/09	JWG0902579	
Iodomethane (Methyl Iodide)	93.7		5.0	2.5	1	08/08/09	08/08/09	JWG0902579	
Carbon Disulfide	92.2		10	0.84	1	08/08/09	08/08/09	JWG0902579	
Methylene Chloride	20.4		5.0	0.72	1	08/08/09	08/08/09	JWG0902579	
Methyl tert-Butyl Ether	21.4		2.0	0.072	1	08/08/09	08/08/09	JWG0902579	
trans-1,2-Dichloroethene	23.0		1.0	0.13	1	08/08/09	08/08/09	JWG0902579	
1,1-Dichloroethane	22.1		1.0	0.56	1	08/08/09	08/08/09	JWG0902579	
Vinyl Acetate	150		10	0.60	1	08/08/09	08/08/09	JWG0902579	*
cis-1,2-Dichloroethene	21.5		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
2-Butanone (MEK)	108		10	0.56	1	08/08/09	08/08/09	JWG0902579	
Bromochloromethane	21.4		5.0	0.14	1	08/08/09	08/08/09	JWG0902579	
Chloroform	21.5		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
1,1,1-Trichloroethane (TCA)	22.2		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Carbon Tetrachloride	21.7		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Benzene	21.2		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloroethane (EDC)	21.1		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
Trichloroethene (TCE)	20.9		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichloropropane	21.6		1.0	0.057	1	08/08/09	08/08/09	JWG0902579	
Dibromomethane	21.5		5.0	0.12	1	08/08/09	08/08/09	JWG0902579	
Bromodichloromethane	21.2		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
cis-1,3-Dichloropropene	21.5		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
4-Methyl-2-pentanone (MIBK)	113		25	0.37	1	08/08/09	08/08/09	JWG0902579	
Toluene	21.6		1.0	0.52	1	08/08/09	08/08/09	JWG0902579	
trans-1,3-Dichloropropene	21.0		1.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2-Trichloroethane	21.6		1.0	0.21	1	08/08/09	08/08/09	JWG0902579	
Tetrachloroethene (PCE)	21.1		1.0	0.22	1	08/08/09	08/08/09	JWG0902579	
2-Hexanone	114		25	0.36	1	08/08/09	08/08/09	JWG0902579	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	VT Griffin Services	**Service Request:**	J0903855
Project:	NSB Kings Bay/Site 11 Aug 09	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Units:**	ug/L
Lab Code:	JWG0902579-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dibromochloromethane	**20.4**		1.0	0.11	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromoethane (EDB)	**22.0**		1.0	0.18	1	08/08/09	08/08/09	JWG0902579	
Chlorobenzene	**20.4**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,1,1,2-Tetrachloroethane	**20.5**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Ethylbenzene	**21.6**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
m,p-Xylenes	**40.6**		2.0	0.22	1	08/08/09	08/08/09	JWG0902579	
o-Xylene	**21.0**		1.0	0.10	1	08/08/09	08/08/09	JWG0902579	
Styrene	**21.0**		1.0	0.051	1	08/08/09	08/08/09	JWG0902579	
Bromoform	**17.5**		2.0	0.12	1	08/08/09	08/08/09	JWG0902579	
1,1,2,2-Tetrachloroethane	**20.9**		1.0	0.15	1	08/08/09	08/08/09	JWG0902579	
1,2,3-Trichloropropane	**22.2**		2.0	0.16	1	08/08/09	08/08/09	JWG0902579	
trans-1,4-Dichloro-2-butene	**20.3**		20	1.1	1	08/08/09	08/08/09	JWG0902579	
1,3-Dichlorobenzene	**20.6**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,4-Dichlorobenzene	**20.1**		1.0	0.14	1	08/08/09	08/08/09	JWG0902579	
1,2-Dichlorobenzene	**21.5**		1.0	0.17	1	08/08/09	08/08/09	JWG0902579	
1,2-Dibromo-3-chloropropane (DBC	**20.8**		5.0	0.26	1	08/08/09	08/08/09	JWG0902579	
Naphthalene	**23.6**		10	0.25	1	08/08/09	08/08/09	JWG0902579	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	94	71-122	08/08/09	Acceptable
4-Bromofluorobenzene	87	75-120	08/08/09	Acceptable
Dibromofluoromethane	93	82-116	08/08/09	Acceptable
Toluene-d8	99	88-117	08/08/09	Acceptable

Comments:

Organic Analysis:
Volatile Organic Compounds by GC/MS

Validation Package

Standards Data

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009
Time Analyzed: 10:42

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0808-48.D
Instrument ID: MS52.i
Column:

Analysis Method: 8260B
Analysis Lot: JWG0902580

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.3	2775	PASS
75	95	30	60	54.4	7433	PASS
95	95	100	100	100.0	13662	PASS
96	95	5	9	7.2	983	PASS
173	174	0	2	0.8	115	PASS
174	95	50	120	104.5	14283	PASS
175	174	5	9	6.6	949	PASS
176	174	95	101	98.1	14010	PASS
177	176	5	9	5.3	744	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	JWG0902580-2	J:\MS52\DATA\MS529H08.B\0808-4	08/08/2009	11:43	
Lab Control Sample	JWG0902579-3	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	12:10	
Method Blank	JWG0902579-4	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:03	
KBA-11-34-AUG-09	J0903855-001	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:30	
KBA-11-37-AUG-09	J0903855-002	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	13:57	
KBA-11-16-AUG-09	J0903855-003	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	14:23	
KBA-11-13A-AUG-09	J0903855-004	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	14:50	
KBA-11-13A-AUG-09-DUP	J0903855-005	J:\MS52\DATA\MS529H08.B\0808-5	08/08/2009	15:17	
KBA-11-13A-AUG-09MS	JWG0902579-1	J:\MS52\DATA\MS529H08.B\0808-7	08/08/2009	21:03	
KBA-11-13A-AUG-09DMS	JWG0902579-2	J:\MS52\DATA\MS529H08.B\0808-7	08/08/2009	21:30	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Level ID	File ID	Level ID	File ID
A	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	E	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
B	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	F	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
C	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	G	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072
D	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072	H	\\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\072

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dichlorodifluoromethane				B	2.0	0.344	C	5.0	0.403	D	20	0.480	E	50	0.483
	F	100	0.446	G	150	0.410	H	200	0.371						
† Chloromethane	A	1.0	0.382	B	2.0	0.425	C	5.0	0.423	D	20	0.478	E	50	0.482
	F	100	0.443	G	150	0.426	H	200	0.392						
‡ Vinyl Chloride	A	1.0	0.447	B	2.0	0.442	C	5.0	0.448	D	20	0.530	E	50	0.588
	F	100	0.606	G	150	0.498	H	200	0.340						
Bromomethane	A	1.0	0.249	B	2.0	0.258	C	5.0	0.280	D	20	0.311	E	50	0.323
	F	100	0.323	G	150	0.318	H	200	0.314						
Chloroethane	A	1.0	0.357	B	2.0	0.276	C	5.0	0.297	D	20	0.310	E	50	0.316
	F	100	0.307	G	150	0.304	H	200	0.295						
Trichlorofluoromethane							C	5.0	0.639	D	20	0.714	E	50	0.724
	F	100	0.686	G	150	0.676	H	200	0.642						
‡ 1,1-Dichloroethene	A	1.0	0.431	B	2.0	0.416	C	5.0	0.438	D	20	0.496	E	50	0.503
	F	100	0.502	G	150	0.514	H	200	0.514						
Acetone							C	25	0.0224	D	100	0.0248	E	250	0.0259
	F	500	0.0251	G	750	0.0240	H	1000	0.0234						
Iodomethane (Methyl Iodide)	A	5.0	0.492	B	10	0.490	C	25	0.481	D	100	0.515	E	250	0.530
	F	500	0.523	G	750	0.521	H	1000	0.523						
Carbon Disulfide	A	5.0	0.992	B	10	0.930	C	25	0.937	D	100	1.01	E	250	1.01
	F	500	0.960	G	750	0.940	H	1000	0.913						
Methylene Chloride							C	5.0	0.352	D	20	0.369	E	50	0.363
	F	100	0.353	G	150	0.354	H	200	0.351						
Methyl tert-Butyl Ether	A	1.0	0.826	B	2.0	0.861	C	5.0	0.852	D	20	0.911	E	50	0.920
	F	100	0.904	G	150	0.907	H	200	0.906						
trans-1,2-Dichloroethene	A	1.0	0.371	B	2.0	0.379	C	5.0	0.407	D	20	0.433	E	50	0.437
	F	100	0.424	G	150	0.421	H	200	0.415						
† 1,1-Dichloroethane	A	1.0	0.529	B	2.0	0.519	C	5.0	0.523	D	20	0.579	E	50	0.581
	F	100	0.561	G	150	0.552	H	200	0.553						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Vinyl Acetate	A	5.0	0.255	B	10	0.253	C	25	0.277	D	100	0.320	E	250	0.336
	F	500	0.337	G	750	0.333	H	1000	0.325						
cis-1,2-Dichloroethene	A	1.0	0.298	B	2.0	0.301	C	5.0	0.306	D	20	0.350	E	50	0.349
	F	100	0.342	G	150	0.339	H	200	0.341						
2-Butanone (MEK)	A	5.0	0.126	B	10	0.116	C	25	0.126	D	100	0.133	E	250	0.133
	F	500	0.130	G	750	0.126	H	1000	0.123						
Bromochloromethane	A	1.0	0.170	B	2.0	0.168	C	5.0	0.192	D	20	0.217	E	50	0.217
	F	100	0.211	G	150	0.212	H	200	0.213						
‡ Chloroform	A	1.0	0.519	B	2.0	0.539	C	5.0	0.509	D	20	0.564	E	50	0.566
	F	100	0.554	G	150	0.554	H	200	0.553						
1,1,1-Trichloroethane (TCA)	A	1.0	0.376	B	2.0	0.357	C	5.0	0.384	D	20	0.432	E	50	0.442
	F	100	0.440	G	150	0.451	H	200	0.452						
Carbon Tetrachloride	A	1.0	0.257	B	2.0	0.254	C	5.0	0.262	D	20	0.310	E	50	0.344
	F	100	0.356	G	150	0.371	H	200	0.383						
Benzene	A	1.0	1.24	B	2.0	1.25	C	5.0	1.22	D	20	1.29	E	50	1.28
	F	100	1.23	G	150	1.22	H	200	1.21						
1,2-Dichloroethane (EDC)	A	1.0	0.377	B	2.0	0.356	C	5.0	0.397	D	20	0.458	E	50	0.462
	F	100	0.402	G	150	0.449	H	200	0.400						
Trichloroethene (TCE)	A	1.0	0.287	B	2.0	0.297	C	5.0	0.288	D	20	0.322	E	50	0.321
	F	100	0.312	G	150	0.314	H	200	0.316						
‡ 1,2-Dichloropropane	A	1.0	0.282	B	2.0	0.288	C	5.0	0.288	D	20	0.315	E	50	0.320
	F	100	0.309	G	150	0.310	H	200	0.308						
Dibromomethane	A	1.0	0.158	B	2.0	0.160	C	5.0	0.165	D	20	0.187	E	50	0.188
	F	100	0.184	G	150	0.187	H	200	0.187						
Bromodichloromethane	A	1.0	0.340	B	2.0	0.349	C	5.0	0.362	D	20	0.411	E	50	0.426
	F	100	0.425	G	150	0.428	H	200	0.431						
cis-1,3-Dichloropropene	A	1.0	0.876	B	2.0	0.825	C	5.0	0.871	D	20	1.09	E	50	1.13
	F	100	1.04	G	150	0.989	H	200	0.951						
4-Methyl-2-pentanone (MIBK)	A	5.0	0.550	B	10	0.535	C	25	0.556	D	100	0.632	E	250	0.590
	F	500	0.530	G	750	0.466	H	1000	0.425						
‡ Toluene	A	1.0	3.12	B	2.0	2.96	C	5.0	2.92	D	20	3.33	E	50	3.18
	F	100	2.87	G	150	2.57	H	200	2.43						
trans-1,3-Dichloropropene	A	1.0	0.597	B	2.0	0.608	C	5.0	0.641	D	20	0.882	E	50	0.967
	F	100	0.938	G	150	0.884	H	200	0.854						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,1,2-Trichloroethane	A	1.0	0.501	B	2.0	0.563	C	5.0	0.561	D	20	0.659	E	50	0.623
	F	100	0.565	G	150	0.510	H	200	0.488						
Tetrachloroethene (PCE)	A	1.0	0.529	B	2.0	0.520	C	5.0	0.493	D	20	0.580	E	50	0.552
	F	100	0.505	G	150	0.469	H	200	0.449						
2-Hexanone	A	5.0	0.335	B	10	0.302	C	25	0.351	D	100	0.409	E	250	0.400
	F	500	0.363	G	750	0.318	H	1000	0.295						
Dibromochloromethane	A	1.0	0.503	B	2.0	0.490	C	5.0	0.565	D	20	0.711	E	50	0.728
	F	100	0.711	G	150	0.667	H	200	0.654						
1,2-Dibromoethane (EDB)	A	1.0	0.510	B	2.0	0.481	C	5.0	0.539	D	20	0.647	E	50	0.642
	F	100	0.585	G	150	0.542	H	200	0.517						
† Chlorobenzene	A	1.0	2.08	B	2.0	1.94	C	5.0	1.88	D	20	2.13	E	50	2.05
	F	100	1.85	G	150	1.73	H	200	1.64						
1,1,1,2-Tetrachloroethane	A	1.0	0.483	B	2.0	0.549	C	5.0	0.517	D	20	0.649	E	50	0.673
	F	100	0.650	G	150	0.618	H	200	0.604						
† Ethylbenzene	A	1.0	2.96	B	2.0	2.95	C	5.0	2.93	D	20	3.41	E	50	3.29
	F	100	3.01	G	150	2.76	H	200	2.60						
m,p-Xylenes	A	2.0	1.11	B	4.0	1.09	C	10	1.10	D	40	1.29	E	100	1.28
	F	200	1.23	G	300	1.16	H	400	1.13						
o-Xylene	A	1.0	2.58	B	2.0	2.51	C	5.0	2.48	D	20	2.82	E	50	2.74
	F	100	2.56	G	150	2.37	H	200	2.26						
Styrene	A	1.0	1.57	B	2.0	1.52	C	5.0	1.61	D	20	2.00	E	50	1.96
	F	100	1.86	G	150	1.73	H	200	1.66						
† Bromoform				B	2.0	0.281	C	5.0	0.296	D	20	0.410	E	50	0.450
	F	100	0.476	G	150	0.469	H	200	0.468						
† 1,1,2,2-Tetrachloroethane	A	1.0	0.684	B	2.0	0.714	C	5.0	0.722	D	20	0.852	E	50	0.824
	F	100	0.765	G	150	0.706	H	200	0.641						
1,2,3-Trichloropropane				B	2.0	0.171	C	5.0	0.208	D	20	0.252	E	50	0.246
	F	100	0.228	G	150	0.212	H	200	0.202						
trans-1,4-Dichloro-2-butene							C	5.0	0.0708	D	20	0.123	E	50	0.150
	F	100	0.168	G	150	0.178	H	200	0.184						
1,3-Dichlorobenzene	A	1.0	1.54	B	2.0	1.49	C	5.0	1.55	D	20	1.59	E	50	1.61
	F	100	1.59	G	150	1.57	H	200	1.63						
1,4-Dichlorobenzene	A	1.0	1.67	B	2.0	1.65	C	5.0	1.55	D	20	1.62	E	50	1.61
	F	100	1.59	G	150	1.61	H	200	1.59						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,2-Dichlorobenzene	A	1.0	1.47	B	2.0	1.48	C	5.0	1.45	D	20	1.58	E	50	1.57
	F	100	1.50	G	150	1.52	H	200	1.51						
1,2-Dibromo-3-chloropropane (DBCP							C	5.0	0.0968	D	20	0.135	E	50	0.143
	F	100	0.143	G	150	0.149	H	200	0.148						
Naphthalene							C	5.0	1.06	D	20	1.49	E	50	1.57
	F	100	1.43	G	150	1.46	H	200	1.41						
1,2-Dichloroethane-d4							C	10	0.159	D	20	0.171	E	50	0.181
	F	100	0.182	G	150	0.184	H	200	0.185						
4-Bromofluorobenzene							C	10	0.907	D	20	0.949	E	50	1.01
	F	100	1.06	G	150	1.12	H	200	1.16						
Dibromofluoromethane							C	10	0.265	D	20	0.286	E	50	0.306
	F	100	0.307	G	150	0.310	H	200	0.314						
Toluene-d8							C	10	2.15	D	20	2.59	E	50	2.58
	F	100	2.40	G	150	2.20	H	200	2.09						

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
Dichlorodifluoromethane	MS	AverageRF	% RSD	12.6		≤ 15	0.420		0.01
† Chloromethane	MS	AverageRF	% RSD	8.3		≤ 15	0.431		0.1
‡ Vinyl Chloride	MS	AverageRF	% RSD	17.9	*	≤ 15	0.488		0.01
Bromomethane	MS	AverageRF	% RSD	10.2		≤ 15	0.297		0.01
Chloroethane	MS	AverageRF	% RSD	7.6		≤ 15	0.308		0.01
Trichlorofluoromethane	MS	AverageRF	% RSD	5.2		≤ 15	0.680		0.01
‡ 1,1-Dichloroethene	MS	AverageRF	% RSD	8.6		≤ 15	0.477		0.01
Acetone	MS	AverageRF	% RSD	5.2		≤ 15	0.0243		0.01
Iodomethane (Methyl Iodide)	MS	AverageRF	% RSD	3.7		≤ 15	0.510		0.01
Carbon Disulfide	MS	AverageRF	% RSD	4.0		≤ 15	0.962		0.01
Methylene Chloride	MS	AverageRF	% RSD	2.0		≤ 15	0.357		0.01
Methyl tert-Butyl Ether	MS	AverageRF	% RSD	3.9		≤ 15	0.886		0.01
trans-1,2-Dichloroethene	MS	AverageRF	% RSD	5.9		≤ 15	0.411		0.01
† 1,1-Dichloroethane	MS	AverageRF	% RSD	4.4		≤ 15	0.550		0.1
Vinyl Acetate	MS	AverageRF	% RSD	12.0		≤ 15	0.304		0.01
cis-1,2-Dichloroethene	MS	AverageRF	% RSD	6.8		≤ 15	0.328		0.01
2-Butanone (MEK)	MS	AverageRF	% RSD	4.5		≤ 15	0.127		0.01
Bromochloromethane	MS	AverageRF	% RSD	10.3		≤ 15	0.200		0.01
‡ Chloroform	MS	AverageRF	% RSD	3.8		≤ 15	0.545		0.01
1,1,1-Trichloroethane (TCA)	MS	AverageRF	% RSD	9.1		≤ 15	0.417		0.01
Carbon Tetrachloride	MS	AverageRF	% RSD	16.9	*	≤ 15	0.317		0.01
Benzene	MS	AverageRF	% RSD	2.3		≤ 15	1.24		0.01
1,2-Dichloroethane (EDC)	MS	AverageRF	% RSD	9.5		≤ 15	0.412		0.01
Trichloroethene (TCE)	MS	AverageRF	% RSD	4.7		≤ 15	0.307		0.01
‡ 1,2-Dichloropropane	MS	AverageRF	% RSD	4.7		≤ 15	0.303		0.01
Dibromomethane	MS	AverageRF	% RSD	7.7		≤ 15	0.177		0.01
Bromodichloromethane	MS	AverageRF	% RSD	9.9		≤ 15	0.396		0.01
cis-1,3-Dichloropropene	MS	AverageRF	% RSD	11.5		≤ 15	0.972		0.01
4-Methyl-2-pentanone (MIBK)	MS	AverageRF	% RSD	12.2		≤ 15	0.535		0.01
‡ Toluene	MS	AverageRF	% RSD	10.3		≤ 15	2.92		0.01
trans-1,3-Dichloropropene	MS	AverageRF	% RSD	19.4	*	≤ 15	0.796		0.01
1,1,2-Trichloroethane	MS	AverageRF	% RSD	10.6		≤ 15	0.559		0.01
Tetrachloroethene (PCE)	MS	AverageRF	% RSD	8.4		≤ 15	0.512		0.01
2-Hexanone	MS	AverageRF	% RSD	12.3		≤ 15	0.347		0.01
Dibromochloromethane	MS	AverageRF	% RSD	15.3	*	≤ 15	0.629		0.01
1,2-Dibromoethane (EDB)	MS	AverageRF	% RSD	11.0		≤ 15	0.558		0.01
† Chlorobenzene	MS	AverageRF	% RSD	9.0		≤ 15	1.91		0.3
1,1,1,2-Tetrachloroethane	MS	AverageRF	% RSD	11.7		≤ 15	0.593		0.01
‡ Ethylbenzene	MS	AverageRF	% RSD	8.7		≤ 15	2.99		0.01
m,p-Xylenes	MS	AverageRF	% RSD	7.0		≤ 15	1.17		0.01
o-Xylene	MS	AverageRF	% RSD	7.2		≤ 15	2.54		0.01
Styrene	MS	AverageRF	% RSD	10.5		≤ 15	1.74		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1904
Instrument ID: MS52.i

Column: DB-VRX

		Calibration Evaluation					RRF Evaluation		
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
† Bromoform	MS	AverageRF	% RSD	20.6	*	≤ 15	0.407		0.1
† 1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	9.6		≤ 15	0.739		0.3
1,2,3-Trichloropropane	MS	AverageRF	% RSD	12.7		≤ 15	0.217		0.01
trans-1,4-Dichloro-2-butene	MS	Linear	R2	0.998		≥ 0.99	0.146		0.01
1,3-Dichlorobenzene	MS	AverageRF	% RSD	2.8		≤ 15	1.57		0.01
1,4-Dichlorobenzene	MS	AverageRF	% RSD	2.3		≤ 15	1.61		0.01
1,2-Dichlorobenzene	MS	AverageRF	% RSD	3.1		≤ 15	1.51		0.01
1,2-Dibromo-3-chloropropane (DBCP)	MS	AverageRF	% RSD	14.6		≤ 15	0.136		0.01
Naphthalene	MS	AverageRF	% RSD	12.5		≤ 15	1.40		0.01
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	5.7		≤ 15	0.177		
4-Bromofluorobenzene	SURR	AverageRF	% RSD	9.5		≤ 15	1.04		
Dibromofluoromethane	SURR	AverageRF	% RSD	6.3		≤ 15	0.298		
Toluene-d8	SURR	AverageRF	% RSD	9.5		≤ 15	2.34		

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009
Date Analyzed: 07/27/2009

Second Source Calibration Verification
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL ID: CAL1904
Units: ug/L

File ID: \\Jacksonville1\ACQUDATA\MS52\DATA\MS529G27.B\0727-12.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	50	55	0.420	0.463	10	NA	± 30 %	AverageRF
† Chloromethane	50	51	0.431	0.442	3	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	56	0.488	0.547	12	NA	± 30 %	AverageRF
Bromomethane	50	52	0.297	0.306	3	NA	± 30 %	AverageRF
Chloroethane	50	49	0.308	0.303	-2	NA	± 30 %	AverageRF
Trichlorofluoromethane	50	51	0.680	0.699	3	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	53	0.477	0.508	7	NA	± 30 %	AverageRF
Acetone	250	230	0.0243	0.0227	-6	NA	± 30 %	AverageRF
Iodomethane (Methyl Iodide)	250	260	0.510	0.528	4	NA	± 30 %	AverageRF
Carbon Disulfide	250	260	0.962	1.01	5	NA	± 30 %	AverageRF
Methylene Chloride	50	50	0.357	0.358	0	NA	± 30 %	AverageRF
Methyl tert-Butyl Ether	50	51	0.886	0.896	1	NA	± 30 %	AverageRF
trans-1,2-Dichloroethene	50	54	0.411	0.444	8	NA	± 30 %	AverageRF
† 1,1-Dichloroethane	50	53	0.550	0.580	5	NA	± 30 %	AverageRF
Vinyl Acetate	250	270	0.304	0.325	7	NA	± 30 %	AverageRF
cis-1,2-Dichloroethene	50	53	0.328	0.346	5	NA	± 30 %	AverageRF
2-Butanone (MEK)	250	250	0.127	0.125	-2	NA	± 30 %	AverageRF
Bromochloromethane	50	53	0.200	0.212	6	NA	± 30 %	AverageRF
‡ Chloroform	50	52	0.545	0.567	4	NA	± 30 %	AverageRF
1,1,1-Trichloroethane (TCA)	50	55	0.417	0.459	10	NA	± 30 %	AverageRF
Carbon Tetrachloride	50	55	0.317	0.349	10	NA	± 30 %	AverageRF
Benzene	50	51	1.24	1.26	1	NA	± 30 %	AverageRF
1,2-Dichloroethane (EDC)	50	48	0.412	0.400	-3	NA	± 30 %	AverageRF
Trichloroethene (TCE)	50	52	0.307	0.320	4	NA	± 30 %	AverageRF
‡ 1,2-Dichloropropane	50	52	0.303	0.315	4	NA	± 30 %	AverageRF
Dibromomethane	50	51	0.177	0.180	2	NA	± 30 %	AverageRF
Bromodichloromethane	50	52	0.396	0.416	5	NA	± 30 %	AverageRF
cis-1,3-Dichloropropene	50	58	0.972	1.13	16	NA	± 30 %	AverageRF
4-Methyl-2-pentanone (MIBK)	250	260	0.535	0.557	4	NA	± 30 %	AverageRF
‡ Toluene	50	55	2.92	3.23	10	NA	± 30 %	AverageRF
trans-1,3-Dichloropropene	50	61	0.796	0.966	21	NA	± 30 %	AverageRF
1,1,2-Trichloroethane	50	54	0.559	0.603	8	NA	± 30 %	AverageRF
Tetrachloroethene (PCE)	50	55	0.512	0.565	10	NA	± 30 %	AverageRF
2-Hexanone	250	270	0.347	0.368	6	NA	± 30 %	AverageRF
Dibromochloromethane	50	57	0.629	0.715	14	NA	± 30 %	AverageRF
1,2-Dibromoethane (EDB)	50	56	0.558	0.625	12	NA	± 30 %	AverageRF
† Chlorobenzene	50	54	1.91	2.06	8	NA	± 30 %	AverageRF
1,1,1,2-Tetrachloroethane	50	58	0.593	0.688	16	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	56	2.99	3.33	11	NA	± 30 %	AverageRF
m,p-Xylenes	100	110	1.17	1.29	10	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
ICAL Date: 07/27/2009
Date Analyzed: 07/27/2009

Second Source Calibration Verification
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL ID: CAL1904
Units: ug/L

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
o-Xylene	50	54	2.54	2.74	8	NA	± 30 %	AverageRF
Styrene	50	56	1.74	1.96	13	NA	± 30 %	AverageRF
† Bromoform	50	53	0.407	0.431	6	NA	± 30 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	52	0.739	0.766	4	NA	± 30 %	AverageRF
1,2,3-Trichloropropane	50	55	0.217	0.237	9	NA	± 30 %	AverageRF
trans-1,4-Dichloro-2-butene	50	44	0.146	0.139	NA	-12	± 30 %	Linear
1,3-Dichlorobenzene	50	51	1.57	1.60	2	NA	± 30 %	AverageRF
1,4-Dichlorobenzene	50	50	1.61	1.62	0	NA	± 30 %	AverageRF
1,2-Dichlorobenzene	50	52	1.51	1.56	3	NA	± 30 %	AverageRF
1,2-Dibromo-3-chloropropane (DBCP	50	50	0.136	0.135	-1	NA	± 30 %	AverageRF
Naphthalene	50	52	1.40	1.45	3	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL Date: 07/27/2009
ICAL ID: CAL1904
Analysis Lot: JWG0902580
Units: ug/L

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS529H08.B\0808-49.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	50	39	0.01	0.420	0.328	-22	NA	± 30 %	AverageRF
† Chloromethane	50	48	0.1	0.431	0.414	-4	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	56	0.01	0.488	0.541	11	NA	± 20 %	AverageRF
Bromomethane	50	48	0.01	0.297	0.286	-4	NA	± 30 %	AverageRF
Chloroethane	50	48	0.01	0.308	0.293	-5	NA	± 30 %	AverageRF
Trichlorofluoromethane	50	46	0.01	0.680	0.627	-8	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	51	0.01	0.477	0.483	1	NA	± 20 %	AverageRF
Acetone	250	250	0.01	0.0243	0.0244	1	NA	± 30 %	AverageRF
Iodomethane (Methyl Iodide)	250	220	0.01	0.510	0.455	-11	NA	± 30 %	AverageRF
Carbon Disulfide	250	210	0.01	0.962	0.820	-15	NA	± 30 %	AverageRF
Methylene Chloride	50	50	0.01	0.357	0.355	0	NA	± 30 %	AverageRF
Methyl tert-Butyl Ether	50	52	0.01	0.886	0.925	4	NA	± 30 %	AverageRF
trans-1,2-Dichloroethene	50	52	0.01	0.411	0.431	5	NA	± 30 %	AverageRF
1,1-Dichloroethane	50	52	0.1	0.550	0.574	4	NA	± 30 %	AverageRF
Vinyl Acetate	250	380	0.01	0.304	0.459	51 *	NA	± 30 %	AverageRF
cis-1,2-Dichloroethene	50	51	0.01	0.328	0.338	3	NA	± 30 %	AverageRF
2-Butanone (MEK)	250	270	0.01	0.127	0.136	7	NA	± 30 %	AverageRF
Bromochloromethane	50	52	0.01	0.200	0.208	4	NA	± 30 %	AverageRF
‡ Chloroform	50	53	0.01	0.545	0.575	5	NA	± 20 %	AverageRF
1,1,1-Trichloroethane (TCA)	50	52	0.01	0.417	0.437	5	NA	± 30 %	AverageRF
Carbon Tetrachloride	50	52	0.01	0.317	0.330	4	NA	± 30 %	AverageRF
Benzene	50	50	0.01	1.24	1.25	0	NA	± 30 %	AverageRF
1,2-Dichloroethane (EDC)	50	51	0.01	0.412	0.425	3	NA	± 30 %	AverageRF
Trichloroethene (TCE)	50	50	0.01	0.307	0.306	0	NA	± 30 %	AverageRF
‡ 1,2-Dichloropropane	50	52	0.01	0.303	0.314	4	NA	± 20 %	AverageRF
Dibromomethane	50	53	0.01	0.177	0.188	6	NA	± 30 %	AverageRF
Bromodichloromethane	50	53	0.01	0.396	0.424	7	NA	± 30 %	AverageRF
cis-1,3-Dichloropropene	50	53	0.01	0.972	1.02	5	NA	± 30 %	AverageRF
4-Methyl-2-pentanone (MIBK)	250	260	0.01	0.535	0.556	4	NA	± 30 %	AverageRF
‡ Toluene	50	49	0.01	2.92	2.85	-3	NA	± 20 %	AverageRF
trans-1,3-Dichloropropene	50	53	0.01	0.796	0.845	6	NA	± 30 %	AverageRF
1,1,2-Trichloroethane	50	51	0.01	0.559	0.570	2	NA	± 30 %	AverageRF
Tetrachloroethene (PCE)	50	47	0.01	0.512	0.479	-6	NA	± 30 %	AverageRF
2-Hexanone	250	260	0.01	0.347	0.367	6	NA	± 30 %	AverageRF
Dibromochloromethane	50	52	0.01	0.629	0.653	4	NA	± 30 %	AverageRF
1,2-Dibromoethane (EDB)	50	52	0.01	0.558	0.577	3	NA	± 30 %	AverageRF
† Chlorobenzene	50	47	0.3	1.91	1.79	-7	NA	± 30 %	AverageRF
1,1,1,2-Tetrachloroethane	50	51	0.01	0.593	0.604	2	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	49	0.01	2.99	2.94	-1	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound ‡ CCC Compound

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: VT Griffin Services
Project: NSB Kings Bay/Site 11 Aug 09

Service Request: J0903855
Date Analyzed: 08/08/2009

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL Date: 07/27/2009
ICAL ID: CAL1904
Analysis Lot: JWG0902580
Units: ug/L

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
m,p-Xylenes	100	95	0.01	1.17	1.12	-5	NA	± 30 %	AverageRF
o-Xylene	50	49	0.01	2.54	2.47	-3	NA	± 30 %	AverageRF
Styrene	50	50	0.01	1.74	1.72	-1	NA	± 30 %	AverageRF
† Bromoform	50	48	0.1	0.407	0.391	-4	NA	± 30 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	48	0.3	0.739	0.706	-4	NA	± 30 %	AverageRF
1,2,3-Trichloropropane	50	51	0.01	0.217	0.223	3	NA	± 30 %	AverageRF
trans-1,4-Dichloro-2-butene	50	42	0.01	0.146	0.130	NA	-16	± 30 %	Linear
1,3-Dichlorobenzene	50	48	0.01	1.57	1.53	-3	NA	± 30 %	AverageRF
1,4-Dichlorobenzene	50	47	0.01	1.61	1.53	-5	NA	± 30 %	AverageRF
1,2-Dichlorobenzene	50	50	0.01	1.51	1.52	1	NA	± 30 %	AverageRF
1,2-Dibromo-3-chloropropane (DBCP	50	53	0.01	0.136	0.143	5	NA	± 30 %	AverageRF
Naphthalene	50	57	0.01	1.40	1.59	13	NA	± 30 %	AverageRF
1,2-Dichloroethane-d4	50	48		0.177	0.168	-5	NA	± 30 %	AverageRF
4-Bromofluorobenzene	50	44		1.04	0.917	-12	NA	± 30 %	AverageRF
Dibromofluoromethane	50	46		0.298	0.274	-8	NA	± 30 %	AverageRF
Toluene-d8	50	48		2.34	2.23	-5	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Organic Analysis:
Volatile Organic Compounds by GC/MS

Validation Package

Sample Prep and Screen Data

Preparation Information

Group ID:	JWG0902579	**Prep Method:**	EPA 5030B	**Prep Date:**	08/08/09 10:42
Department:	VolatileOrganic				

Lab Code	Client ID	Product	Matrix	Amt. Ext.	Final Vol.
J0903855-001	KBA-11-34-AUG-09	8260B	WATER	5ml	5ml
J0903855-002	KBA-11-37-AUG-09	8260B	WATER	5ml	5ml
J0903855-003	KBA-11-16-AUG-09	8260B	WATER	5ml	5ml
J0903855-004	KBA-11-13A-AUG-09	8260B	WATER	5ml	5ml
J0903855-005	KBA-11-13A-AUG-09-DUP	8260B	WATER	5ml	5ml
J0903866-001	TW-16B	8260B	WATER	5ml	5ml
J0903866-002	TW-16C	8260B	WATER	5ml	5ml
J0903866-003	TW-17B	8260B	WATER	5ml	5ml
J0903866-004	TW-17C	8260B	WATER	5ml	5ml
J0903866-005	TW-18B	8260B	WATER	5ml	5ml
J0903866-006	TW-18C	8260B	WATER	5ml	5ml
J0903866-007	Trip Blank	8260B	WATER	5ml	5ml
J0903877-001	LCMY MW-1	8260B	WATER	5ml	5ml
J0903877-002	LCMY DW-2	8260B	WATER	5ml	5ml
J0903884-001	GW1	8260B	WATER	5ml	5ml
J0903884-002	GW2	8260B	WATER	5ml	5ml
J0903884-003	Trip Blank	8260B	WATER	5ml	5ml
JWG0902579-1	Matrix Spike	8260B	WATER	5ml	5ml
JWG0902579-2	Duplicate Matrix Spike	8260B	WATER	5ml	5ml
JWG0902579-3	Lab Control Sample	8260B	WATER	5ml	5ml
JWG0902579-4	Method Blank	8260B	WATER	5ml	5ml

Lab Code	Parent Lab Code	Comments
JWG0902579-1	J0903855-004	
JWG0902579-2	J0903855-004	

Lab Code	Prep Event ID	Surrogate Solution ID	Amount Added	Spike Solution ID	Amount Added	Witness
J0903855-001	198323	09-VOA-0454	1uL			
J0903855-002	198324	09-VOA-0454	1uL			
J0903855-003	198325	09-VOA-0454	1uL			
J0903855-004	198326	09-VOA-0454	1uL			
J0903855-005	198327	09-VOA-0454	1uL			
J0903866-001	198328	09-VOA-0454	1uL			
J0903866-002	198329	09-VOA-0454	1uL			
J0903866-003	198330	09-VOA-0454	1uL			
J0903866-004	198331	09-VOA-0454	1uL			

Comments:

				Training	
Started By:	SAllen	Assisted By:		Yes	No
Completed By:	SAllen	Assisted By:		Yes	No
Reviewed By:		Date:		Storage:	

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Group ID:	JWG0902579	**Prep Method:**	EPA 5030B	**Prep Date:**	08/08/09 10:42
Department:	VolatileOrganic				

Lab Code	Prep Event ID	Surrogate Solution ID	Amount Added	Spike Solution ID	Amount Added	Witness
J0903866-005	198332	09-VOA-0454	1uL			
J0903866-006	198333	09-VOA-0454	1uL			
J0903866-007	198334	09-VOA-0454	1uL			
J0903877-001	198335	09-VOA-0454	1uL			
J0903877-002	198336	09-VOA-0454	1uL			
J0903884-001	198337	09-VOA-0454	1uL			
J0903884-002	198338	09-VOA-0454	1uL			
J0903884-003	198339	09-VOA-0454	1uL			
JWG0902579-1	198340	09-VOA-0454	1uL	09-VOA-0476/045	8.6uL	
JWG0902579-2	198341	09-VOA-0454	1uL	09-VOA-0476/045	8.6uL	
JWG0902579-3	198342	09-VOA-0454	1uL	09-VOA-0476/045	20uL	
JWG0902579-4	198343	09-VOA-0454	1uL			

Comments:

Started By: SAllen Assisted By: Training Yes No

Completed By: SAllen Assisted By: Yes No

Reviewed By: Date: Storage:

Chain of Custody

Relinquished By: Date: Extracts Examined

Received By: Date: Yes No

FINAL

Monitoring the Efficiency of Natural Attenuation at the Old Camden County Landfill, Kings Bay Naval Submarine Base, Georgia, 2009

Francis H. Chapelle

U.S. Geological Survey Administrative Report
Water Resources Division
Columbia, SC

Prepared for:

Commanding Officer
Naval Facilities Engineering Command Southeast
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October, 2009

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EXECUTIVE SUMMARY

Monitoring data collected over a ten-year period demonstrate that a plume of chlorinated ethene-contaminated ground water has contracted significantly following treatment of the contaminant source area using in-situ chemical oxidation (ISCO) and vegetable-oil injection. Prior to ISCO treatment, concentrations of perchloroethene (PCE) exceeded 4,500 micrograms per liter (µg/L) in a contaminant source area associated with an abandoned municipal landfill in Kings Bay, Georgia. The plume emanating from this source area was characterized by vinyl chloride (VC) concentrations exceeding 800 µg/L. In-situ oxidation using Fenton's Reagent beginning early in1999 lowered PCE concentrations in the source area below 100 µg/L, and PCE concentrations have not rebounded above this level since treatment. In the ten years following treatment, VC concentrations in the plume have decreased significantly. These concentration declines can be attributed to the movement of Fenton's Reagent-treated water downgradient through the system and the significant natural attenuation capacity of this naturally anoxic aquifer. The Fenton's-treated water arrived at the first line of USGS monitoring wells at the time of the first ISCO treatment (1999), leading to an immediate and sharp decrease in contaminant concentrations. The Fenton's-treated water arrived at the second line of monitoring wells in 2000, again leading to rapid lowering of trichloriethene (TCE), cis-dichloroethene (DCE), and VC concentrations. The Fenton's-treated water arrived at the third line of monitoring wells in early 2004, coinciding with a more gradual decreases in contaminant concentrations. The results of this study suggest that source-area removal actions, particularly when applied to ground-water systems that have a significant natural attenuation capacity, can be effective in decreasing the areal extent and contaminant concentrations of chlorinated ethene plumes.

INTRODUCTION

A combination of source-area removal by Fenton's Reagent in-situ chemical oxidation (ISCO), vegetable oil injection, and natural attenuation has been selected by the Southern Division NAVFACENGCOM and by the Georgia Department of Environmental Protection as corrective actions for chlorinated ethene-contaminated ground water at the Old Camden County Landfill, Naval Submarine Base, Kings Bay, Georgia. A comprehensive sampling and analysis program is being conducted by the U.S. Geological Survey to assess the effectiveness of this remedial strategy for remediating chlorinated ethene contamination in ground water. This report summarizes the results of the tenth year (February, 2009 to September, 2009) of natural attenuation monitoring at this site.

METHODS AND MATERIALS

Geology, hydrology, and site history

The site is an abandoned landfill, known as the Old Camden County Landfill, located at the Naval Submarine Base (NSB) Kings Bay, Georgia. A map of the site showing the location of the former contaminant source area and the locations of monitoring wells is shown in Figure 1. This site is underlain by sediments of back-barrier and barrier-island origin. The most permeable sands underlying the site are between the depths of 10 and 13 meters below land surface, and record sedimentation of a prograding barrier island. This permeable zone is underlain and overlain by finer-grained sands, clays, and organic-rich sediments of back-barrier origin that exhibit lower hydraulic conductivity. Aquifer tests and slug tests at this site indicate that hydraulic conductivities of the permeable sands range from 0.6 to 10 m/d. The lithology of these sands suggest that the permeable aquifer is characterized by higher hydraulic conductivities (K~10 m/d) relative to overlying and underlying sediments. Because of its relative permeability, this sand aquifer is a preferential pathway for horizontal ground-water flow in this system and characterized by ground-water velocities in the range of 25 to 30 m/y. The organic-rich back barrier sediments overlying the aquifer has the important effect of removing dissolved oxygen from recharge water and producing uniformly anoxic conditions in the permeable zone.

The Old Camden County landfill was used to dispose of municipal waste between 1974 and 1981. Trenches were excavated to a depth of between 2 and 3 meters, filled with waste, and covered with fill. At some time during waste-disposal operations, PCE was released at the landfill. The areal distribution of the PCE source area was previously identified by direct-push sampling of ground water and aquifer sediments (Chapelle and Bradley, 1998). Prior to 1998, a discrete plume of chlorinated ethene-contaminated ground water was detected by direct push

methods (ABB Environmental Services, Inc., 1997) and documented to flow from the source area toward the northwest.

Water Chemistry Sampling

Ground-water samples for quantifying chlorinated ethenes and redox-sensitive parameters needed to assess the effectiveness of natural attenuation were collected quarterly between 1998 and 2009 from a network of plume monitoring wells (Fig. 1). These small-diameter (2.52 cm) monitoring wells were screened between 10 and 12 meters below land surface in the contaminant-bearing high-permeablility zone. During sampling, three well volumes was purged with a peristaltic pump from each well. The well was then sampled when stable measurements of water temperature, conductivity, pH, and turbidity were obtained. Samples for analysis of chlorinated ethenes (EPA method 8260B) were collected in 40-ml glass vials, preserved with HCl, and capped with Teflon-lined septa for transport to the laboratory. Dissolved hydrogen (H_2) concentrations were measured using the gas-stripping procedure described in Chapelle et al. (1997). Concentrations of dissolved Fe(II) and sulfide (Hach Co., 1989), as well as dissolved oxygen (Chemetrics Inc.) were measured in the field using colorimetric methods. Sulfate and chloride concentrations were measured using anion exchange chromatography with conductivity detection (Dionex Inc.). Samples for the analysis of methane and dissolved inorganic carbon (DIC; the sum of dissolved carbon dioxide, bicarbonate, and carbonate species) were collected by filtering 2 mls of ground water (0.2 μm filters) into sealed 10 ml serum vials. In the laboratory, the water was acidified to pH~1 (converting all DIC species to carbon dioxide), and then carbon dioxide and methane in the headspace of the vial was measured using gas chromatography with thermal conductivity detection. The amount of DIC and methane in ground water was then estimated from the measured headspace concentrations by

using the Henry's law coefficient for the partitioning of methane and carbon dioxide between the gaseous and dissolved phases. Determination of predominant terminal electron-accepting processes was based on consumption of electron acceptors such as dissolved oxygen and sulfate, production of final products such as ferrous iron, sulfide, and methane, and concentrations of the intermediate product hydrogen (Chapelle et al. 1995).

Results and Discussion

Monitoring Well Results

The locations of the USGS monitoring wells relative to the location of the contaminant source area as it existed prior to ISCO treatment are shown in Figure 1. Ground-water chemistry parameters that indicate the efficiency of chlorinated ethene natural attenuation are shown in Tables 1-4, and data showing concentrations of chlorinated ethenes are shown in Tables 5-8. The following discussion highlights observed trends in concentrations of contaminants and effectiveness of natural attenuation at the site.

Concentrations of vinyl chloride (VC) in the plume as measured in August of 1998, prior to source area treatment by Fenton's Reagent, are shown on Figure 2. At that time, concentrations of VC in the plume exceeded 800 µg/L (well USGS-6), and were also high (683 µg/L) in the plume adjacent to the neighborhood (well USGS-10). In contrast, plume concentrations of VC in September of 2009, are shown on Figure 3 and are much lower. Concentrations of VC in water produced from well USGS-10 in September 2009 had decreased to 19 µg/L. The highest VC concentrations observed (41 µg/L) were observed in water produced from well USGS-4. These results indicate a decrease in VC concentrations of more than an order of magnitude since 1998. These results also demonstrate that the size of the plume has contracted significantly since treatment, and that concentrations of contaminants in the remaining plume have decreased significantly.

A more detailed evaluation of chlorinated ethene concentration changes in the plume after Fenton's Reagent treatment can be made by considering water-chemistry trends at individual monitoring wells. Concentration changes of sulfate and chlorinated ethenes over time measured at well USGS-3, which is representative of the monitoring wells closest to the Fenton's

injection zone (Fig. 1), are shown in Figure 4. Because sulfate is a component of Fenton's Reagent, and because background concentrations of sulfate are relatively low at this site (0-10 mg/L), sulfate is a useful tracer for ground water that has been impacted by Fenton's-based ISCO treatment. After ISCO treatment, concentrations of sulfate were observed to increase steadily for two years (Fig. 4A), and then, beginning in early 2001, to decline. This indicates that a "pulse" of high-sulfate water, indicative of Fenton's Reagent treatment, moved through the first line of monitoring wells soon after treatment. Concurrent with increasing concentrations of sulfate, concentrations of VC (Fig. 4A), trichloroethene (TCE), and cis-dichloroethene (cis-DCE) were observed to decline below measurable levels (Fig. 4B). These data demonstrate that Fenton's Reagent treatment was effective in removing chlorinated ethenes from ground water, and that treated ground water moving downgradient from the treatment zone immediately began to shrink the plume (Fig. 3).

Concentrations of sulfate and chlorinated ethenes at well KBA-13A, which is approximately 25 meters downgradient of the first line of monitoring wells, shows a pattern consistent with the transport of Fenton's Reagent-treated water progressively moving through the flow system over time. For about one year, sulfate concentrations remained at background levels (~ 1 mg/L), and while concentrations of VC apparently decreased, they remained in the 20-60 μg/L range. In early 2000, sulfate concentrations began to rise rapidly, indicating the arrival of Fenton's Reagent-treated ground water. When sulfate concentrations peaked in mid-2001, concentrations of VC had decreased below detectable levels (Fig. 5A). Concentration trends of TCE and cis-DCE show a more complex pattern (Fig. 5B). When sulfate-bearing water arrived at KBA-13A, concentrations of TCE appeared to increase over pre-injection levels. It wasn't until late in 2001 when concentrations of TCE began to decrease significantly. The pattern

exhibited by cis-DCE is similar to that of VC, showing continual concentration decreases after the arrival of sulfate.

The second line of monitoring wells, located immediately downgradient of KBA-13A, also shows a time-dependent pattern of sulfate and chlorinated ethene concentration changes. At well USGS-5, concentrations of sulfate began increasing in early 2002 (Fig. 6), peaked in late 2003, and have trended downward since that time. Concentrations of TCE were never measurable in water produced from USGS-5 due to the relatively efficient reductive dechlorination characteristic of this site (Chapelle and Bradley, 1998). However, concentrations of cis-DCE, which declined in the same manner as VC concentrations prior to arrival of treated water, actually began to increase when treated water first reached well USGS-5 (Fig. 6). The concentrations of cis-DCE in USGS-5 have subsequently declined.

Sulfate concentrations have not increased at well USGS-4 (Fig. 6) indicating that the Fenton's-treated ground water is presently passing to the south of that well. In the absence of the arrival of Fenton's-treated ground water, concentrations of cis-DCE began increasing in the year 2000, peaked in late 2005, and have subsequently decreased. This indicates that the Fenton's injection may have pushed untreated chlorinated ethene-contaminated water slightly to the north near the zone of injection, and that this untreated high cis-DCE water moved through well USGS-4 in a pulse (Fig. 6). If that interpretation is correct, then a trend of decreasing cis-DCE concentrations should be observed as the untreated water moves through well USGS-4 over time. Consistent with this interpretation, concentrations of cis-DCE have been decreasing since 2004. Concentration trends at well USGS-4 will be closely monitored over the next year, and duplicate samples will be taken at each sampling event to document this continuing downward trend in cis-DCE concentrations.

Concentration changes of chlorinated ethenes in the third line of monitoring wells are shown in Figure 7, and show a slightly different pattern. Well USGS-9 shows a trend of steadily decreasing VC and cis-DCE concentrations, a trend observed in six of the seven downgradient monitoring wells. By September of 2009, concentrations of VC have decreased below the detection level at wells USGS-9, USGS-13, and USGS-14. In addition, concentrations of cis-DCE have also decreased over time. The sole exception is well USGS-11 (Fig. 7), where concentrations of VC and cis-DCE increased sharply in late 2000. These trends probably reflect the cessation of the pump-and-treat system in mid 1998. Because an extraction well was located near well USGS-9, it is likely that the plume was pulled toward well USGS-9 and away from well USGS-11. When pumping ceased, the plume shifted to the south towards well USGS-11 and away from well USGS-9. Since 2000, however, there has been a consistent downward trend in chlorinated ethene concentrations in USGS-11 (Fig. 7).

Monitoring data collected in 2009 confirm that the plume of Fenton's reagent-treated water has reached the third line of monitoring wells. Concentrations of sulfate began to rise above background levels (5-10 mg/L) in 2004. By late 2006, sulfate concentrations had risen to approximately 40 mg/L, a trend confirmed by the 2009 monitoring data (Fig. 8). Concomitant with the initial increase in sulfate concentrations (2004), concentrations of both VC and cis-DCE decreased steeply. However, while concentrations of cis-DCE have continued to trend downward, more variability in VC concentrations over time has been observed (Fig. 8). Monitoring data collected in 2009 show a consistent trend of declining VC concentrations at well USGS-8 (Fig. 8), and VC concentrations are nearing the MCL (2 µg/L).

Redox Processes

Ground-water chemistry data suggest that the injection of Fenton's Reagent has modified

ambient redox processes at the site. Prior to Fenton's Reagent treatment, the source area was predominantly sulfate-reducing as indicated by the depletion of dissolved sulfate and hydrogen concentrations in the 2-4 nM range characteristic of sulfate reduction. Downgradient of the sulfate-reducing source area, the system was predominantly Fe(III) reducing (Chapelle and Bradley, 1998). Following Fenton's treatment, concentrations of dissolved oxygen at well KBA-11-34 increased from below detectable levels (0.05 mg/L) to above 7 mg/L. Within three months, however, ground water at KBA-11-34 was once again anoxic. However, hydrogen concentrations have remained in the 0.2-0.8 nM range characteristic of Fe(III) reduction. As Fenton's-treated water has moved downgradient through the location of KBA-13A, concentrations of dissolved oxygen remained below detection levels (Fig. 9A), concentrations of ferrous iron and sulfate increased rapidly (Fig. 9B), and concentrations of dissolved sulfide and methane have decreased (Fig. 9C). Prior to the arrival of Fenton's treated water, hydrogen concentrations at KBA-11-13A varied seasonally between levels characteristic of sulfate reduction (1-4 nM) and levels characteristic of Fe(III) reduction (0.2-0.8 nM). Since the Fenton's-treated water has arrived at KBA-11-13A, however, hydrogen concentrations have remained in the range characteristic of Fe(III) reduction. These data imply that the delivery of ferric iron to the aquifer via Fenton's Reagent has shifted the predominant microbial metabolism toward Fe(III) reduction.

The effects of vegetable oil on the water chemistry of well KBA-11-34, which is the closest monitoring well to the zone of vegetable oil injection, also have become evident. Prior to May of 2003, concentrations of methane at KBA-11-34 were less than 1.0 mg/L. Beginning in September of 2003, however, concentrations of methane have increased. In 2009, methane concentrations varied between 5 and 13 mg/L (Tables 1-4). This indicates microbial utilization

of the vegetable oil and the establishment of highly reducing methanogenic conditions. These conditions, in turn, favor the biodegradation of residual contaminants left in the source areas. Bromide was also added to the vegetable oil to act as a tracer and low levels of bromide are now detected throughout the plume (Table 1-4).

Analysis of Sampling Frequency

The efficiency of monitored natural attenuation has been assessed based on quarterly sampling at the Kings Bay site for ten years. The results of this assessment have shown:

1. The anoxic conditions needed to facilitate the natural attenuation of chlorinated ethenes have been maintained over time (Fig. 9). Because hydrogen peroxide, a strong oxidizing agent, was part of the Fenton's reagent treatment, there was concern in 1999 that the anoxic conditions might change to oxic conditions and that this might inactivate natural attenuation. In fact, the Fenton's treatment did produce transient oxic conditions in the source area. However, these oxic conditions disappeared by six months after injection. Furthermore, oxic conditions were not observed immediately downgradient of the injection area (Fig. 9).

2. Once the source area was treated and the mass of chlorinated ethenes being dissolved into the plume were lowered, the contaminant plume began to shrink immediately (Figs. 2 and 3). This was due to the relatively efficient natural attenuation mechanisms, largely biodegradation, operative at this site. These contaminant-lowering biodegradation processes were occurring before Fenton's treatment, but the biodegradation losses were balanced by continuing dissolution of chlorinated ethenes from the source areas. Once the source area was treated, biodegradation outpaced contaminant replenishment, and the plume began to shrink. Without biodegradation of the chlorinated ethenes, dilution and dispersion would have eventually dissipated the plume, but this would have likely proceeded over a time frame exceeding one hundred years (Chapelle et

al., 2007).

3. Concentrations of chlorinated ethenes, particularly concentrations of carcinogenic vinyl chloride in the wells adjacent to the neighborhood, have decreased substantially since Fenton's treatment (Fig. 7). Presently, three of the eight monitoring wells near the neighborhood exhibit vinyl chloride concentrations below the 2 μg/L MCL. The highest vinyl chloride concentration observed adjacent to the neighborhood in September of 2009 was 19 μg/L. In 1998, vinyl chloride concentrations in this well (well USGS-10) was 683 μg/L.

Given the demonstrated success of combining Fenton's reagent to treat the source area, and natural attenuation to treat the plume over the last ten years, it is reasonable to consider whether continued quarterly monitoring of the USGS natural attenuation monitoring wells is still warranted. One way to approach this issue is to analyze the ten years of monitoring data that has been collected assuming quarterly sampling, biannual sampling, or annual sampling, and then consider how much resolution of water-quality trends is lost for each sampling strategy. For example, some of the most dramatic changes in chlorinated ethenes have been documented at downgradient well USGS-11 (Figure 7). The quarterly sample regime clearly shows considerable variability between sampling events, variability that can be attributed to actual system changes as well as sampling and analytical error. The large rise in cis-DCE concentrations between 2000 and 2001, for example, clearly reflects changes in the system (cessation of pump-and-treat and consequent shift of the plume), changes that would have been less apparent with biannual or annual sampling. Similarly, the significant changes in cis-DCE concentrations at well USGS-4 over time (Figure 6), would have been less apparent.

On the other hand, if trends in concentration changes are the primary focus of interest, then a simple statistical approach suggests that quarterly sampling may no longer be necessary at

this site. This statistical approach is shown in Figure 10. The downward trend in DCE concentrations at well USGS-11 began in 2002. Figure 10 shows how these falling concentrations would appear assuming quarterly, biannual, and annual sampling. To make this approach more quantitative, the data were fitted by non-linear regression analysis to an exponential decay equation:

$$f = a \exp(-b * x)$$

where the constant a is the best-fit initial DCE concentration and b is the slope of the best-fit concentration decay curve. Using all of the quarterly data in the regression, the best fit parameters are a = 133, b = 0.2001, the correlation is significant (r^2=0.85), and the slope of the curve is less than zero ($p<0.0001$) (Fig. 10). If this site had been sampled biannually (Fig. 10), then the a and b parameters increase to 146 and 0.23 respectively. In other words, the slope of the DCE decrease curve assuming biannual sampling would have differed from the quarterly sampling by about 15%. Thus, while the precision of the overall trend differs from quarterly sampling, the same trend is still resolved. If this site had been sampled annually, further degradation in the resolution of the concentration decline becomes apparent, with the slope of the best-fit curve differing from the quarterly sampling curve by 25%.

The ten years of data have established that redox conditions at the site have stabilized following Fenton's reagent treatment and that conditions still favor the efficient biodegradation of chlorinated ethenes (Fig. 9). This being the case, the primary question to be addressed by site monitoring is to document contaminant concentration trends over time while continuing to monitor ambient redox conditions. The analysis of trends at well USGS-11 suggests that biannual sampling can capture these trends within a 15% departure in sensitivity from that offered by quarterly sampling (Fig. 10). The more substantial loss of sensitivity offered by

annual sampling (25%), on the other hand, could be problematic.

CONCLUSIONS

Ground-water monitoring data collected over a ten-year period at the Kings Bay site indicate that source-area treatment by Fenton's Reagent has led to a significant contraction of the chlorinated ethene plume. There is considerable variability in the pattern of concentration decreases, however, that reflect a variety of hydrologic and microbiologic factors. In the upgradient part of the plume, much of the observed concentration decline can be attributed directly to contaminant destruction by Fenton's Reagent (Well KBA-11-34). Furthermore, the movement of high-sulfate Fenton's-treated water downgradient also leads to declines in chlorinated ethene concentrations (wells KBA-11-13A and USGS-5). However, movement of low-sulfate, chlorinated ethene-contaminated ground water, possibly in response to Fenton's reagent injection, apparently lead to a transient increase chlorinated ethene concentrations in one location (well USGS-4). However, contaminant concentrations at USGS-4 have been steadily declining since 2006 (Fig. 7). Fenton's treated high-sulfate water has arrived at the third line of monitoring wells (Fig. 8). After an initial spike in concentrations following arrival of the Fenton's Reagent-treated water, cis-DCE concentrations have declined to the 2-3 μg/L range at well USGS-8 (Fig. 8). The pattern of VC concentration changes have been more variable and show alternating patterns of increases and decreases. However, in 2008, a consistent trend of decreasing VC concentrations was observed at well USGS-8. An analysis of contaminant concentration treads at downgradient well USGS-11 suggests that changing the frequency of sampling for the natural attenuation monitoring from quarterly to biannually is feasible.

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Table 1.—Natural attenuation parameters, NAS Kings Bay, 2/19/09.

Sample	DO (mg/L)	Fe(II) (mg/L)	HS (mg/L)	pH (units)	H_2 (nM)	CO (nM)	DIC (mg/L)	CH_4 (mg/L)	Cl^- (mg/L)	Br^- (mg/L)	$SO_4^=$ (mg/L)	Temp (C)
KBA-11-34	<0.05	15.3	2.50	5.44	0.18	0.26	245	5.0	2.67	1.72	2.85	22.8
USGS-1	<0.05	0.5	6.50	5.31	ns	ns	263	2.0	7.28	<0.02	113.3	22.1
USGS-2	<0.05	18.5	2.00	3.40	0.10	0.24	218	9.0	5.79	0.06	141.0	21.8
USGS-3	<0.05	13.3	3.50	4.02	0.11	0.49	367	2.0	7.52	0.05	85.0	21.1
USGS-15	<0.05	6.25	6.75	4.14	ns	ns	207	0.0	9.07	0.15	104.5	21.4
KBA-11-13A	<0.05	5.5	4.00	3.32	0.16	0.48	337	1.0	6.23	<0.02	119.8	22.1
USGS-4	<0.05	0.11	1.50	6.41	ns	ns	503	2.0	7.86	<0.02	23.6	22.4
USGS-4R	<0.05	0.11	0.75	6.41	ns	ns	480	0.2	7.29	<0.02	22.6	22.4
USGS-5	0.10	9.0	0.75	5.94	0.43	1.69	365	<0.1	3.85	<0.02	12.3	22.8
USGS-6	0.05	10.8	0.5	6.20	0.37	1.53	293	<0.1	6.48	0.06	95.5	22.5
USGS-7	<0.05	17.0	1.50	4.16	ns	ns	343	<0.1	6.46	0.08	94.02	23.0
USGS-8	<0.05	0.21	1.25	5.77	ns	ns	311	0.1	6.58	0.08	37.07	22.5
USGS-8R	0.05	0.22	1.25	5.41	ns	ns	257	4.0	6.68	<0.02	38.4	21.0
USGS-9	0.05	0.13	0.75	5.38	ns	ns	198	<0.1	5.23	0.05	23.8	19.6
USGS-10	0.05	0.06	1.25	6.25	0.40	2.38	351	1.0	7.27	0.13	7.66	22.6
USGS-11	<0.05	0.03	0.75	6.10	1.14	4.13	370	0.4	7.41	0.08	7.8	22.7
USGS-12	0.05	0.07	1.50	5.30	0.55	2.30	236	0.5	5.91	0.06	4.08	23.0
USGS-13	0.05	0.10	0.25	6.51	ns	ns	100	<0.1	8.21	0.05	34.3	23.2
USGS-14	0.05	0.09	1.00	6.16	ns	ns	197	<0.1	5.49	0.06	22.3	22.9
KBA-11-37	0.40	0.23	1.25	5.53	5.30	1.02	313	1.0	7.68	<0.02	23.1	21.8

ns = not sampled

Table 2.—Natural attenuation parameters, NAS Kings Bay, 6/01/09.

Sample	DO (mg/L)	Fe(II) (mg/L)	HS (mg/L)	pH (units)	H_2 (nM)	CO (nM)	DIC (mg/L)	CH4 (mg/L)	Cl^- (mg/L)	Br^- (mg/L)	$SO_4^=$ (mg/L)	Temp (C)
KBA-11-34	<0.05	33.00	0.05	5.51	0.20	0.50	298	12.0	8.59	0.04	58.3	23.3
USGS-1	<0.05	1.00	7.50	5.58	ns	ns	1556	1.0	6.88	0.05	82.6	22.7
USGS-2	<0.05	12.75	2.00	4.13	0.20	0.50	290	7.0	6.47	0.02	83.2	22.8
USGS-3	<0.05	7.50	3.75	4.68	0.10	ns	329	2.0	7.36	<0.02	120.8	23.3
USGS-15	0.05	0.55	5.75	4.84	ns	ns	304	2.0	7.15	<0.02	114.7	23.0
KBA-11-13A	<0.05	9.25	0.25	4.44	0.50	0.98	433	6.0	6.19	0.11	136.8	22.8
USGS-4	<0.05	1.00	1.75	5.56	ns	ns	341	1.0	7.79	0.15	18.0	23.6
USGS-4R	<0.05	1.00	1.75	5.56	ns	ns	556	1.0	7.48	0.12	23.5	23.6
USGS-5	<0.05	8.25	0.75	5.37	0.33	1.78	422	<0.1	6.08	0.03	66.9	24.5
USGS-6	<0.05	7.50	0.25	5.62	0.30	1.75	275	<0.1	6.38	0.07	91.9	24.7
USGS-7	<0.05	12.00	3.00	4.85	ns	ns	349	<0.1	6.81	0.12	96.3	24.0
USGS-8	<0.05	0.27	0.20	5.45	ns	ns	399	<0.1	6.12	0.05	40.1	23.7
USGS-8R	<0.05	0.20	0.05	5.45	ns	ns	348	0.5	5.88	0.08	41.2	23.7
USGS-9	0.05	0.13	0.46	5.41	ns	ns	255	<0.1	4.94	<0.02	23.8	23.3
USGS-10	0.05	0.19	0.01	5.60	0.50	3.80	497	1.0	7.53	0.11	8.6	23.2
USGS-11	0.05	0.15	0.50	5.63	0.50	3.75	394	1.0	7.15	0.06	13.4	23.4
USGS-12	0.05	0.25	0.39	6.64	ns	ns	350	1.0	7.02	0.06	5.9	23.3
USGS-13	0.05	0.11	0.09	5.32	ns	ns	143	<0.1	6.86	0.06	40.8	23.3
USGS-14	0.05	0.15	0.01	5.30	ns	ns	269	0.2	6.13	0.05	27.8	23.3
KBA-11-37	<0.05	0.35	0.05	5.75	0.37	1.56	445	2.0	7.99	0.05	26.4	25.0

ns = not sampled

Table 3.—Natural attenuation parameters, NAS Kings Bay, 7/21/09.

Sample	DO (mg/L)	Fe(II) (mg/L)	HS (mg/L)	pH (units)	H_2 (nM)	CO (nM)	DIC (mg/L)	CH4 (mg/L)	Cl^- (mg/L)	Br^- (mg/L)	$SO_4^=$ (mg/L)	Temp (C)
KBA-11-34	<0.05	12.25	0.50	5.46	0.10	0.83	513	6.0	9.31	0.05	55.0	23.4
KBA-11-34R		18.75	0.50	5.46	ns	ns	573	10.0	9.11	0.06	56.0	23.4
USGS-1	<0.05	2.00	0.25	22.8	ns	ns	1556	2.0	6.78	0.11	77.6	23.8
USGS-2	<0.05	5.75	0.50	4.15	0.10	0.49	448	1.0	6.16	<0.01	149.0	22.9
USGS-3	<0.05	2.50	0.50	4.68	0.15	0.72	340	1.8	7.39	<0.01	120.2	22.9
USGS-15	<0.05	2.25	0.75	4.86	ns	ns	396	2.0	9.03	0.22	114.5	22.9
KBA-11-13A	<0.05	1.00	1.00	4.29	0.10	0.54	483	1.4	6.21	0.03	126.2	23.6
USGS-4R	<0.05	0.50	0.25	5.39	ns	ns	378	1.3	7.44	0.10	34.4	24.4
USGS-5	<0.05	2.50	0.50	5.16	0.10	0.55	430	<0.1	5.62	0.02	77.8	24.5
USGS-6	<0.05	0.75	.05	5.44	0.10	0.53	370	<0.1	6.15	0.07	86.9	24.5
USGS-7	<0.05	4.75	0.35	4.55	ns	ns	478	<0.1	6.40	0.03	98.9	24.4
USGS-8	<0.05	0.28	0.25	5.38	ns	ns	478	0.7	6.37	<0.01	42.5	23.2
USGS-8R	<0.05	0.11	0.25	5.38	ns	ns	490	0.2	6.22	<0.01	41.9	23.2
USGS-9	<0.05	0.18	0.50	5.36	ns	ns	290	<0.1	5.03	<0.01	24.0	23.4
USGS-10	<0.05	0.33	0.25	5.58	0.69	3.00	498	1.2	7.11	0.06	8.22	23.4
USGS-11	<0.05	0.06	0.25	5.63	0.20	2.59	415	1.7	7.28	0.13	13.5	23.5
USGS-12	0.05	0.04	0.25	5.51	0.50	4.22	356	1.1	6.44	0.12	5.1	23.4
USGS-13	<0.05	0.02	0.25	5.35	ns	ns	162	<0.1	6.38	0.13	5.7	23.4
USGS-14	<0.05	0.04	0.50	5.47	ns	ns	264	<0.1	5.33	0.09	15.74	23.5
KBA-11-37	0.20	0.25	1.25	5.40	0.05	2.32	428	1.2	7.69	0.06	22.4	25.1

ns = not sampled

Table 4.—Natural attenuation parameters, NAS Kings Bay, 9/15/09.

Sample	DO (mg/L)	Fe(II) (mg/L)	HS (mg/L)	pH (units)	H_2 (nM)	CO (nM)	DIC (mg/L)	CH4 (mg/L)	Cl^- (mg/L)	Br^- (mg/L)	$SO_4^=$ (mg/L)	Temp (C)
KBA-11-34	<0.05	23.0	2.25	ns	0.10	0.31	415	13.0	10.16	0.08	51.6	23.0
USGS-1	<0.05	2.25	5.5	ns	ns	ns	1556	1.9	7.16	<0.01	74.3	23.8
USGS-2	<0.05	0.04	10.0	ns	0.10	0.48	384	7.8	6.06	<0.01	131.7	23.8
USGS-3	<0.05	6.00	3.00	ns	0.35	0.64	578	1.5	7.34	0.05	100.3	23.3
USGS-15	<0.05	1.00	6.25	ns	ns	ns	552	1.9	8.37	0.10	107.4	23.1
KBA-11-13A	<0.05	2.50	4.75	ns	0.10	0.91	372	0.6	5.29	0.02	109.5	23.9
USGS-4	<0.05	0.75	0.75	ns	ns	ns	409	0.7	5.99	0.05	24.4	24.0
USGS-4R	<0.05	0.75	1.0	ns	ns	ns	389	4.0	6.76	0.10	23.6	24.0
USGS-5	<0.05	7.75	1.25	ns	0.39	1.20	621	<0.1	5.97	0.09	73.1	24.4
USGS-6	<0.05	8.50	0.75	ns	0.42	1.10	470	<0.1	6.04	0.07	74.9	24.4
USGS-7	<0.05	13.5	2.50	ns	ns	ns	607	<0.1	6.38	0.11	99.2	24.4
USGS-8	<0.05	0.25	1.25	ns	ns	ns	582	<0.1	5.80	0.07	36.5	23.9
USGS-8R	<0.05	0.18	1.25	ns	ns	ns	595	0.15	5.44	0.02	36.6	23.9
USGS-9	0.05	0.15	1.25	ns	ns	ns	392	<0.1	4.74	0.08	23.0	23.9
USGS-10	<0.05	0.06	1.00	ns	0.42	1.50	606	0.7	8.79	0.05	10.8	24.1
USGS-11	<0.05	0.05	1.00	ns	0.34	0.90	373	0.5	9.16	0.07	11.0	24.0
USGS-12	<0.05	0.05	1.25	ns	0.41	1.30	458	0.4	5.64	0.07	3.34	23.9
USGS-13	0.05	0.06	0.50	ns	ns	ns	213	<0.1	5.58	0.07	30.4	24.0
USGS-14	<0.05	0.18	0.75	ns	ns	ns	335	<0.1	5.18	0.07	14.2	24.1
KBA-11-37	0.05	0.21	1.25	5.47	0.35	0.64	468	0.4	6.89	0.04	21.3	26.2

ns = not sampled

Table 5.–Chlorinated ethenes at Kings Bay, 2/19/09.

well number	PCE	TCE	cis-DCE	VC
KBA-11-34	3.1	<1	30	<2
USGS-1	2.9	1.6	1.2	3.9
USGS-2	8.7	6.3	7.2	<2
USGS-3	<1	3.3	7.7	2.9
USGS-15	1.5	<1	<1	<2
KBA-11-13A	<1	5.1	4.3	<2
USGS-4	<1	3.2	110	44
USGS-4R	<1	3.2	110	46
USGS-5	<1	<1	5.8	<2
USGS-6	<1	1.3	3.9	<2
USGS-7	<1	<1	2.7	<2
USGS-8	<1	<1	3.3	11
USGS-8R	<1	<1	3.3	10
USGS-9	<1	<1	<1	<2
USGS-10	<1	<1	68	27
USGS-11	<1	<1	44	13
USGS-12	<1	<1	30	8.2
USGS-13	<1	<1	2.2	<2
USGS-14	<1	<1	1.3	<2
KBA-11-37	<1	<1	3.2	<2

Table 6.–Chlorinated ethenes at Kings Bay, 6/01/09.

well number	PCE	TCE	cis-DCE	VC
KBA-11-34	3.6	<1	120	<2
USGS-1	<1	2.6	7.8	2.2
USGS-2	7.8	5.4	9.7	<2
USGS-3	2.4	1.4	1.7	<2
USGS-15	1.4	<1	<1	<2
KBA-11-13A	20	11	20	<2
USGS-4	<1	2.9	110	42
USGS-4R	<1	2.9	110	42
USGS-5	<1	<1	5.6	3.7
USGS-6	<1	<1	2.9	<2
USGS-7	<1	1.3	3.0	<2
USGS-8	<1	<1	3.0	10
USGS-8R	<1	<1	3.1	10
USGS-9	<1	<1	<1	<2
USGS-10	<1	<1	44	17
USGS-11	<1	<1	50	7.4
USGS-12	<1	<1	18	3.0
USGS-13	<1	<1	2.0	<2
USGS-14	<1	<1	2.0	<2
KBA-11-37	<1	<1	3.0	<2

Table 7.–Chlorinated ethenes at Kings Bay, 7/21/09.

well no	PCE	TCE	cis-DCE	VC
KBA-11-34	2.9	<1	66	<2
KBA-11-34R	1.2	<1	120	<2
<1USGS-1	<1	2.2	8.4	2.7
USGS-2	6.8	4.9	12	<2
USGS-3	2.2	1.3	2.0	<2
USGS-15	1.2	<1	<1	<2
KBA-11-13A	3.4	6.3	9.4	<2
USGS-4R	<1	2.9	120	42
USGS-5	<1	<1	6.2	<2
USGS-6	<1	<1	3.8	<2
USGS-7	<1	<1	3.0	<2
USGS-8	<1	<1	2.5	5.6
USGS-8R	<1	<1	2.3	5.3
USGS-9	<1	<1	<1	1.0
USGS-10	<1	<1	32	10
USGS-11	<1	<1	41	5.3
USGS-12	<1	<1	18	<2
USGS-13	<1	<1	1.2	<2
USGS-14	<1	<1	<1	<2
KBA-11-37	<1	<1	2.4	<2

Table 8.–Chlorinated ethenes at Kings Bay 9/15/08.

well no	PCE	TCE	cis-DCE	VC
KBA-11-34	13	<1	200	<2
USGS-1	<1	2.5	7.8	3.4
USGS-2	11	3.0	7.1	<2
USGS-3	10	1.5	1.6	<2
USGS-15	9.4	<1	<1	<2
KBA-11-13A	<1	5.4	4.4	<2
USGS-4	<1	3.5	86	41
USGS-4R	<1	4.2	100	47
USGS-5	<1	1.2	5.4	<2
USGS-6	<1	1.3	4.2	<2
USGS-7	<1	<1	3.1	<2
USGS-8	<1	<1	3.1	7.9
USGS-8R	<1	<1	2.2	5.8
USGS-9	<1	<1	<1	<2
USGS-10	<1	<1	39	19
USGS-11	<1	<1	30	9.0
USGS-12	<1	<1	15	2.8
USGS-13	<1	<1	1.2	<2
USGS-14	<1	<1	1.2	<2
KBA-11-37	<1	<1	2.7	<1

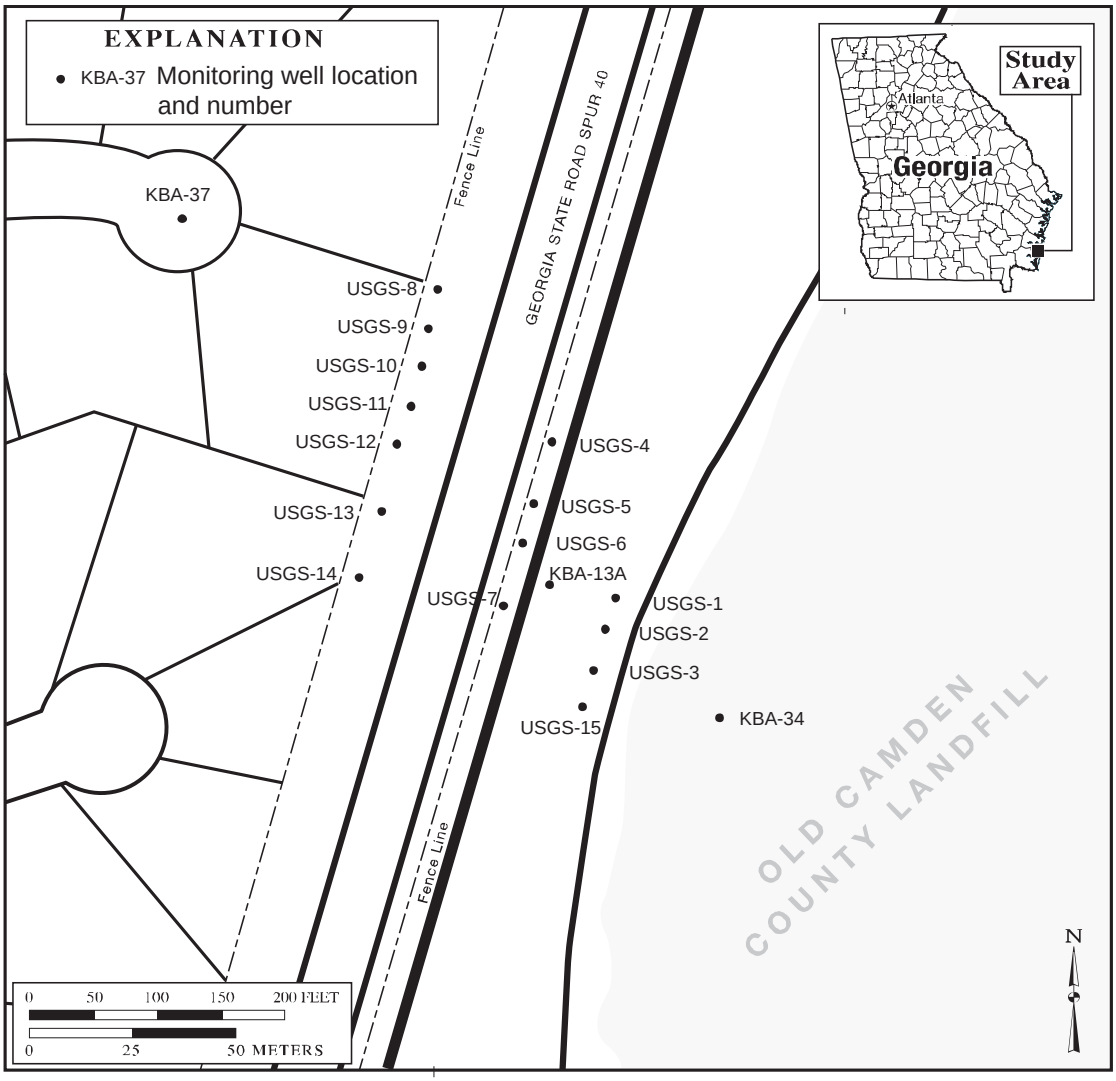


Figure 1.--Locations and numbers of monitoring wells at the Kings Bay site.

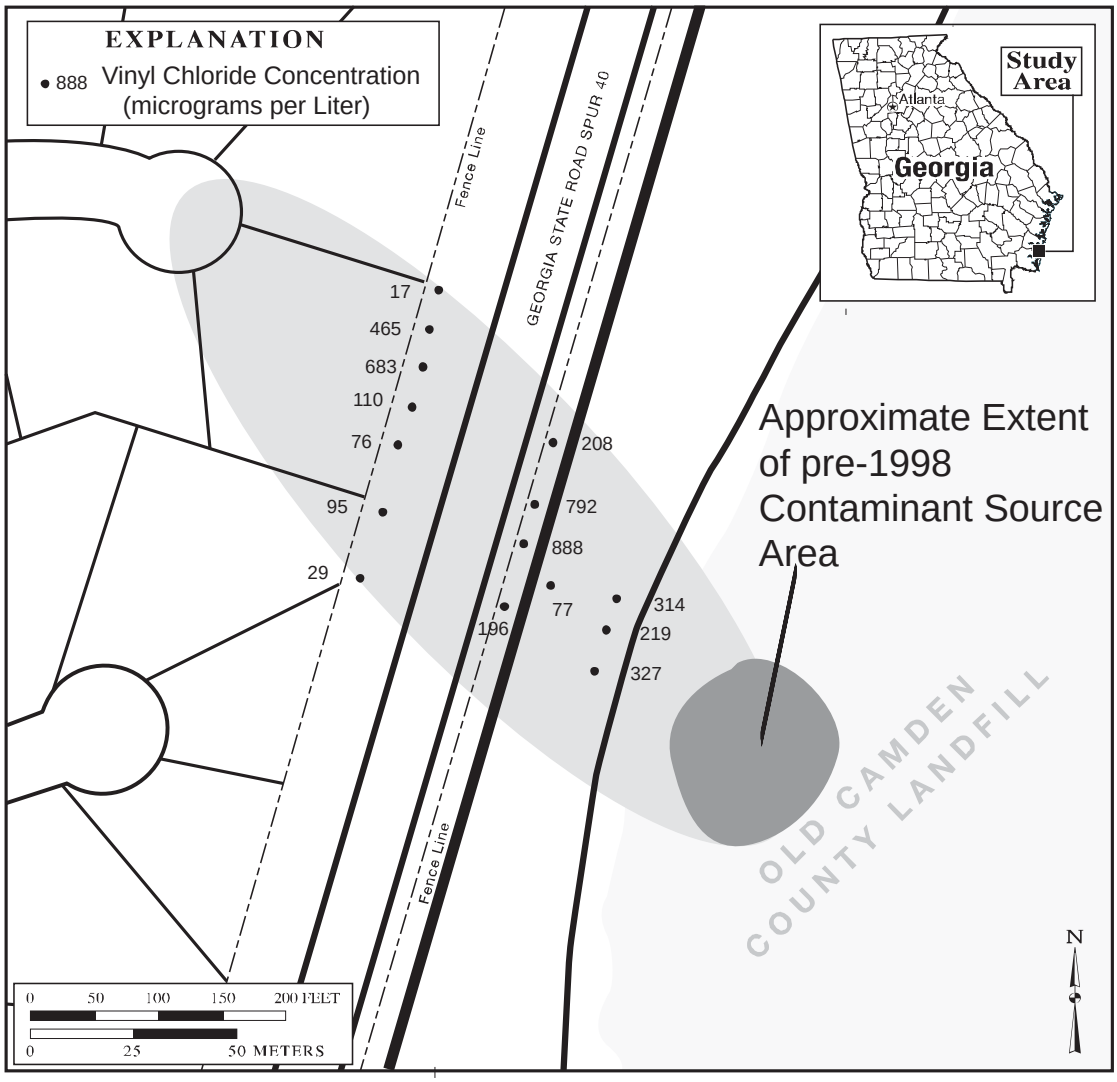


Figure 2.--Concentrations of vinyl chloride at the King's Bay Site, August 1998.

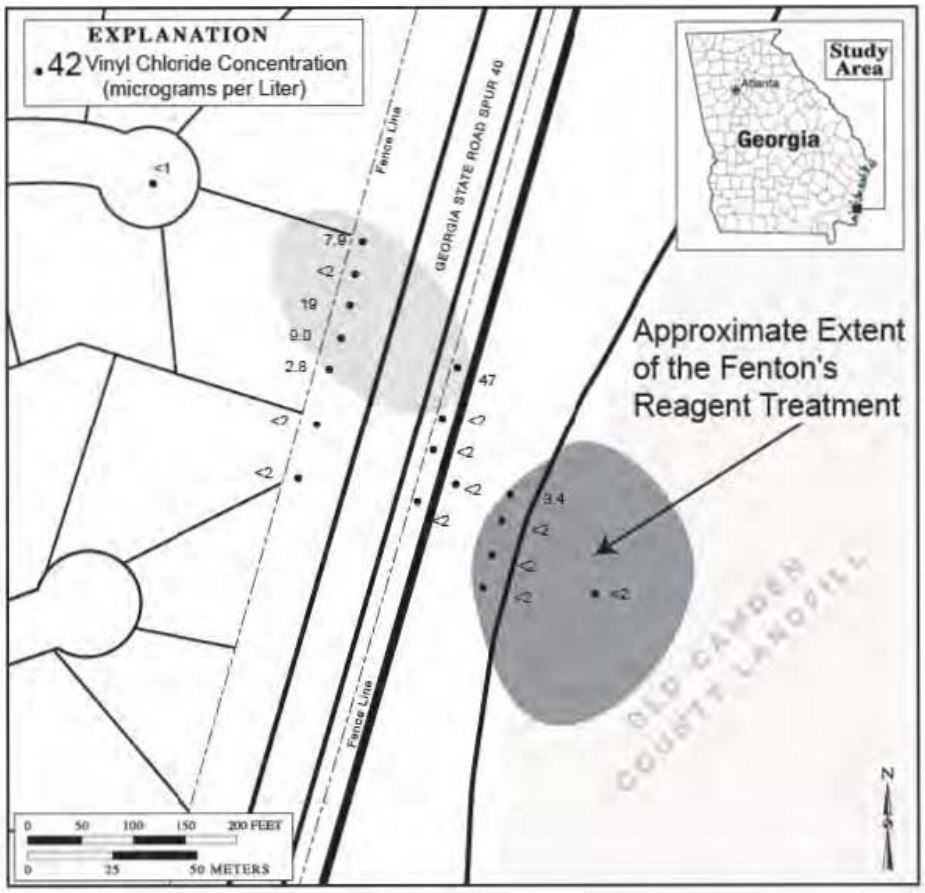


Figure 3.--Concentrations of vinyl chloride at the King's Bay Site, September 2009.

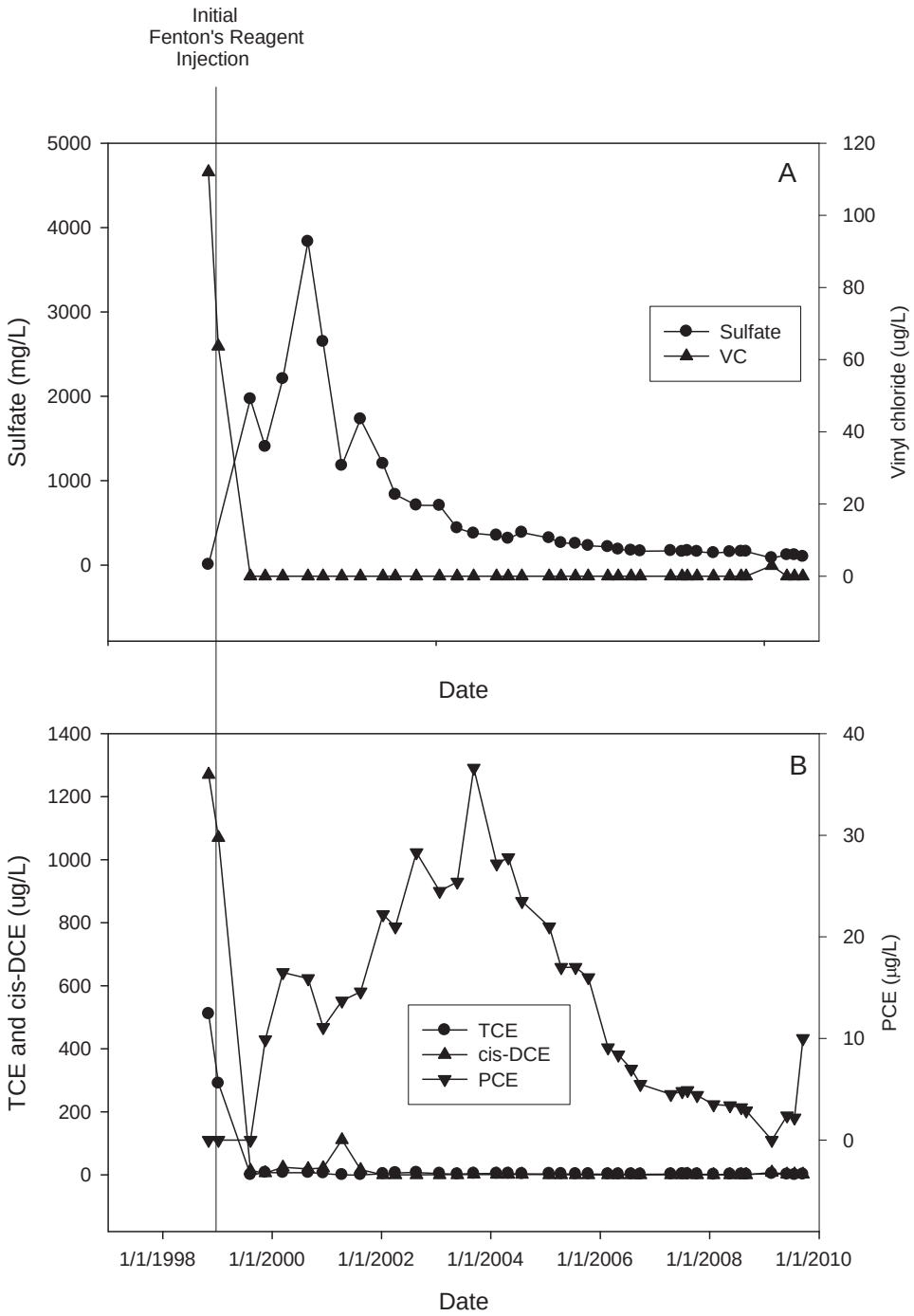


Figure 4. Concentration changes of sulfate and chlorinated ethenes over time at well USGS-3.

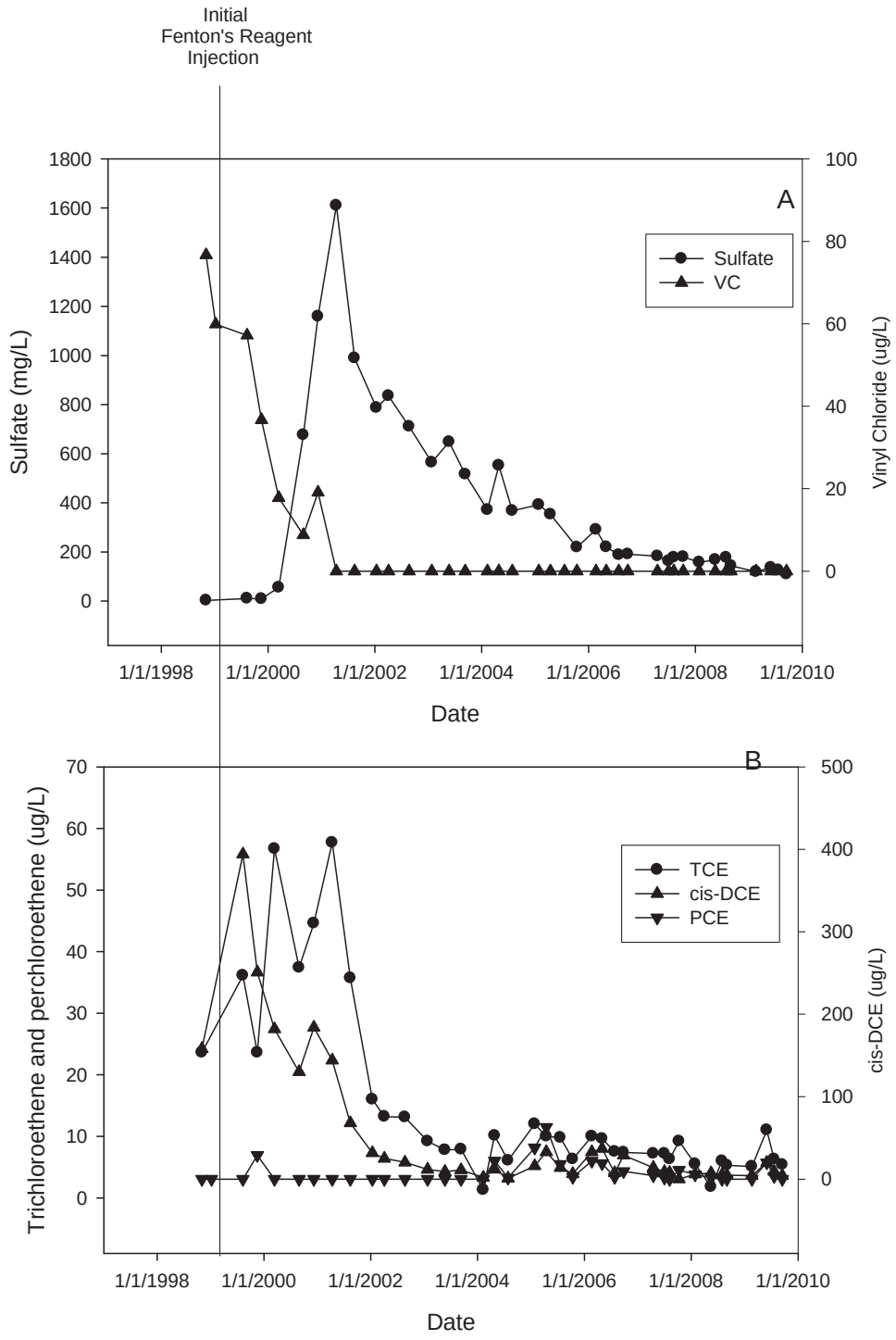
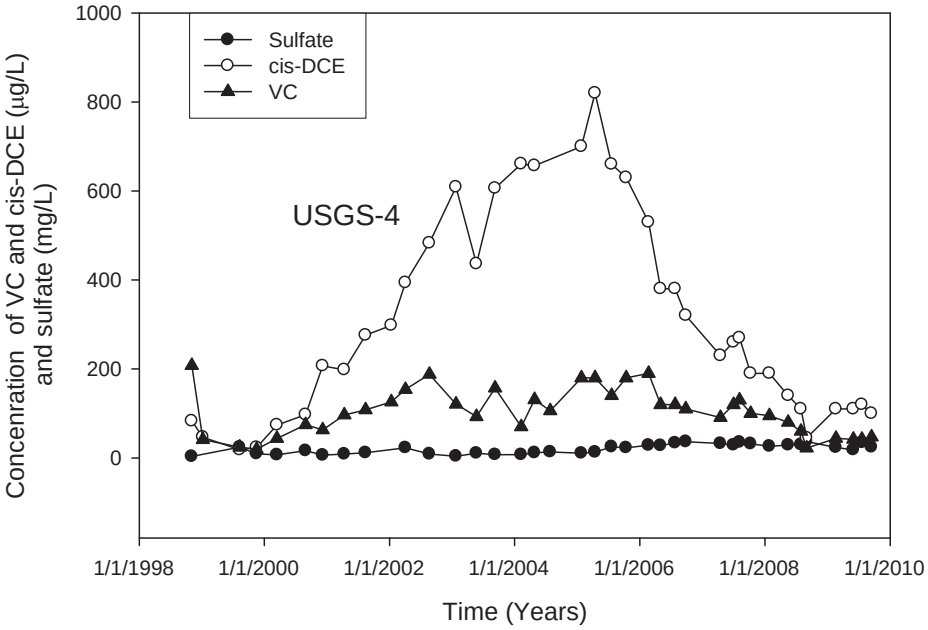


Figure 5. Concentration changes of sulfate and chlorinated ethenes over time at well KBA-13A.



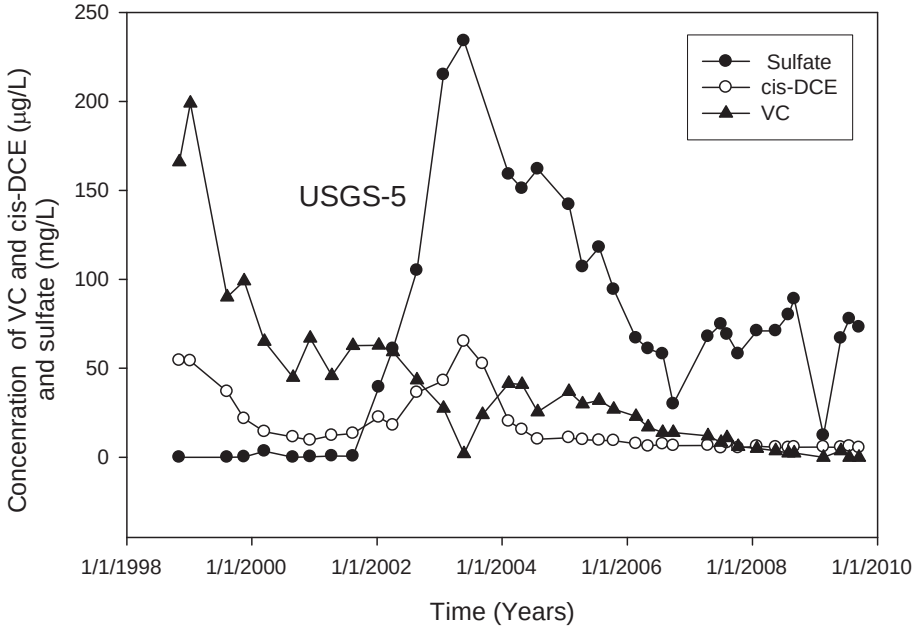


Figure 6.--Concentration changes over time of sulfate and chlorinated ethenes at wells USGS-4 and USGS-5.

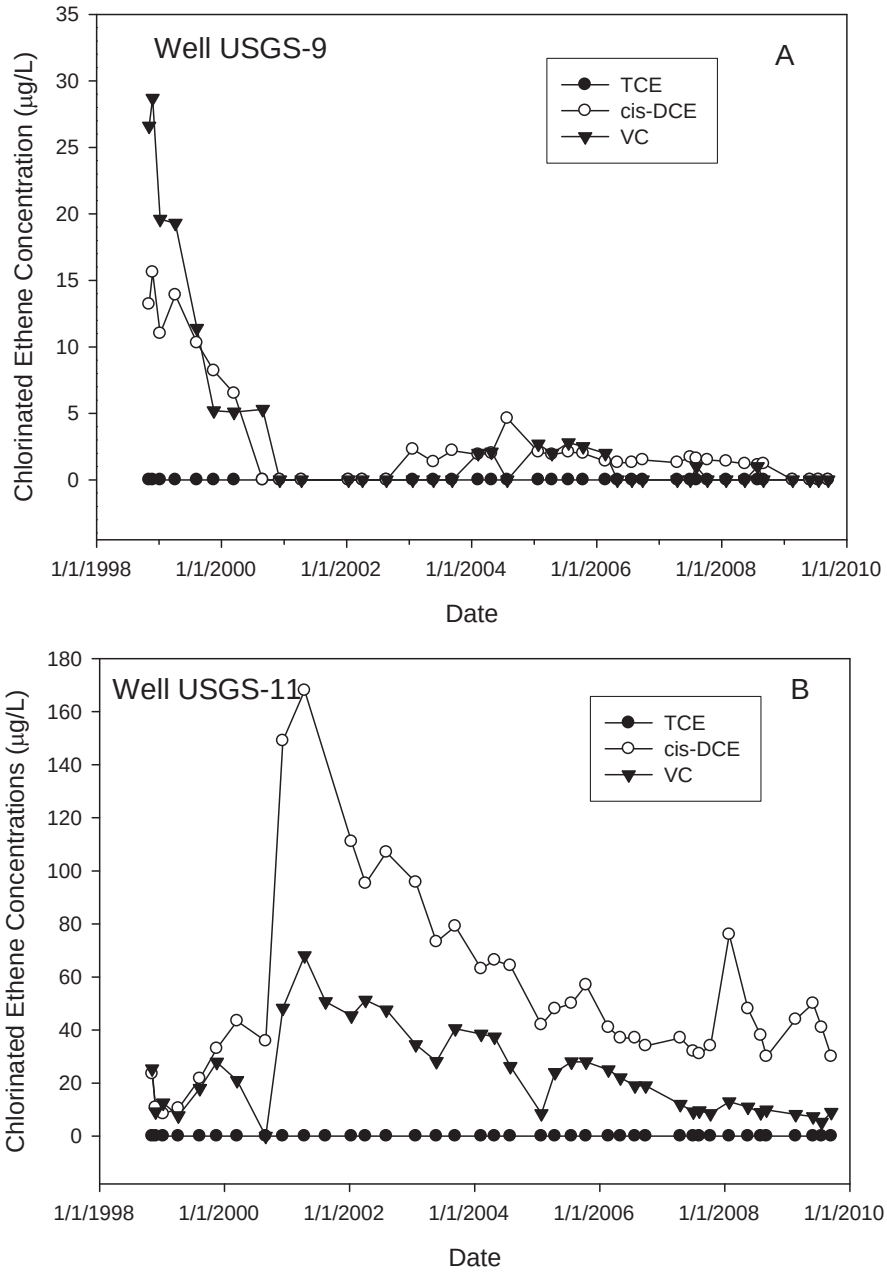


Figure 7.--Concentration changes of chlorinated ethenes at downgradient wells USGS-9 and USGS-11.

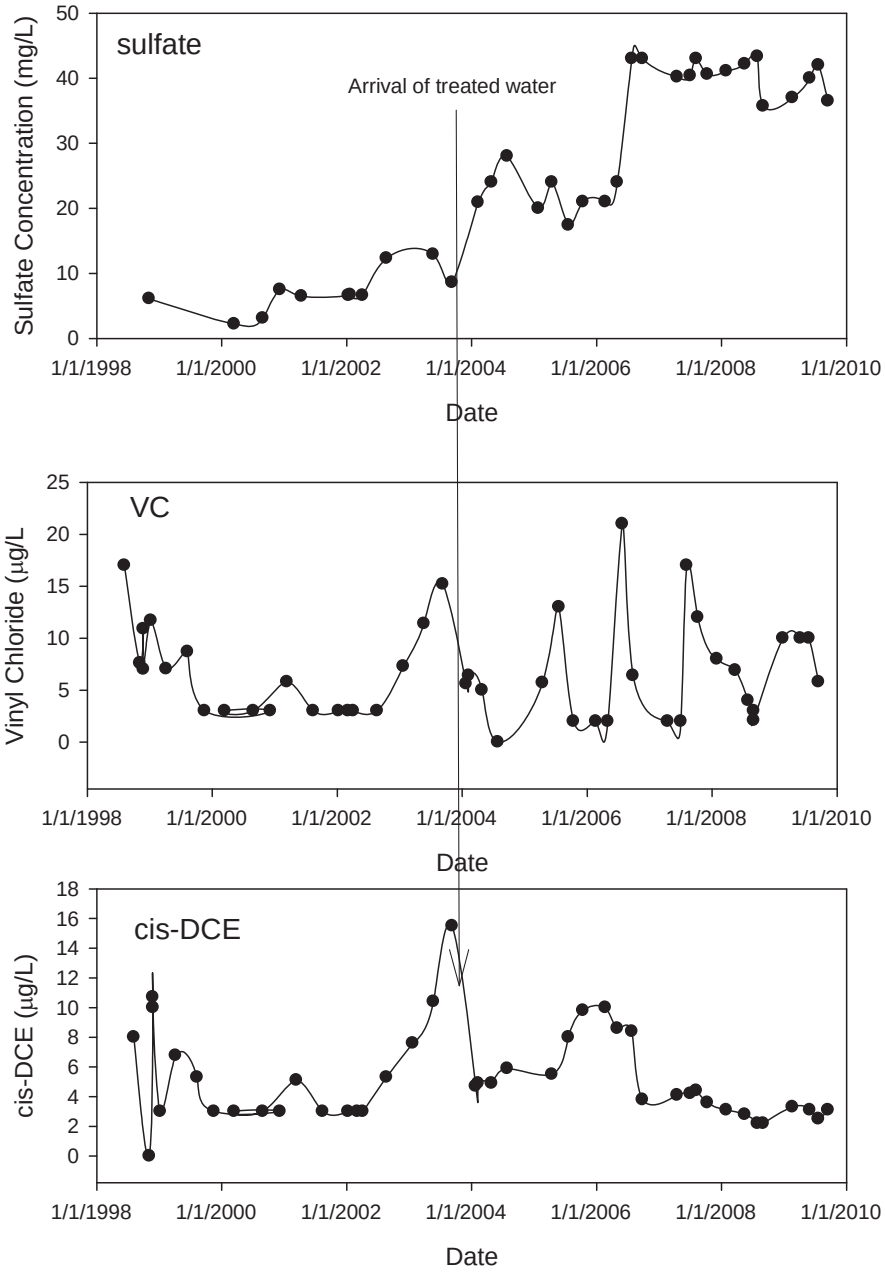


Figure 8.--Concentrations of sulfate, VC, and cis-DCE over time at well USGS-8.

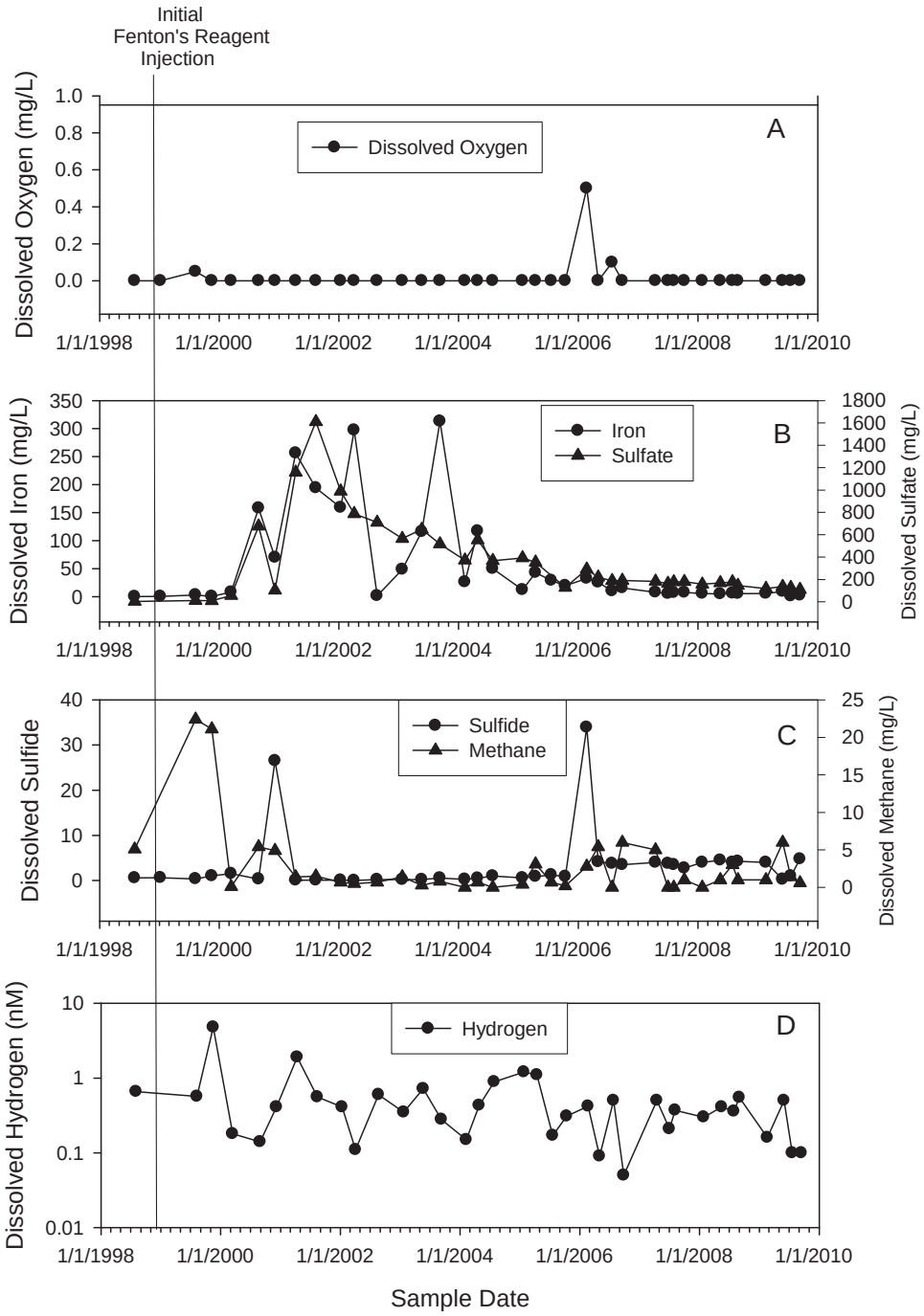


Figure 9.--Concentrations of redox indicators over time at well KBA-13A.

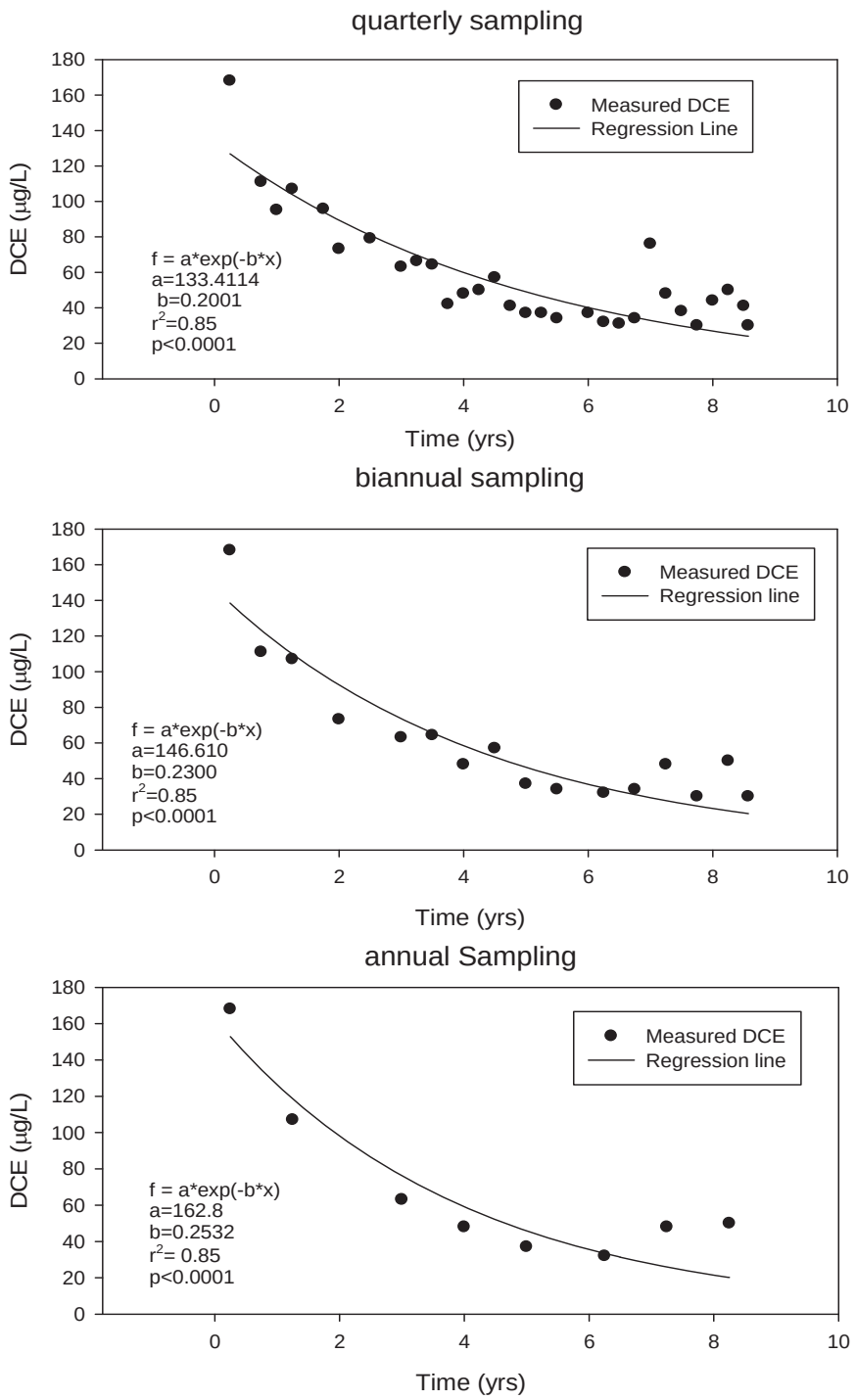


Figure 10.--Comparison of DCE concentration trends at well USGS-11 assuming the well was sampled quarterly, bianually, or annually for eight years.