DRAFT

SEMI-ANNUAL GROUNDWATER MONITORING REPORT

SEPTEMBER 2002 SAMPLING EVENT
BASE LANDFILL
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

CONTRACT TASK ORDER 0277

JANUARY 6, 2003

Prepared for:

DEPARTMENT OF THE NAVY
U.S. NAVAL STATION, ROOSEVELT ROADS
Ceiba, Puerto Rico

Under:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

Prepared by:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
Baker	Baker Environmental, Inc.
CTO	Contract Task Order
EPA	United States Environmental Protection Agency
ft/day	feet per day
ft/ft	feet per foot
LANTDIV	Naval Facilities Engineering Command, Atlantic Division
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
msl	mean sea level
NSRR	Naval Station Roosevelt Roads
PVC	polyvinyl chloride
QA	Quality Assurance
RBC	Risk Based Concentration
SAP	Sampling and Analysis Plan
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Semi-Annual Groundwater Monitoring Report has been prepared by Baker Environmental, Inc. (Baker) under contract to the Atlantic Division, Naval Facilities Engineering Command (LANTDIV) Contract Number N62470-89-D-4814, Contract Task Order (CTO) 277. This report has been prepared to present results of the September 2002 Semi-Annual Groundwater Monitoring Sampling at Naval Station Roosevelt Roads (NSRR) Solid Waste Landfill.

1.1 Purpose of Sampling

The Solid Waste Landfill Facility at NSRR, Puerto Rico has been in operation since the mid-1960s on approximately 85 acres of land in the southeastern area of the base. The active landfill is approximately 2 acres and is located within the limits of the inactive 85-acre landfill. It is positioned on a peninsula bounded by Ensenada Honda to the west and Puerca Bay the south and east. A site map is provided in Figure 1-1.

Continued use of this landfill required implementation of a Groundwater Sampling and Analysis Plan (SAP). Monitor wells were installed and background sampling at the facility was performed from June 1998 through August 2000 in nine wells. These results were presented in the Background Groundwater Monitoring Report submitted by Burns and McDonnell (2001).

Subsequent to the background sampling events, replacement of six wells was performed by Baker to establish the integrity of the wells for compliance sampling. Three existing wells were retained for compliance sampling including R7GW09, R7GW10, and R7GW11. The first round of semi-annual compliance sampling was performed on these wells (new and existing) in March 2002, with results presented in the Draft Semi-Annual Groundwater Monitoring Report for the March 2002 Sampling Event (Baker, 2002). The second round of semi-annual compliance sampling was performed on all nine monitor wells with results provided in this document.

1.2 Report Organization

The report is organized into six sections including this introduction. Section 2 describes the monitoring activities while Section 3 provides the results of the groundwater monitoring event. Section 4 provides discussion of the results relative to background data and other comparison

criteria. Section 5 provides conclusions and recommendations. Lastly, Section 6 consists of the references.

2.0 MONITORING ACTIVITIES

2.1 Groundwater Sampling

The sampling event for the semi-annual groundwater monitoring at the Solid Waste Landfill Facility occurred September 24, 2002 and September 25, 2002. Nine monitor wells were sampled, and the groundwater samples were sent to a fixed-base laboratory to be analyzed for Appendix I Compounds. A list of these compounds, the analytical methods used, and the reporting limits are presented in Table 2-1. Chain of custody records for this investigation are presented in Appendix A.

Field parameters were obtained according to the procedures listed in the SAP (Burns and McDonnell, 1999). Specifically, measurements of temperature, pH, and specific conductivity, were obtained. Meters were calibrated twice daily, including prior to and following the days sampling. The results of the field analyses are presented in Table 2-2. Flow rates used during stabilization were approximately 0.2 – 0.3 Liters/minute.

The Groundwater Sampling and Analysis Plan (Burns and McDonnell, 1999) was followed and no deviations from the sampling plan were made with the exception of sampling R7GW04R. At this well the water column did not stabilize during purging, but continued to drop. However, the field measurements were stabilized to within 10 percent prior to sampling this well as required by the SAP (Burns and McDonnell, 1999). All field notes are given in Appendix B.

2.2 Groundwater Flow

The groundwater elevations at the Solid Waste Landfill Facility were collected on September 24, 2002. Table 2-3 shows a summary of the groundwater elevation information from these two rounds. It should be noted that the datum used is the mean sea level (msl) + 100 feet.

Figure 2-1 depicts the groundwater elevations in the form of contours on a site map. The contours were developed numerically using the natural neighbor algorithm with a constant nodal function interpolation scheme. Some control points of 100 feet msl were added along the coast and some modifications of the contour lines were done manually. As shown, the highest groundwater elevation is located at R7GW11. This is to be expected because this well is located

the furthest inland. Consistent highs at this location have been noted throughout the background and compliance sampling events. Another local groundwater high is seen at R7GW01R, near the Forrestal Wastewater Treatment Plant. This well is also at an inland location. Radial groundwater flow occurs from this location toward the coasts in the west, south, and east directions.

As shown on Table 2-3, some groundwater elevations are below sea level. This is most likely due to tidal fluctuations at the coast. In particular, R7GW05R and R7GW07R both had groundwater elevations below sea level during this sampling event.

The maximum and minimum groundwater gradients were calculated from the contour drawings of the piezometric surface. The locations where the gradients were calculated from are also shown on Figure 2-1. Table 2-4 shows the summary of gradients calculated from these drawings. Also shown is the calculated groundwater velocity for each gradient. The equation used to calculate the groundwater velocity is the Darcy equation:

$$V = Ki/n$$

Where: V = average linear groundwater velocity [feet per day (ft/day)]
K = average hydraulic conductivity (ft/day)
i = hydraulic gradient [feet per foot (ft/ft)]
n = effective porosity

The hydraulic conductivity was assumed to be 0.945 ft/day as determined from Burns and McDonnell hydraulic conductivity testing, and the porosity was assumed to be 0.3 (Burns and McDonnell, 2001). Based on these assumptions, the average groundwater velocities at the Solid Waste Landfill Facility ranged from 0.0023 to 0.0085 0083 ft/day during the semi-annual monitoring investigation. The composite average groundwater velocity at this site was 0.0049 ft/day. The average groundwater velocity at the site is unchanged from the previous calculations (Baker, 2002)

2.3 Field Observations

At R7GW07R, it was noted that there appeared to be a blockage caused by roots in the polyvinyl chloride (PVC) casing approximately 14 feet down. It was broken through with the total depth probe.

3.0 RESULTS OF GROUNDWATER MONITORING EVENT

The results of the Appendix I analyses are given in Table 3-1. Only compounds with positive detections are given in this table. Appendix C contains the complete set of Appendix I analyses results. Appendix D contains the certification from a Puerto Rican chemist, along with copies of the raw laboratory analytical results .

3.1 Volatile Organic Compounds

Two volatile organic compounds (VOCs) were detected in the monitoring wells at the Solid Waste Landfill Facility, including carbon disulfide and toluene. Both compounds were detected in very small quantities. Monitor wells R7GW09 and R7GW11 were the only wells with volatile organic compound detections. No new VOCs were detected during the current sampling round. It should be noted that three less volatiles were detected during this round compared to Round 05.

3.2 Metals

Twelve metals on the Appendix I list were detected in this sampling event. Only antimony, silver and thallium were not detected. The analyses were done on both unfiltered and filtered samples to obtain total metals and dissolved metals. All samples contained one or moreFewer detections of metals were found in the dissolved analyses. Antimony, Lead, beryllium, chromium, nickel, silver, and thallium were not detected in the dissolved analyses. In all cases, very low concentrations of metals were obtained, less than 0.4 66 milligrams per liter (mg/L).

3.3 Data Quality Control and Validation

One duplicate sample was collected from R7GW02R. The results of those analyses are presented alongside the original sample in Table 3-1. Good correlation is shown between the results for the two samples. The original sample results will be used in the discussion.

Quality control samples included a matrix spike and matrix spike duplicate sample. Also included were one trip blank sample, one field blank sample of lab grade deionized water, and one equipment rinsate sample of the tubing used with the peristaltic pump. There were no positive detections of either Appendix I VOCs or Appendix I total metals in the quality control

samples. Appendix C contains the complete set of analytical results for the quality control samples.

A detailed and independent data validation was performed by Heartland Environmental Services, Inc. to verify the qualitative and quantitative reliability of the data presented and adherence to stated analytical protocols. This review included a detailed review and interpretation of all the data generated by the laboratory for data quality Level D deliverables. The primary tools that were utilized by the experienced data validation personnel included analytical method operating procedures, Statement of Work for CLP guidance documents, United States Environmental Protection Agency (EPA) Region II guidelines for data validation, established criteria, and professional judgement.

The data validation reports stated that the overall laboratory performance was acceptable. The overall quality of the data package is acceptable. The reported results are accepted as reported by the laboratory with the noted qualifications. Data validation reports were prepared by the data validator that provided the back-up information accompanying the qualifying statements presented in the quality assurance (QA) review. The report narratives can be found in Appendix E.

4.0 DISCUSSION OF RESULTS

4.1 Background Groundwater Data

The purpose of the semi-annual compliance groundwater sampling was to compare the results to the background data obtained from June 1998 through August 2000 and reported by Burns and McDonnell (2001). A brief discussion of the background groundwater quality at the site was made in the first Subtitle D sampling report (Baker, 2002), and an update is provided here to aid in comparison with the current compliance round sampling results.

There were a total of eight VOCs that were detected in the background sampling events. Twelve metals, Aall of the metals on the Appendix I list with the exception of beryllium, selenium, and thallium, were detected in the background sampling events. The mean and standard deviation were obtained for each of these compounds at each well, if possible (see Appendix F). Because of the large number of non-detects, these statistical quantities were not able to be determined for many compounds, in particular the VOCs. In this case, the maximum quantified concentration was used for comparison.

Because some compounds did not have four background values established at the time of the first report (Baker, 2002), the results of the first round of compliance sampling were incorporated into the original background results. At this time, five detected VOCs do not have four background results as presented in Appendix F. These five detected VOCs include acetone, cis 1,2-dichloroethene, carbon disulfide, dibromomethane and toluene. These compounds have three background results (including the first compliance round) and the current compliance round results. If the current compliance round results for these compounds are incorporated into the background results, there will be four previous results of these compounds to be used for comparison with the next compliance round. The incorporation of the last compliance round sampling into the background resulted in two additional VOCs listed as having background detections: carbon disulfide and dibromomethane.

Zinc was the only metal that did not have four background concentrations established as of the first compliance round of sampling. The last compliance round results were incorporated into the original background analyses to yield four background results at this time.

The upgradient wells are identified as R7GW11 and R7GW01R. During the background sampling only one VOC, acetone was detected in an upgradient well (R7GW11). During the last compliance round, an additional VOC, toluene was detected in upgradient well R7GW11 at an estimated concentration. Nine metals were detected in the upgradient wells during the background sampling. The three metals that were not detected in the upgradient wells but were detected in the downgradient wells were antimony, arsenic, and cadmium.

4.2 Criteria Comparison and Statistical Analyses

The background and compliance groundwater concentration data were compared to the Federal Maximum Concentration Level (MCL) for each compound. When the MCL was not established for a particular compound or compounds, the tap water risk-based concentration (RBC) criteria were used for comparison. The compounds were also compared to background concentrations.

Statistics for each compound are provided in Appendix F. All the results from the background and current compliance sampling rounds were used. As stated in Section 4.1, when the number of background samples did not equal four, the results from the last compliance round were incorporated into the background results. The concentration maximum, mean, median, and standard deviation were calculated when meaningful results could be obtained. When possible, the Winsor method (Naval Facilities Engineering Command, 1999), which is a modified approach for calculating the mean using non-detect values, was used. However, in most cases the number of non-detect values was too high to be able to incorporate them in the statistics. For these cases, a conservative approach of taking only the quantified concentrations to calculate the mean and standard deviation was used.

Table 4-1 presents the compiled background and compliance round concentrations for all detected compounds either in the background rounds or current compliance round sampling events. The updated background concentrations for each well were summarized with either there their mean or maximum concentration, as stated above. Also shown for comparison on Table 4-1, are the overall background average for each compound and the upgradient well concentrations for each compound. As can be seen, all background levels of Appendix I compounds are below the Federal MCLs or tap water RBC with the exception of arsenic, which is very close to the MCL.

Table 4-2 presents a summary of which compounds exceeded the criteria during the current sampling event with their maximum concentration. As shown, only one compound, arsenic, exceeded criteria. Arsenic concentrations were very close to criteria. Also shown on this table is whether or not the compound was detected in background samples or in upgradient wells. It should be noted that toluene was detected only in an upgradient well during this compliance sampling round.

The last two columns indicate whether statistical analyses should be done on the compounds that exceed the criteria. The criterion that was used to determine if a compound should have a statistical analysis done on it was either exceedance of the Federal MCL or the Tap Water RBC. Since arsenic was the only compound that exceeded the Federal MCL criteria during this sampling round, statistical analyses could be performed on this compound. However, the detection rate was too small (11 percent, see Appendix F) for statistical analyses to have any significance (US EPA, 1989). Because the detected arsenic levels are so close to the Federal MCL and the background arsenic levels, it is believed that the result of any statistical analyses, should they be possible, would have the result of no significant contamination resulting from landfill.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The primary conclusion of this report is that there is no apparent groundwater contamination resulting from the continued use of the Solid Waste Landfill Facility. The analytical results from this semi annual compliance round sampling event indicates that only one metal compound, arsenic, was detected that exceeded Federal MCL criteria. If the proportion of non-detects were less than 89 percent, a Krustall-Wallis non-parametric analysis of variance (ANOVA) would likely determine that no significant arsenic contamination was present.

As stated in Section 4.1, several VOCs and one metal compound (zinc) were not analyzed for during all four background sampling events. Because of this fact the results of this compliance round were incorporated into the background groundwater concentrations. It is recommended that the current compliance round results be incorporated into the background concentrations for acetone, cis 1,2-dichloroethene, carbon disulfide, dibromomethane and toluene. The inclusion of these results will satisfy the SAP requirement of four independent background samples for these compounds.

6.0 REFERENCES

Baker Environmental, Inc. (Baker), 2002. *Draft Semi-Annual Groundwater Monitoring Report March 2002 Sampling Event Base Landfill*, Naval Station Roosevelt Roads, Ceiba, Puerto Rico. September 11, 2002.

Burns and McDonnell, *Groundwater Sampling and Analysis Plan*, Solid Waste Landfill Facility, NSRR, Puerto Rico, April 1999.

Burns and McDonnell, *Background Groundwater Monitoring Report*, Solid Waste Landfill Facility, NSRR, Puerto Rico, May 2001.

U.S. Environmental Protection Agency, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance*, February 1989.

Naval Facilities Engineering Command, SWDIV and EFA West, *Handbook for Statistical Analysis of Environmental Background Data*, July 1999.

TABLES

TABLE 2-1

METHOD PERFORMANCE LIMITS
APPENDIX I COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)

Volatiles	Quantitiation Limits Water (ug/L)	Method Number
Acetone	50	8260
Acrylonitrile	100	8260
Benzene	5	8260
Bromochloromethane	5	8260
Bromodichloromethane	5	8260
Bromoform	5	8260
Carbon Disulfide	5	8260
Carbon tetrachloride	5	8260
Chlorobenzene	5	8260
Chloroethane	10	8260
Chloroform	5	8260
Dibromochloromethane	5	8260
1,2-Dibromo-3-chloropropane	5	8260
1,2-Dibromoethane (EDB)	5	8260
1,2-Dichlorobenzene	5	8260
1,4-Dichlorobenzene	5	8260
trans-1,4-Dichloro-2-butene	10	8260
1,1-Dichloroethane	5	8260
1,2-Dichloroethane	5	8260
1,1-Dichloroethene	5	8260
cis-1,2-Dichloroethene	5	8260
trans-1,2-Dichloroethene	5	8260
1,2-Dichloropropane	5	8260
cis-1,3-Dichloropropene	5	8260
trans-1,3-Dichloropropene	5	8260
Ethylbenzene	5	8260
2-Hexanone	25	8260
Bromomethane	10	8260
Chloromethane	10	8260
Dibromomethane	5	8260
Dichloromethane	5	8260
2-Butanone (MEK)	25	8260
Iodomethane	5	8260
4-Methyl-2-pentanone (MIBK)	25	8260
Styrene	5	8260
1,1,1,2-Tetrachloroethane	5	8260
1,1,2,2-Tetrachloroethane	5	8260
Tetrachloroethene	5	8260
Toluene	5	8260
1,1,1-Trichloroethane	5	8260
1,1,2-Trichloroethane	5	8260
Trichloroethene	5	8260
Trichlorofluoromethane	5	8260
1,2,3-Trichloropropane	5	8260
Vinyl acetate	10	8260
Vinyl chloride	10	8260
Xylenes, Total	10	8260

TABLE 2-1

METHOD PERFORMANCE LIMITS
APPENDIX I COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)

Total and Dissolved Metals	Quantitiation Limits Water (mg/L)	Method Number
Antimony	0.02	6010
Arsenic	0.01	6010
Lead	0.005	6010
Selenium	0.01	6010
Barium	0.01	6010
Beryllium	0.004	6010
Cadmium	0.005	6010
Chromium	0.01	6010
Cobalt	0.01	6010
Copper	0.02	6010
Nickel	0.04	6010
Silver	0.01	6010
Vanadium	0.01	6010
Zinc	0.02	6010
Thallium	0.01	6010

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.

TABLE 2-2

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (feet from top of PVC)	Temperature (^{O}F)	pH (S.U.)	Specific Conductance (umhos/cm)	Sample Description
R7GW02R-06	0954	4.72	85.3	6.60	54,700	Sample appeared relatively clear with a slight sulfur odor apparent.
09/24/02	1001	4.75	85.3	6.84	33,400	
	1007	4.73	85.5	6.88	23,400	
	1012	4.74	85.1	6.86	24,000	
	1217	4.74	85.1	6.83	24,600	
R7GW09-06	1139	9.01	87.3	6.80	52,900	Sample appeared relatively clear with no apparent odor.
09/24/02	1147	9.01	86.9	6.79	52,400	
	1152	9.01	86.9	6.82	52,300	
R7GW04R-06	1215	15.62	88.9	6.43	60,700	Sample appeared slightly turbid without any apparent odor.
09/24/02	1220	17.10	88.7	6.48	59,300	
	1225	18.13	88.5	6.48	58,900	
R7GW01R-06	1356	7.53	84.9	6.86	3,634	Sample appeared slightly gray in color with no apparent odor.
09/24/02	1401	7.53	85.1	6.88	3,357	
	1406	7.54	85.6	6.83	3,100	
	1411	7.54	86.5	6.83	3,095	
R7GW05R-06	1435	14.28	84.0	6.63	22,230	Sample appeared slightly gray in color with a slight sulfur odor.
09/24/02	1441	14.23	83.7	6.65	25,980	
	1447	14.23	83.3	6.66	28,111	
	1454	14.21	83.7	6.70	29,260	
	1500	14.25	83.7	6.70	28,300	
R7GW10-06	1520	13.12	87.3	6.73	13,100	Sample appeared relatively clear with no apparent odor.
09/24/02	1526	13.54	87.6	6.75	11,070	
	1533	13.54	87.6	6.78	9,540	
	1539	13.54	87.6	6.77	9,410	
	1546	13.54	87.6	6.76	9,520	
R7GW07R-06	1612	15.43	86.7	7.00	2,788	Sample appeared slightly gray with no apparent odor.
09/24/02	1617	15.42	86.4	7.03	2,709	
	1623	15.46	86.7	7.00	2,769	
R7GW08R-06	1647	10.88	85.8	7.09	51,900	Sample appeared relatively clear with a slight apparent sulfur odor.
09/24/02	1653	10.88	85.8	7.16	50,800	
	1700	10.88	85.8	7.20	49,500	
R7GW11-06	1727	8.45	85.3	7.08	1,292	Sample appeared clear with no apparent odor.
09/24/02	1732	8.64	84.9	7.08	1,189	
	1738	8.74	84.6	7.07	1,198	

Notes:

PVC - Polyvinyl chloride.

^{o} F - Degrees Fahrenheit.

S.U. - Standard Unit.

umhos/cm - micro ohms per centimeter.

TABLE 2-3

GROUNDWATER ELEVATION SUMMARY
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROSEVELT ROADS, CEIBA, PUERTO RICO

Well No.	Date Sampled	Top of PVC Elevation (feet msl)	Depth to Water (feet from top of PVC)	Groundwater Elevation (feet msl)
R7GW01R	09/24/02	108.90	7.45	101.45
R7GW02R	09/24/02	105.11	4.42	100.69
R7GW04R	09/24/02	112.39	11.72	100.67
R7GW05R	09/24/02	113.73	13.97	99.76
R7GW07R	09/24/02	114.94	15.37	99.57
R7GW08R	09/24/02	111.33	10.70	100.63
R7GW09	09/24/02	109.69	9.01	100.68
R7GW10	09/24/02	113.96	13.44	100.52
R7GW11	09/24/02	110.20	8.02	102.18

Notes:
msl - mean sea level + 100 feet.
PVC - Polyvinyl Chloride.

TABLE 2-4

GROUNDWATER VELOCITY CALCULATIONS
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Event	Line Location	Line Length (ft)	Head Difference (ft)	Gradient (I)	Velocity (ft/day)
9/24/2002	1	548.00	1.45	0.00265	0.0083
9/24/2002	2	1352.00	1.00	0.00074	0.0023
9/24/2002	3	800.00	1.00	0.00125	0.0039

Assumption:	K =	0.945 ft/day
Assumption:	n =	0.3
V = Ki/n		

SUMMARY	
average gradient =	0.00155 ft/ft
minimum groundwater velocity =	0.0023 ft/day
maximum groundwater velocity =	0.0083 ft/day
average groundwater velocity =	0.0049 ft/day

TABLE 3-1

POSITIVE DETECTION SUMMARY
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE MANAGEMENT FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PR

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW01R-06	R7GW02R-06	R7GW02R-06D	R7GW04R-06	R7GW05R-06	R7GW07R-06	R7GW08R-06	R7GW09-06	R7GW10-06	R7GW11-06
Sample Date	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02
Appendix I Volatiles (ug/L)										
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.6 J	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.69 J
Appendix I Total Metals (mg/L)										
Arsenic	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.013 J	0.015 J	0.01 UJ	0.01 UJ	0.01 UJ
Lead	0.005 U	0.005 U	0.005 U	0.0018 J	0.005 U	0.012	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	0.01 U	0.01 U	0.01 U	0.0053 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	0.055	0.099	0.096	0.24	0.034	0.34	0.12	0.097	0.12	0.019
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.00059 J	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.0011 J	0.005 U	0.005 U	0.005 U	0.00077 J	0.005 U	0.005 U
Chromium	0.01 U	0.01 U	0.01 U	0.0028 J	0.01 U	0.02	0.0053 J	0.01 U	0.01 U	0.01 U
Cobalt	0.01 U	0.01 U	0.01 U	0.021	0.01 U	0.045	0.0065 J	0.01 U	0.01 U	0.0014 J
Copper	0.0056 J	0.0051 J	0.0037 J	0.063	0.0022 J	0.34	0.021	0.0055 J	0.0014 J	0.00093 J
Nickel	0.04 U	0.04 U	0.04 U	0.0055 J	0.04 U	0.021 J	0.04 U	0.04 U	0.04 U	0.04 U
Vanadium	0.0073 J	0.024	0.022	0.047	0.019	0.16	0.043	0.038	0.0087 J	0.0023 J
Zinc	0.015 J	0.02 U	0.02 U	0.14	0.02 U	0.66	0.026	0.02 U	0.02 U	0.02 U
Appendix I Dissolved Metals (mg/L)										
Arsenic, (Dissolved)	0.01 U	0.01 U	0.01 U	0.0049 J	0.01 U	0.01 U	0.0042 J	0.01 U	0.004 J	0.01 U
Selenium (Dissolved)	0.01 U	0.01 U	0.01 U	0.0066 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium, (Dissolved)	0.053	0.095	0.097	0.19	0.035	0.085	0.099	0.095	0.12	0.02
Cadmium (Dissolved)	0.005 U	0.005 U	0.005 U	0.00086 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt (Dissolved)	0.01 U	0.01 U	0.01 U	0.021	0.01 U	0.0018 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper, Dissolved	0.02 U	0.0019 J	0.0022 J	0.0095 J	0.002 J	0.0016 J	0.0021 J	0.0034 J	0.0017 J	0.0011 J
Vanadium (Dissolved)	0.0041 J	0.021	0.02	0.022	0.019	0.0084 J	0.03	0.039	0.009 J	0.01 U
Zinc, (Dissolved)	0.02 U	0.02 U	0.02 U	0.059	0.02 U	0.0064 J	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

U - Not Detected
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
ug/L - micrograms per liter
mg/L - milligrams per liter

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW01 Background Average (1) /Max		R7GW01R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		0.01	UJ
Barium	2	0.1178	0.1298	0.174		0.055	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.028		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.02445		0.01	U
Copper	1.3	0.0523	0.0684	0.0447		0.0056	J
Lead	0.015	0.0048	0.0018	ND		0.005	U
Nickel	0.1	0.0069	0.0161	0.0022		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	0.01		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0498		0.0073	J
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	4.066 / 0.1494		0.015	J

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW02 Background Average (1) /Max		R7GW02R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	0.0169		0.01	UJ
Barium	2	0.1178	0.1298	0.014		0.099	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.059		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.0016		0.01	U
Copper	1.3	0.0523	0.0684	0.0217		0.0051	J
Lead	0.015	0.0048	0.0018	ND		0.005	U
Nickel	0.1	0.0069	0.0161	0.00064		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	0.01		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0149		0.024	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1537		0.02	U

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW04 Background Average (1) /Max		R7GW04R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	5		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	7		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		0.01	UJ
Barium	2	0.1178	0.1298	0.343		0.24	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.0011	J
Chromium	0.1	0.0335	0.0259	0.039		0.0028	J
Cobalt	NE (0.73)	0.0191	0.0188	0.0042		0.021	
Copper	1.3	0.0523	0.0684	0.0494		0.063	
Lead	0.015	0.0048	0.0018	ND		0.0018	J
Nickel	0.1	0.0069	0.0161	0.0011		0.0055	J
Selenium	0.05	ND	ND	ND		0.0053	J
Silver	NE (0.1825)	0.01	0.01	ND		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0239		0.047	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1864		0.14	

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW05 Background Average (1) /Max		R7GW05R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	1		50	R
1,1-Dichloroethene	7	1	ND	1		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	1.9		5	U
Chlorobenzene	100	0.8	ND	0.8		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	1.3		5	U
Dibromomethane	NE (60.8)	4.6	ND	4.6		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	1		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	0.0062		0.01	UJ
Barium	2	0.1178	0.1298	0.011		0.034	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.04		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.0016		0.01	U
Copper	1.3	0.0523	0.0684	0.0194		0.0022	J
Lead	0.015	0.0048	0.0018	ND		0.005	U
Nickel	0.1	0.0069	0.0161	0.00083		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	ND		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0215		0.019	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1432		0.02	U

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW07 Background Average (1) /Max		R7GW07R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		**0.013**	J
Barium	2	0.1178	0.1298	0.01		0.34	
Beryllium	0.004	ND	ND	ND		0.00059	J
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.012		0.02	
Cobalt	NE (0.73)	0.0191	0.0188	0.0005		0.045	
Copper	1.3	0.0523	0.0684	0.0293		0.34	
Lead	0.015	0.0048	0.0018	0.0026		0.012	
Nickel	0.1	0.0069	0.0161	ND		0.021	J
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	ND		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0496		0.16	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1611		0.66	

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW08 Background Average (1) /Max		R7GW08R Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	UJ
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		**0.015**	J
Barium	2	0.1178	0.1298	0.035		0.12	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.048		0.0053	J
Cobalt	NE (0.73)	0.0191	0.0188	0.001		0.0065	J
Copper	1.3	0.0523	0.0684	0.0263		0.021	
Lead	0.015	0.0048	0.0018	0.008		0.005	U
Nickel	0.1	0.0069	0.0161	0.0006		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	ND		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0337		0.043	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1948		0.026	

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW09 Background Average (1) /Max		R7GW09 Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	J
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		1.6	J
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		0.01	UJ
Barium	2	0.1178	0.1298	0.146		0.097	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	0.00057		0.00077	J
Chromium	0.1	0.0335	0.0259	0.037		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.0518		0.01	U
Copper	1.3	0.0523	0.0684	0.1539		0.0055	J
Lead	0.015	0.0048	0.0018	ND		0.005	U
Nickel	0.1	0.0069	0.0161	0.0164		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	0.01		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0447		0.038	
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1712		0.02	U

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW10 Background Average (1) /Max		R7GW10 Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	ND		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	U
Ethylbenzene	700	15	ND	15		5	U
Toluene	1000	ND	ND	ND		5	U
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	0.002		0.02	U
Arsenic	0.01	0.011	ND	0.0101		0.01	UJ
Barium	2	0.1178	0.1298	0.174		0.12	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	0.00054		0.005	U
Chromium	0.1	0.0335	0.0259	0.015		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.0081		0.01	U
Copper	1.3	0.0523	0.0684	0.0258		0.0014	J
Lead	0.015	0.0048	0.0018	0.0069		0.005	U
Nickel	0.1	0.0069	0.0161	0.0068		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	0.01		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.052		0.0087	J
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.1809		0.02	U

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-1

GROUNDWATER QUALITY, BACKGROUND AND COMPLIANCE
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample Purpose				R7GW11 Background Average (1) /Max		R7GW11 Compliance 09/24/02	
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**	**Overall Background Level (average or maximum)**	**Upgradient Background Level (average or maximum)**				
1,1-Dichloroethane	NE (798)	1	ND	ND		50	R
1,1-Dichloroethene	7	1	ND	ND		5	U
Acetone	NE (608)	3.5	2	2		5	U
Carbon Disulfide	NE (1043)	1.9	ND	ND		5	U
Chlorobenzene	100	0.8	ND	ND		5	U
Chloroform	80	ND	ND	ND		5	U
Chloromethane	NE (2.1)	0.7	ND	ND		5	U
cis-1,2-Dichloroethene	70	1.3	ND	ND		5	U
Dibromomethane	NE (60.8)	4.6	ND	ND		10	UJ
Ethylbenzene	700	15	ND	ND		5	U
Toluene	1000	ND	ND	ND		0.69	J
Vinyl chloride	2	1	ND	ND		10	U
Total Metals (mg/l)							
Antimony	0.006	0.002	ND	ND		0.02	U
Arsenic	0.01	0.011	ND	ND		0.01	UJ
Barium	2	0.1178	0.1298	0.044		0.019	
Beryllium	0.004	ND	ND	ND		0.004	U
Cadmium	0.005	0.00056	ND	ND		0.005	U
Chromium	0.1	0.0335	0.0259	0.024		0.01	U
Cobalt	NE (0.73)	0.0191	0.0188	0.0004		0.0014	J
Copper	1.3	0.0523	0.0684	0.0842		0.00093	J
Lead	0.015	0.0048	0.0018	0.0018		0.005	U
Nickel	0.1	0.0069	0.0161	0.03		0.04	U
Selenium	0.05	ND	ND	ND		0.01	U
Silver	NE (0.1825)	0.01	0.01	0.01		0.01	U
Thallium	0.002	ND	ND	ND		0.01	U
Vanadium	NE (0.2555)	0.0396	0.0459	0.0406		0.0023	J
Zinc**	NE (10.95)	0.5617 / 0.1837	2.2 / 0.2588	0.3318		0.02	U

background
detection in compliance round

Notes:
(1) Average determined on detections only
+ - concentration from dissolved analysis
ND and U - Not Detected
NE - Not Established
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated
R - Concentration rejected by the validator
** All background values for mean of zinc are reported first with the possible outlier, then without the outlier.
Bold--indicates exceedance of Federal MCL or tap water RBC

TABLE 4-2

COMPARISON SUMMARY
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

VOCs Detected (mg/L)	Federal MCL (mg/L)	Maximum Detected Concentration 09/24/02	Exceeding MCL or Tap Water RBC?	Detected in Background Sampling Rounds?	Detected in Upgradient Wells?	Perform Statistical Analysis?	Percentage of Non-Detects
1,1-Dichloroethane	NE (0.798 ++)	ND	no	yes	no	no	
1,1-Dichloroethylene	0.007	ND	no	yes	no	no	
Acetone	NE (0.608 ++)	ND	no	yes	yes	no	
Carbon Disulfide	NE (1.0428 ++)	0.0019	no	yes	no	no	
Chlorobenzene	0.1	ND	no	yes	no	no	
Chloroform	0.08*	ND	no	no	no +	no	
cis-1,2-Dichloroethylene	0.07	ND	no	yes	no	no	
Ethylbenzene	0.7	ND	no	yes	no	no	
Methyl Chloride (chloromethane)	NE (0.0021 ++)	ND	no	yes	no	no	
Methylene Bromide (dibromomethane)	NE (0.0608 ++)	ND	no	yes	no	no	
Toluene	1	0.00069	no	no	no +++	no	
Vinyl Chloride	0.002	ND	no, see note	yes	no	no	
Metals Detected (mg/L)							
Antimony	0.006	ND	no	yes	no	no	
Arsenic	0.01	0.015	yes, see note	yes	no	no (1)	89%
Barium	2	0.34	no	yes	yes	no	
Beryllium	0.004	0.00059	no	no	no	no	
Cadmium	0.005	0.0011	no	yes	no	no	
Chromium	0.1	0.02	no	yes	yes	no	
Cobalt	NE (0.73 ++)	0.045	no	yes	yes	no	
Copper	1.3	0.34	no	yes	yes	no	
Lead	0.015	0.012	no	yes	yes	no	
Nickel	0.1	0.021	no	yes	yes	no	
Selenium	0.05	ND	no	no	no	no	
Silver	NE (0.1825 ++)	ND	no	yes	yes	no	
Thallium	0.002	ND	no	no	no	no	
Vanadium	NE (0.2555 ++)	0.16	no	yes	yes	no	
Zinc	NE (10.95 ++)	0.66	no	yes	yes	no	

Notes:

Federal MCL is less than or equal to Method Detection Limit on some or all of the samples

NE: Not Established

ND: Not Detected.

* Proposed Level (previous level was 0.1)

"+" Detected in upgradient well R7GW11in 03/02 but not during background sampling

"++" Tap Water Risk Based Concentration

"+++" Detected in upgradient well R7GW11 in 09/02 but not during background sampling

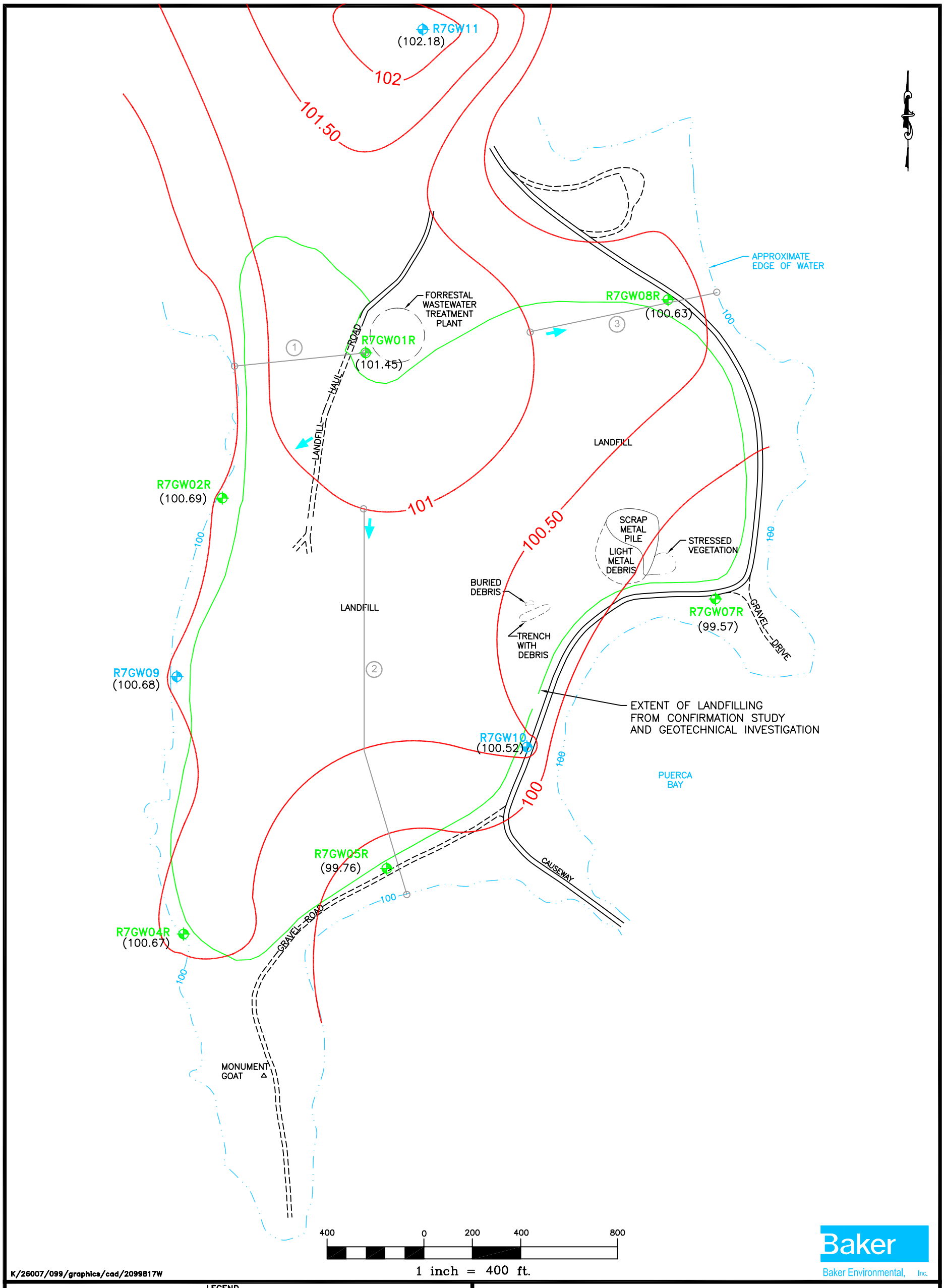
(1) Performing statistical analysis for the censored data set (large portion of non-detects) would yield little information

FIGURES

FIGURE 1-1
SITE MAP
SOLID WASTE LANDFILL FACILITY

NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

SOURCE: LANTDIV, FEB. 1992



LEGEND

- MONITOR WELL LOCATION (INSTALLED JUNE 1998, BURNS AND McDONNELL)
- MONITOR WELL LOCATION (INSTALLED DECEMBER 2000, BAKER)
- 100 — GROUNDWATER CONTOUR LINE AND ELEVATION, DATUM = MEAN SEA LEVEL + 100 FEET
- GROUNDWATER FLOW DIRECTION
- LINE USED TO CALCULATE HYDRAULIC GRADIENT
- APPROXIMATE EXTENT OF LANDFILL BOUNDARY

NOTE: CONTOURS WERE GENERATED WITH GROUNDWATER MODELING SOFTWARE® USING A NATURAL NEIGHBOR WITH CONSTANT NODAL FUNCTION INTERPOLATION ROUTINE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO THE INTERPOLATION METHOD USED. CONTROL POINTS WERE USED AND SLIGHT MODIFICATIONS WERE MADE MANUALLY FOR CLARITY

SOURCE: LANTDIV, FEB. 1992

FIGURE 2–1
GROUNDWATER CONTOUR MAP, SEPTEMBER 2002
SEMI–ANNUAL GROUNDWATER MONITORING REPORT
SOLID WASTE LANDFILL FACILITY – SWMU 3

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

Baker

Baker Environmental, Inc.

Appendix A:
Chain-of-Custody Records

Serial Number 040746

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill 8078 5375 6004

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

03-01

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
Base Landfill - NSRR	62470-233	PR
STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Angie Weimerskirk		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Mark Kimes	(787) 485-1097	
CLIENT NAME	CLIENT E-MAIL	
Baker Environmental		
CLIENT ADDRESS		
Bop 3, 420 Rousur Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 2

STANDARD REPORT DELIVERY (●)
DATE DUE 28 TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) (○)
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: App. IV VOCs	App. IV Total Metals	App. IV Diss. Metals (Field Filtered)	PRESERVATIVE: HCl	HNO_3	H_2SO_4	REMARKS
								NUMBER OF CONTAINERS SUBMITTED						
9/24/02	1415	R7GW01R-06		X				3	1	1				
	1030	R7GW02R-06		X				3	1	1				
	1030	R7GW02R-06D		X				3	1	1				
	1030	R7GW02R-06MS		X				3	1	1				
	1030	R7GW02R-06MSD		X				3	1	1				
	1228	R7GW04R-06		X				3	1	1				
	1508	R7GW05R-06		X				3	1	1				
	1630	R7GW07R-06		X				3	1	1				
	1705	R7GW08R-06		X				3	1	1				
	1200	[redacted] R7GW09-06		X				3	1	1				
	1550	R7GW10-06		X				3	1	1				
	1745	R7GW11-06		X				3	1	1				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	9/25/02	1130			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS Jon C. Edel Jr.	9/24/02	0800						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
Thomas Jenn	9-26-02	857	YES (○) NO (○)		S24692	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 040747

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Fedex Airwaybill 8078 5375 6004

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

03-01

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
Base Landfill - USRR	62420-277	PR
STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Angie Weimerskirk		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Mark Kimes	(787) 485-1097	
CLIENT NAME	CLIENT E-MAIL	
Baker Environmental		
CLIENT ADDRESS		
AOP 3, 420 Rousse Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 2 OF 2

STANDARD REPORT DELIVERY ●
DATE DUE 28TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: App. IX VOCs	REQUIRED ANALYSIS: App. IX Total Metals	PRESERVATIVE: HCl	PRESERVATIVE: HNO_3	REMARKS
								NUMBER OF CONTAINERS SUBMITTED				
9/25/02	0926	R7TB01-06		X				3				
↓	0932	R7ER01-06		X				3	1			
↓	0930	R7FB01-06		X				3	1			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	9/25/02	1130			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS Jon C. Edel Jr.	9/24/02	0800						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
Thomas Dunn	9-26-02	8:57	YES ○ NO ○		24693	29 dd

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Baker

Baker Environmental, Inc.

Appendix B: Field Notebooks

Tuesday March 12, 2002

0815 Arrive at R7GW02AR to start collecting a round of water levels.

	Well	SWL (Top PVC)	Comment
0820	R7GW02AR	5.50	locking cap on
0824	R7GW09	9.60	"
0828	R7GW04R	12.44	"
0835	R7GW01R	7.43	"
0841	R7GW08R	11.26	"
0844	R7GW07R	14.86	"
0847	R7GW05R	14.48	"
0849	R7GW10	13.79	"
0854	R7GW11	7.03	"

0855 Leaving SWMU 3. All work has been completed here. One 1 drum containing SWMU 3 purge water is still located by R7GW01R. We will dispose when we get results for wells back.

Jon C. Edel Jr

3/12/02 (34)

Monday September 23, 200

Field Crew - (Second Semiannual Sampling 2002)

Jon EDEL - JEE
Mark Kimes - MGK

0640 Arrive at Pittsburgh Intl. Airport.
0830 MGK and I flew out to Charlotte Airport.
0945 Arrive at Charlotte Airport.
1100 Left Charlotte to go to San Juan Airport.
1440 Arrive at San Juan Airport.
1510 Arrived at Avis rent-a-car to pick up sport utility vehicle.
1530 Arrive at Marriott San Juan to check in.

Jon C. Edel Jr

9/23/02 (35)

Tuesday — September 24, 2002

0730 MEK and I arrive at NSRR front gate to get vehicle pass.

0745 Leaving front gate to go to Marina to get ice and gatorade.

0755 Leaving Marina to go to Public works dept (PWD)

0800 Arrive at PWD to pick up equipment and lab bottles. We also spoke to Pedro Ruiz. He introduced us to two more environmental employees. They will also be observing us sample.

0900 Leaving PWD to go to landfill.

0910 Arrive at Base Landfill and spoke with Rolando Martinez (Base Manager)

0914 Arrive at RIGW02R-06.

0920 MEK and I calibrated conductivity and pH meters. (Cond. 30.9 % 1114 us)

1030 Collected RIGW02R-06.

1106 Leaving RIGW02R-06 to go to RIGW09.

1113 Arrive at RIGW09.

1200 Sampled RIGW09.

1202 Arrived at RIGW04R

9/24/02 (36) Jon C. Edel Jr.

Tuesday — September 24, 2002

RIGW02R-06

T.D. = 17' 11 5/8"

Ø = 2"

SWL: 4.42' (Top PVC)

Start pump 0945
Bottom of tubing within well screen.

Time	SWL	pH	Cond. (ms)	Temp.	Comments
0954	4.72	6.60	54.7	29.6 °C 85.3°F	SL. odor (Sulfur smell) Turbid
1001	4.75	6.84	33.4	29.6°C 85.3°F	SL. odor Turbid
1007	4.73	6.88	23.4	29.7°C 85.5°F	SL. odor Turbid
1012	4.74	6.86	24.0	29.5°C 85.1°F	SL. odor Less Turbid
1017	4.74	6.83	24.6	29.5 85.1°F	SL. odor Less Turbid

* Stop purging at 1017
* Sample time for App. I parameters was 1030.
* We collected duplicate, MS, MSD at this well.
* Sample appeared relatively clear, with a slight sulfur type of odor.
* Flow rate was approx. 0.2 to 0.3 L/min
* Peristaltic pump was used to purge and sample.
* Weather today is very hot, windy, sunny.

9/24/02 (37) Jon C. Edel Jr.

Tuesday September 24, 2002
(cont. from page 37)

* I sampled this well.
* An interface probe was used to get first SWL then used water level meter for each round. 9/24/02 JEE
* A bobal depth probe was used to read T.D.
* Full App. I list was requested.
  (3) 40 mL VOA's - HCl
  (2) 250 mL Poly - HNO_3
  1 A set for env., dup., MS, MSD
* No product on water table.
* Final SWL was 9.24
* Sample collected appeared slightly turbid with a slight sulfur odor.
* well compared closely with previous round for SWL & TD.

Jon C. Edell Jr.

Tuesday September 24, 2002
RJGW09-06

T.D. = 20' 3/8
Ø = 2"
SWL = 9.01 (Top PVC)

Start pump 1133
Bottom of tubing within well screen

Time	SWL	pH	Cond. (ms)	Temp.	Comments
1139	9.01	6.80	52.9	30.7°C 87.3°F	white floating debris, SL Turbid No odor
1147	9.01	6.79	52.4	30.5°C 86.9°F	Relatively clear, no odor
1152	9.01	6.82	52.3	30.5°C 86.9°F	No odor, rel. clear

* Stop purging 1152.
* Sample time for App. I parameters was 1200.
* Final SWL was 9.01.
* Sample appeared relatively clear with no apparent odor.
* Flow rate was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used to purge and sample.
* Weather today was very hot and humid, partly sunny and windy.

 Jon C. Edell Jr.

Tuesday September 24, 2002

* MGK sampled this well.
* An interface probe was used to get the first SWL then used water level meter for each round. No product found on water table.
* A total depth probe was used to measure T.D.
* Full App. I list was requested.
  (3) 40 ml VOA's - HCl
  (2) 250 ml Poly - HNO_3

* SWL & TD compared closely with previous round in March 2002.

Jan C. Edell Jr.

Tuesday September 24, 2002

RFGW04R-06

T.D. = 29' 7¾"
Ø = 2"
S.W.L. = 11.72 (Top PVC)

Start pump 1216
Bottom of tubing within well screen

Time	SWL	pH	Cond. (ms)	Temp. (°C)	Comments
1216	15.62	6.43	60.7	31.6 88.9°F	SL. Turbid No odor
1220	17.10	6.48	59.3	31.5 88.7°F	SL Turbid No odor
1225	18.13	6.48	58.9	31.4 88.5°F	SL Turbid No odor

* Stop purging (1225)
* Sample time (1228) for full App I parameters.
* Final SWL was 18.29'.
* Sample appeared slightly turbid without any apparent odor.
* Flow rate was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used to purge and sample the well.
* Weather was very hot, humid, windy as well as being cloudy.
* MGK sampled this well.

 Jan C. Edell Jr.

Tuesday September 24, 2002

* An Interface probe was used to get SWL then oil/water level meter for each round. No product found on water table.
* A total depth probe was used to measure T.D.
* Full App. I list was requested:
  (3) 40 ml VOAs-HCl
  (2) 250 ml Poly-HNO_3
* This round of SWL & TD compared closely with previous round in March 2002.

Jon C. Edell Jr.

9/24/02 (42)

Tuesday September 24, 2002

1223 Sampled well R7GW04R-06.
1235 Leaving R7GW04R to go to R7GW01R.
1254 Arrive at R7GW01R. Rain very hard. We are heading for lunch.
1342 Back at R7GW01R to collect groundwater samples.
1415 Sampled well R7GW01R-06.
1417 Arrive at Base Landfill building to sign out. We are finished sampling wells within the actual landfill area.
1419 Arrive at R7GW05R to collect groundwater samples.
1508 Sampled well R7GW05R-06
1509 Left R7GW05R.
1510 Arrived at R7GW10 to sample well.
1550 Sampled well R7GW10.
1552 Leaving R7GW10 to go to R7GW07R.
1556 Arrive at R7GW07R.
1630 Sampled well R7GW07R-06.
1632 Leaving R7GW07R to go to R7GW08R.
1636 Arrive at R7GW08R.
1705 Sampled well R7GW08R.
1710 Left R7GW08R to go to R7GW11.
1715 Arrived at R7GW11.
1745 Sampled R7GW11-06.
1747 Checking recalibration of meters.

9/24/02 (43) Jon C. Edell Jr.

Tuesday September 24, 2002

RJGW01R-06

T.D. = 16.5 ft
Ø = 2"
SWL = 7.45 (Top PVC)

Start pump 1347
Bottom of tubing within WM screen.

Time	SWL	pH	(us) Cond.	(oC) Temp.	Comments
1356	7.53	6.86	3,634	29.4 84.9°F	SL. Turbid Gray in color No odor
1401	7.53	6.88	3,357	29.5 86.1°F	SL. Turbid Gray in color No odor
1406	>7.54	6.83	3,100	29.8 85.6°F	SL. Turbid Gray in color No odor
1411	7.54	6.83	3,095	30.3 86.6°F	Clearing up SL. gray color No odor

* MCK sampled this well.
* Stop purging 1411
* Sample time was 1415 for full App I parameters
* Final SWL was >7.59.
* Sample appeared slightly gray in color with no apparent odor.
* Flow rate was between 0.2 to 0.3 L/min.

9/24/02 (44) Jon C. Edell Jr.

Tuesday September 24, 2002

* Weather was hot, humid, windy, and overcast.
* An interface probe was used to get SWL, then used static water level meter for each round. NO product found on water table.
* A total depth probe was used to measure T.D.
* Full App. I list was used/requested:
  (3) 40 mL VOAs - HCl
  (2) 250 mL Poly - HNO_3
* The SWL and T.D. closely compare to previous round in March 2002.
* Peristaltic pump was used to sample & purge.

Jon C. Edell Jr.

9/24/02 (45)

Tuesday September 24, 2002

RIGWOBR-06

T.D. = 25.6 3/8'
Ø = 2"
SWL = 13.97 (Top PVC)

Start pump 1430
Bottom of tubing within well screen.

Time	SWL	pH	Cond. (ms/cm)	Temp. (°C)	Comments
1435	14.28	6.63	22.23	28.9 84.0°F	Relatively clear NO odor
1441	14.23	6.65	25.98	28.7 83.7°F	Clear NO odor
1447	14.23	6.66	28.11	28.6 83.6°F	Clear SL. sulfur odor
1454	14.21	6.70	29.26	28.7 83.7°F	SL. grayish color, SL. sulfur odor
1500	14.25	6.70	28.30	28.7 83.7°F	SL. grayish color, SL. sulfur odor

* MEK Sampled this well.
* Stop purging 1500.
* Sample time was 1508 for full App. I parameters.
* Final SWL was 14.19

9/24/02 (46) Jon E Edell Jr.

Tuesday September 24, 2002

* Sample appeared to have a slight grayish tint with a slight sulfur odor.
* Flow rate was between 0.2 to 0.3 L/min.
* Weather was hot, humid, and overcast skies.
* An interface probe was used to get initial SWL, then a water level meter was used for each round. No product was measured on water table.
* A total depth probe was used to measure TD.
* Full App. I list was requested:
  (2) 250 mL Poly - HNO_3
  (3) 40 mL VOAs - HCl
* The SWL and TD closely compare to previous round in March 2002.
* Peristaltic pump was used to sample & purge.

Jon E Edell Jr.

9/24/02 (47)

Tuesday September 24, 2002

RIGW10

T.D. = 20' 3 7/8"

Ø = 2"

SWL = 13.44 (TOP PVC)

Start pump 1514
Bottom of tubing is within well screen

Time	SWL	pH	(ms) Cond.	(°C) Temp.	Comments
1520	13.12	6.73	13.10	30.7 87.3°F	Rel. clear, some floating debris, no odor
1526	13.54	6.75	11.07	30.9 87.6°F	Rel. clear, some floating debris, no odor
1533	13.54	6.78	9.54	30.9 87.6°F	Rel. clear, same as above
1539	13.54	6.77	9.41	30.9 87.6°F	"
1546	13.54	6.76	9.52	30.9 87.6°F	"

* Stop purging at 1546
* Sampled for full App. I parameters at 1550.
* Final SWL was 13.69

9/24/02 (98) Jon C. Edel Jr.

Tuesday September 24, 2002

* Sample appeared relatively clear with no observable odor.
* Flow rate was between 0.2 to 0.3 L/min.
* Weather was hot, humid, with overcast skies.
* An Interface probe was used to measure initial SWL, then a water level meter was used for each round. No free product was observed on the water table.
* A total depth probe was used to measure TD. MEK sampled well.
* Full App. I parameters were requested:
  (3) 40 mL VOAs - HCl
  (2) 250 mL poly - HNO_3
* The SWL and TD closely compare to previous round in March 2002.
* Peristaltic pump was used to sample & purge.

Jon C. Edel Jr.

9/24/02 (99)

Tuesday September 24, 2002

R76W07R-06

T.D. = 19.5
Ø = 2"
SWL = 15.37 (Stick Up)

Start pump 1610
Bottom of tubing is within well screen. Sl. Blockage caused by roots at around 14 feet.

Time	SWL	pH	Cond. (ms)	Temp. (°C)	Comments
1612	15.43	7.00	2788	30.4 86.7°F	Very turbid, No odor, Grayish color
1617	15.42	7.03	2709	30.2 86.4°F	Turbid, No odor, grayish color
1623	15.46	7.00	2769	30.4 86.7°F	Turbid, No odor, grayish color.

* Stop purging 1623
* Sampled for full App I parameters at 1630.
* Final SWL was 15.46.
* Sample appeared to have a grayish tint with no observable odor.
* Flow rate was between 0.2 to 0.3 L/min.

9/24/02 (50) Jon C. Edel Jr.

Tuesday September 24, 2002

* Weather was hot, humid, with overcast skies.
* An interface probe was used to collect initial SWL, then a water level meter was used during each round. No product was observed on the water table.
* A total depth probe was used to measure TD.
* Full App. I parameters requested:
  (3) 40 ml VOAs - HCl
  (2) 250 ml poly - HNO_3
* The SWL and TD were slightly off the readings collected back in March 2002.
* Peristaltic pump was used to sample & purge.
* MBK sampled well.

Jon C. Edel Jr.

9/24/02 (51)

Tuesday September 24, 2002

RZGW08R-06

T.D = 20' 7.5"
Ø = 2"
SWL = 10.70 (Top PVC)

Start pump 1641
Bottom of tubing within well screen.

Time	SWL	pH	(mS) Cond.	(°C) Temp	Comments
1647	10.88	7.09	51.9	29.9 85.8°F	Bluish-Grey color, no odor, Turbid
1653	10.88	7.16	50.8	29.9 85.8°F	SL. Blue-Grey color, SL. sulfur odor, SL. Turbid
1700	10.88	7.20	49.5	29.9 85.8°F	Rel. clear, SL. Turbid, SL. sulfur odor

* MEK sampled well.
* Stop purging 1700
* Sampled for full App. I parameters at 1705.
* Final SWL was 10.9'.
* Sample appeared relatively clear with a slight sulfur odor.

9/24/02 (52) Jon C. Edell Jr

Tuesday September 24, 2002

* Flow rate was between 0.2 to 0.3 L/min.
* Weather was hot, humid, and overcast skies.
* An Interface probe was used to collect initial SWL, then a groundwater level meter was used during each round. No product observed on water table.
* A total depth probe was used to measure TD.
* Full App I parameters requested:
  (3) 40 mL VOAs - HCl
  (2) 250 mL poly - HNO_3
* The SWL and TD closely compare to round collected in March 2002.
* Peristaltic pump was used to purge & sample.

Jon C. Edell Jr

9/24/02 (53)

Tuesday September 24, 2002

RTGW11-06

Start pump 1722
Bottom of tubing within well screen.

T.D. = 15'4"
Ø = 2"
SWL = 8.02' (Top PVC)

Time	SWL	pH	(us) Cond.	(°C) Temp.	Comments
1727	8.48	7.08	1292	29.6 85.3°F	Rel. clear, No odor, some floating particles
1732	8.64	7.08	1189	29.4 84.9°F	Clear, No odor
1738	8.74	7.07	1198	29.2 84.6°F	Clear, No odor

* MSK sampled well.
* Stop purging at 1738
* Sample for App. I parameters at 1745.
* Final SWL was 8.74
* Sample appeared clear with no observable odor.
* Flow rate was between 0.2 to 0.3 L/min.
* Weather was hot, humid, and overcast

9/24/02 (54) Jon C. Edell Jr.

Tuesday September 24, 2002

skies.

* An Interface probe was used to collect initial SWL, then a groundwater level Meter was used during each round. No product observed on water table.
* A total depth probe was used to measure TD.
* Full App. I. parameters requested:
  (3) 40 mL VOAs - HCl
  (2) 250 mL poly - HNO_3
* The SWL was about 1' lower during this round than during March 2002. The TD compare closely.
* Peristaltic pump was used to purge & sample.

Jon C. Edell Jr.

9/24/02 (55)

Tuesday September 24, 2002

ph at 7.26 on a 7.00 standard, ph at 4.24 on a 4.00 standard, ph at 10.26 on a 10.00 standard. Conductivity was 995 us at 29.3°C.

1752 Leaving R2>GW11-06. Offsite for the day.

Jon C. Edell Jr.

9/24/02 (56)

Wednesday September 25 2002

0900 MEK and I are packing up equipment and supplies to be sent back to Baker.

0926 MEK collected trip blank.

0930 I collected Field Blank Sample.

0932 MEK collected equipment Rinsate sample we also started packing up samples.

1120 Arrived at FedEx location in San Juan to drop off equipment and samples.

1140 Heading to the base to wrap things up.

1250 Arrive at Gate 3. Heading for lunch.

1324 Arrive at public works to talk with environmental folks.

1600 Leaving base after all work has been completed. offsite.

* Samples were shipped today by FedEx as mentioned above. The Master air waybill number was 8078 5575 6004. The shipment was relinquished at 1130 by me. Custody Seals were used on this cooler also.

Jon C. Edell Jr.

9/25/02 (57)

Thursday September 26, 2002

0730 Arrived at San Juan airport to fly home.
0830 Left San Juan and heading to Philadelphia.
1150 Arrived in Philadelphia.
1590 Left Philadelphia to go to Pittsburgh.
1650 Arrive in Pittsburgh Intl. Airport

Jim C. Edel Jr.

9/26/02 (58)

Baker

Baker Environmental, Inc.

Appendix C:
Laboratory Analytical Results

APPENDIX C

GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R
Sample ID	R7GW01R-06	R7GW02R-06	R7GW02R-06D	R7GW04R-06	R7GW05R-06
Sample Date	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02
Appendix I Volatiles (ug/L)					
Acetone	50 R	50 R	50 R	50 R	50 R
Acrylonitrile	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Benzene	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Bromoform	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Chlorobenzene	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane (EDB)	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U
Bromomethane	10 U	10 U	10 U	10 U	10 U
Chloromethane	10 U	10 U	10 U	10 U	10 U
Dibromomethane	5 U	5 U	5 U	5 U	5 U
Dichloromethane	5 U	5 U	5 U	5 U	5 U
2-Butanone (MEK)	25 U	25 U	25 U	25 U	25 U
Iodomethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
4-Methyl-2-pentanone (MIBK)	25 U	25 U	25 U	25 U	25 U
Styrene	5 U	5 U	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Toluene	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ

APPENDIX C

GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R
Sample ID	R7GW01R-06	R7GW02R-06	R7GW02R-06D	R7GW04R-06	R7GW05R-06
Sample Date	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02
Appendix I Volatiles (ug/L) (Cont.)					
1,2,3-Trichloropropane	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U
Xylenes, Total	10 U	10 U	10 U	10 U	10 U
Appendix I Total Metals (mg/L)					
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Lead	0.005 U	0.005 U	0.005 U	0.0018 J	0.005 U
Selenium	0.01 U	0.01 U	0.01 U	0.0053 J	0.01 U
Barium	0.055	0.099	0.096	0.24	0.034
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.0011 J	0.005 U
Chromium	0.01 U	0.01 U	0.01 U	0.0028 J	0.01 U
Cobalt	0.01 U	0.01 U	0.01 U	0.021	0.01 U
Copper	0.0056 J	0.0051 J	0.0037 J	0.063	0.0022 J
Nickel	0.04 U	0.04 U	0.04 U	0.0055 J	0.04 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.0073 J	0.024	0.022	0.047	0.019
Zinc	0.015 J	0.02 U	0.02 U	0.14	0.02 U
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ
Appendix I Dissolved Metals (mg/L)					
Antimony (Dissolved)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic, (Dissolved)	0.01 U	0.01 U	0.01 U	0.0049 J	0.01 U
Lead, (Dissolved)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium (Dissolved)	0.01 U	0.01 U	0.01 U	0.0066 J	0.01 U
Barium, (Dissolved)	0.053	0.095	0.097	0.19	0.035
Beryllium (Dissolved)	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium (Dissolved)	0.005 U	0.005 U	0.005 U	0.00086 J	0.005 U
Chromium, (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt (Dissolved)	0.01 U	0.01 U	0.01 U	0.021	0.01 U
Copper, Dissolved	0.02 U	0.0019 J	0.0022 J	0.0095 J	0.002 J
Nickel, (Dissolved)	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Silver (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium (Dissolved)	0.0041 J	0.021	0.02	0.022	0.019
Zinc, (Dissolved)	0.02 U	0.02 U	0.02 U	0.059	0.02 U
Thallium (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury (Dissolved)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ

APPENDIX C

GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW07R-06	R7GW08R-06	R7GW09-06	R7GW10-06	R7GW11-06
Sample Date	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02
Appendix I Volatiles (ug/L)					
Acetone	50 R	50 R	50 R	50 R	50 R
Acrylonitrile	100 UJ	19 J	100 UJ	100 UJ	100 U
Benzene	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5 U	5 UJ	5 U	5 U	5 UJ
Bromodichloromethane	5 UJ	5 U	5 UJ	5 UJ	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	5 U	5 U	1.6 J	5 U	5 U
Carbon tetrachloride	5 UJ	5 U	5 UJ	5 UJ	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 U	5 UJ	5 U	5 U	5 UJ
1,2-Dibromoethane (EDB)	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5 U	5 UJ	5 U	5 U	5 UJ
1,4-Dichlorobenzene	5 U	5 UJ	5 U	5 U	5 UJ
trans-1,4-Dichloro-2-butene	10 U	10 UJ	10 UJ	10 U	10 UJ
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 UJ	5 U	5 UJ	5 UJ	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
2-Hexanone	25 U	25 UJ	25 U	25 U	25 UJ
Bromomethane	10 U	10 U	10 U	10 U	10 U
Chloromethane	10 U	10 UJ	10 U	10 U	10 UJ
Dibromomethane	5 U	5 U	5 U	5 U	5 U
Dichloromethane	5 U	5 U	5 U	5 U	5 U
2-Butanone (MEK)	25 U	25 UJ	25 U	25 U	25 UJ
Iodomethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
4-Methyl-2-pentanone (MIBK)	25 U	25 U	25 U	25 U	25 U
Styrene	5 U	5 U	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 UJ	5 U	5 UJ	5 UJ	5 U
1,1,2,2-Tetrachloroethane	5 U	5 UJ	5 U	5 U	5 UJ
Tetrachloroethene	5 UJ	5 U	5 UJ	5 UJ	5 U
Toluene	5 U	5 U	5 U	5 U	0.69 J
1,1,1-Trichloroethane	5 UJ	5 U	5 UJ	5 UJ	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5 UJ	5 U	5 UJ	5 UJ	5 U

APPENDIX C

GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW07R-06	R7GW08R-06	R7GW09-06	R7GW10-06	R7GW11-06
Sample Date	09/24/02	09/24/02	09/24/02	09/24/02	09/24/02
Appendix I Volatiles (ug/L) (Cont.)					
1,2,3-Trichloropropane	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 UJ	10 U	10 U	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 U	10 U
Xylenes, Total	10 U	10 U	10 U	10 U	10 U
Appendix I Total Metals (mg/L)					
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.013 J	0.015 J	0.01 UJ	0.01 UJ	0.01 UJ
Lead	0.012	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	0.34	0.12	0.097	0.12	0.019
Beryllium	0.00059 J	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.005 U	0.005 U	0.00077 J	0.005 U	0.005 U
Chromium	0.02	0.0053 J	0.01 U	0.01 U	0.01 U
Cobalt	0.045	0.0065 J	0.01 U	0.01 U	0.0014 J
Copper	0.34	0.021	0.0055 J	0.0014 J	0.00093 J
Nickel	0.021 J	0.04 U	0.04 U	0.04 U	0.04 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.16	0.043	0.038	0.0087 J	0.0023 J
Zinc	0.66	0.026	0.02 U	0.02 U	0.02 U
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ
Appendix I Dissolved Metals (mg/L)					
Antimony (Dissolved)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic, (Dissolved)	0.01 U	0.0042 J	0.01 U	0.004 J	0.01 U
Lead, (Dissolved)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium, (Dissolved)	0.085	0.099	0.095	0.12	0.02
Beryllium (Dissolved)	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium (Dissolved)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium, (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt (Dissolved)	0.0018 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper, Dissolved	0.0016 J	0.0021 J	0.0034 J	0.0017 J	0.0011 J
Nickel, (Dissolved)	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Silver (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium (Dissolved)	0.0084 J	0.03	0.039	0.009 J	0.01 U
Zinc, (Dissolved)	0.0064 J	0.02 U	0.02 U	0.02 U	0.02 U
Thallium (Dissolved)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury (Dissolved)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ

APPENDIX C

QA/QC ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

	Equipment Rinsate	Field Blank	Trip Blank
Site ID	R7ER01	R7FB01	R7TB01
Sample ID	R7ER01-06	R7FB01-06	R7TB01-06
Sample Date	09/25/02	09/25/02	09/25/02
Appendix I Volatiles (ug/L)			
Acetone	50 R	50 R	50 R
Acrylonitrile	100 UJ	100 U	100 UJ
Benzene	5 U	5 U	5 U
Bromochloromethane	5 U	5 UJ	5 U
Bromodichloromethane	5 UJ	5 U	5 UJ
Bromoform	5 U	5 U	5 U
Carbon Disulfide	5 U	5 U	5 U
Carbon tetrachloride	5 UJ	5 U	5 UJ
Chlorobenzene	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 U	5 UJ	5 U
1,2-Dibromoethane (EDB)	5 U	5 U	5 U
1,2-Dichlorobenzene	5 U	5 UJ	5 U
1,4-Dichlorobenzene	5 U	5 UJ	5 U
trans-1,4-Dichloro-2-butene	10 U	10 UJ	10 U
1,1-Dichloroethane	5 U	5 U	5 U
1,2-Dichloroethane	5 UJ	5 U	5 UJ
1,1-Dichloroethene	5 U	5 U	5 U
cis-1,2-Dichloroethene	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U
2-Hexanone	25 U	25 UJ	25 U
Bromomethane	10 U	10 U	10 U
Chloromethane	10 U	10 UJ	10 U
Dibromomethane	5 U	5 U	5 U
Dichloromethane	5 U	5 U	5 U
2-Butanone (MEK)	25 U	25 UJ	25 U
Iodomethane	5 UJ	5 UJ	5 UJ
4-Methyl-2-pentanone (MIBK)	25 U	25 U	25 U
Styrene	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 UJ	5 U	5 UJ
1,1,2,2-Tetrachloroethane	5 U	5 UJ	5 U
Tetrachloroethene	5 UJ	5 U	5 UJ
Toluene	5 U	5 U	5 U
1,1,1-Trichloroethane	5 UJ	5 U	5 UJ
1,1,2-Trichloroethane	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U

APPENDIX C

QA/QC ANALYTICAL DATA
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, DECEMBER 2002
SOLID WASTE LANDFILL FACILITY
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

	Equipment Rinsate	Field Blank	Trip Blank
Site ID	R7ER01	R7FB01	R7TB01
Sample ID	R7ER01-06	R7FB01-06	R7TB01-06
Sample Date	09/25/02	09/25/02	09/25/02
Appendix I Volatiles (ug/L) (Cont.)			
Trichlorofluoromethane	5 UJ	5 U	5 UJ
1,2,3-Trichloropropane	5 U	5 U	5 U
Vinyl acetate	10 U	10 UJ	10 U
Vinyl chloride	10 U	10 U	10 U
Xylenes, Total	10 U	10 U	10 U
Appendix I Total Metals (mg/L)			
Antimony	0.02 U	0.02 U	NA
Arsenic	0.01 UJ	0.01 UJ	NA
Lead	0.005 U	0.005 U	NA
Selenium	0.01 U	0.01 U	NA
Barium	0.01 U	0.01 U	NA
Beryllium	0.004 U	0.004 U	NA
Cadmium	0.005 U	0.005 U	NA
Chromium	0.01 U	0.01 U	NA
Cobalt	0.01 U	0.01 U	NA
Copper	0.02 U	0.02 U	NA
Nickel	0.04 U	0.04 U	NA
Silver	0.01 U	0.01 U	NA
Vanadium	0.01 U	0.01 U	NA
Zinc	0.02 U	0.02 U	NA
Thallium	0.01 U	0.01 U	NA
Mercury	0.0002 UJ	0.0002 UJ	NA

Baker

Baker Environmental, Inc.

Appendix D:
Puerto Rican Chemist Certification

CERTIFICATION PAGE

I hereby certify that I have reviewed and evaluated all analytical raw data concerning laboratory reports of analyses for STL Log No. **S2-46929** and to the best of my knowledge, the results for said log number, pages 1 to 22 , signed by Angie Weimerskirk (STL Project Manager) are correct and reliable.

SEVERN TRENT SERVICES
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Appendix 1 Volatile Organics (8260)					
Acetone, ug/l	50U	50U	50U	50U	50U
Acrylonitrile, ug/l	100U	100U	100U	100U	100U
Benzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromodichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromoform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Carbon Disulfide, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Carbon tetrachloride, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chloroethane, ug/l	10U	10U	10U	10U	10U
Chloroform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Dibromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dibromo-3-chloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dibromoethane (EDB), ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,4-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,4-Dichloro-2-butene, ug/l	10U	10U	10U	10U	10U
1,1-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
1,2-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Hexanone, ug/l	25U	25U	25U	25U	25U
Bromomethane, ug/l	10U	10U	10U	10U	10U
Chloromethane, ug/l	10U	10U	10U	10U	10U
Dibromomethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Dichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U	25U	25U	25U
Iodomethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U	25U	25U	25U
Styrene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,1,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Tetrachloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Toluene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,1-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichlorofluoromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2,3-Trichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U	10U	10U	10U
Vinyl chloride, ug/l	10U	10U	10U	10U	10U
Xylenes, Total, ug/l	10U	10U	10U	10U	10U
Surrogate-TOL	92 %	92 %	92 %	90 %	92 %
Surrogate-BFB	88 %	90 %	88 %	86 %	86 %
Surrogate - Dibromofluoromethane	88 %	86 %	86 %	88 %	88 %
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Batch ID	1O1003	1O1003	1O1003	1O1003	1O1003

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION - LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Appendix 1 Metals (6010)					
Antimony, mg/l	0.020U	0.020U	0.020U	0.020U	0.020U
Arsenic, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Lead, mg/l	0.0050U	0.0050U	0.0050U	0.0018B	0.0050U
Selenium, mg/l	0.010U	0.010U	0.010U	0.0053B	0.010U
Barium, mg/l	0.055	0.099	0.096	0.24	0.034
Beryllium, mg/l	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U
Cadmium, mg/l	0.0050U	0.0050U	0.0050U	0.0011B	0.0050U
Chromium, mg/l	0.010U	0.010U	0.010U	0.0028B	0.010U
Cobalt, mg/l	0.010U	0.010U	0.010U	0.021	0.010U
Copper, mg/l	0.0056B	0.0051B	0.0037B	0.063	0.0022B
Nickel, mg/l	0.040U	0.040U	0.040U	0.0055B	0.040U
Silver, mg/l	0.010UN	0.010UN	0.010UN	0.010UN	0.010UN
Vanadium, mg/l	0.0073B	0.024	0.022	0.047	0.019
Zinc, mg/l	0.015B	0.020U	0.020U	0.14	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003J	1003J	1003J	1003J	1003J

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Thallium (6010)					
Thallium, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003J	1003J	1003J	1003J	1003J
Mercury (7470)					
Mercury, mg/l	0.00020UN	0.00020UN	0.00020UN	0.00020UN	0.00020UN
Dilution Factor	1	1	1	1	1
Prep Date	10.02.02	10.02.02	10.02.02	10.02.02	10.02.02
Analysis Date	10.03.02	10.04.02	10.03.02	10.03.02	10.03.02
Batch ID	1002S	1002S	1002S	1002S	1002S

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Appendix 1 Metals (Dissolved)					
Antimony (Dissolved), mg/l	0.020U	0.020U	0.020U	0.020U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.010U	0.010U	0.0049B	0.010U
Lead, (Dissolved), mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
Selenium (Dissolved), mg/l	0.010U	0.010U	0.010U	0.0066B	0.010U
Barium, (Dissolved), mg/l	0.053	0.095	0.097	0.19	0.035
Beryllium (Dissolved), mg/l	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U
Cadmium (Dissolved), mg/l	0.0050U	0.0050U	0.0050U	0.00086B	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.010U	0.010U	0.010U	0.021	0.010U
Copper, Dissolved, mg/l	0.020U	0.0019B	0.0022B	0.0095B	0.0020B
Nickel, (Dissolved), mg/l	0.040U	0.040U	0.040U	0.040U	0.040U
Silver (Dissolved), mg/l	0.010UN	0.010UN	0.010UN	0.010UN	0.010UN
Vanadium (Dissolved), mg/l	0.0041B	0.021	0.020	0.022	0.019
Zinc, (Dissolved), mg/l	0.020U	0.020U	0.020U	0.059	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003K	1003K	1003K	1003K	1003K

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/TIME SAMPLED	SDG#
46929-1	R7GW01R-06	09-24-02/14:15	PRNS56
46929-2	R7GW02R-06	09-24-02/10:30	PRNS56
46929-3	R7GW02R-06D	09-24-02/10:30	PRNS56
46929-4	R7GW04R-06	09-24-02/12:28	PRNS56
46929-5	R7GW05R-06	09-24-02/15:08	PRNS56

PARAMETER	46929-1	46929-2	46929-3	46929-4	46929-5
Thallium (Dissolved) (6010)					
Thallium, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003K	1003K	1003K	1003K	1003K
Mercury (Dissolved) (7470)					
Mercury (Dissolved), mg/l	0.00020UN	0.00020UN	0.00020UN	0.00020UN	0.00020UN
Dilution Factor	1	1	1	1	1
Prep Date	10.02.02	10.02.02	10.02.02	10.02.02	10.02.02
Analysis Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Batch ID	1002T	1002T	1002T	1002T	1002T

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Appendix 1 Volatile Organics (8260)					
Acetone, ug/l	50U	50U	50U	50U	50U
Acrylonitrile, ug/l	100U	19J	100U	100U	100U
Benzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromodichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Bromoform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Carbon Disulfide, ug/l	5.0U	5.0U	1.6J	5.0U	5.0U
Carbon tetrachloride, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chloroethane, ug/l	10U	10U	10U	10U	10U
Chloroform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Dibromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dibromo-3-chloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dibromoethane (EDB), ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,4-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,4-Dichloro-2-butene, ug/l	10U	10U	10U	10U	10U
1,1-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
1,2-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Hexanone, ug/l	25U	25U	25U	25U	25U
Bromomethane, ug/l	10U	10U	10U	10U	10U
Chloromethane, ug/l	10U	10U	10U	10U	10U
Dibromomethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Dichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U	25U	25U	25U
Iodomethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U	25U	25U	25U
Styrene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,1,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Tetrachloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Toluene, ug/l	5.0U	5.0U	5.0U	5.0U	0.69J
1,1,1-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichlorofluoromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2,3-Trichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U	10U	10U	10U
Vinyl chloride, ug/l	10U	10U	10U	10U	10U
Xylenes, Total, ug/l	10U	10U	10U	10U	10U
Surrogate-TOL	92 %	92 %	92 %	88 %	90 %
Surrogate-BFB	88 %	92 %	88 %	84 %	88 %
Surrogate - Dibromofluoromethane	88 %	82 %	86 %	80 %	88 %
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.04.02	10.03.02	10.03.02	10.04.02
Analysis Date	10.03.02	10.04.02	10.03.02	10.03.02	10.04.02
Batch ID	1O1003	1O1004	1O1003	1O1003	1O1004

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Appendix 1 Metals (6010)					
Antimony, mg/l	0.020U	0.020U	0.020U	0.020U	0.020U
Arsenic, mg/l	0.013	0.015	0.010U	0.010U	0.010U
Lead, mg/l	0.012	0.0050U	0.0050U	0.0050U	0.0050U
Selenium, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Barium, mg/l	0.34	0.12	0.097	0.12	0.019
Beryllium, mg/l	0.00059B	0.0040U	0.0040U	0.0040U	0.0040U
Cadmium, mg/l	0.0050U	0.0050U	0.00077B	0.0050U	0.0050U
Chromium, mg/l	0.020	0.0053B	0.010U	0.010U	0.010U
Cobalt, mg/l	0.045	0.0065B	0.010U	0.010U	0.0014B
Copper, mg/l	0.34	0.021	0.0055B	0.0014B	0.00093B
Nickel, mg/l	0.021B	0.040U	0.040U	0.040U	0.040U
Silver, mg/l	0.010UN	0.010UN	0.010UN	0.010UN	0.010UN
Vanadium, mg/l	0.16	0.043	0.038	0.0087B	0.0023B
Zinc, mg/l	0.66	0.026	0.020U	0.020U	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003J	1003J	1003J	1003J	1003J

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Thallium (6010)					
Thallium, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003J	1003J	1003J	1003J	1003J
Mercury (7470)					
Mercury, mg/l	0.00020UN	0.00020UN	0.00020UN	0.00020UN	0.00020UN
Dilution Factor	1	1	1	1	1
Prep Date	10.02.02	10.02.02	10.02.02	10.02.02	10.02.02
Analysis Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Batch ID	1002S	1002S	1002S	1002S	1002S

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION	LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-6	R7GW07R-06		09-24-02/16:30	PRNS56
46929-7	R7GW08R-06		09-24-02/17:05	PRNS56
46929-8	R7GW09-06		09-24-02/12:00	PRNS56
46929-9	R7GW10-06		09-24-02/15:50	PRNS56
46929-10	R7GW11-06		09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Appendix 1 Metals (Dissolved)					
Antimony (Dissolved), mg/l	0.020U	0.020U	0.020U	0.020U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.0042B	0.010U	0.0040B	0.010U
Lead, (Dissolved), mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
Selenium (Dissolved), mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Barium, (Dissolved), mg/l	0.085	0.099	0.095	0.12	0.020
Beryllium (Dissolved), mg/l	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U
Cadmium (Dissolved), mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.0018B	0.010U	0.010U	0.010U	0.010U
Copper, Dissolved, mg/l	0.0016B	0.0021B	0.0034B	0.0017B	0.0011B
Nickel, (Dissolved), mg/l	0.040U	0.040U	0.040U	0.040U	0.040U
Silver (Dissolved), mg/l	0.010UN	0.010UN	0.010UN	0.010UN	0.010UN
Vanadium (Dissolved), mg/l	0.0084B	0.030	0.039	0.0090B	0.010U
Zinc, (Dissolved), mg/l	0.0064B	0.020U	0.020U	0.020U	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003K	1003K	1003K	1003K	1003K

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/TIME SAMPLED	SDG#
46929-6	R7GW07R-06	09-24-02/16:30	PRNS56
46929-7	R7GW08R-06	09-24-02/17:05	PRNS56
46929-8	R7GW09-06	09-24-02/12:00	PRNS56
46929-9	R7GW10-06	09-24-02/15:50	PRNS56
46929-10	R7GW11-06	09-24-02/17:45	PRNS56

PARAMETER	46929-6	46929-7	46929-8	46929-9	46929-10
Thallium (Dissolved) (6010)					
Thallium, mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
Dilution Factor	1	1	1	1	1
Prep Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02	10.09.02	10.09.02	10.09.02
Batch ID	1003K	1003K	1003K	1003K	1003K
Mercury (Dissolved) (7470)					
Mercury (Dissolved), mg/l	0.00020UN	0.00020UN	0.00020UN	0.00020UN	0.00020UN
Dilution Factor	1	1	1	1	1
Prep Date	10.02.02	10.02.02	10.02.02	10.02.02	10.02.02
Analysis Date	10.03.02	10.03.02	10.03.02	10.03.02	10.03.02
Batch ID	1002T	1002T	1002T	1002T	1002T

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-11	R7ER01-06	09-25-02/09:32	PRNS56
46929-12	R7FB01-06	09-25-02/09:30	PRNS56

PARAMETER	46929-11	46929-12
Appendix 1 Volatile Organics (8260)		
Acetone, ug/l	50U	50U
Acrylonitrile, ug/l	100U	100U
Benzene, ug/l	5.0U	5.0U
Bromochloromethane, ug/l	5.0U	5.0U
Bromodichloromethane, ug/l	5.0U	5.0U
Bromoform, ug/l	5.0U	5.0U
Carbon Disulfide, ug/l	5.0U	5.0U
Carbon tetrachloride, ug/l	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U
Chloroethane, ug/l	10U	10U
Chloroform, ug/l	5.0U	5.0U
Dibromochloromethane, ug/l	5.0U	5.0U
1,2-Dibromo-3-chloropropane, ug/l	5.0U	5.0U
1,2-Dibromoethane (EDB), ug/l	5.0U	5.0U
1,2-Dichlorobenzene, ug/l	5.0U	5.0U
1,4-Dichlorobenzene, ug/l	5.0U	5.0U
trans-1,4-Dichloro-2-butene, ug/l	10U	10U
1,1-Dichloroethane, ug/l	5.0U	5.0U
1,2-Dichloroethane, ug/l	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-11	R7ER01-06	09-25-02/09:32	PRNS56
46929-12	R7FB01-06	09-25-02/09:30	PRNS56

PARAMETER	46929-11	46929-12
trans-1,2-Dichloroethene, ug/l	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U
2-Hexanone, ug/l	25U	25U
Bromomethane, ug/l	10U	10U
Chloromethane, ug/l	10U	10U
Dibromomethane, ug/l	5.0U	5.0U
Dichloromethane, ug/l	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U
Iodomethane, ug/l	5.0U	5.0U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U
Styrene, ug/l	5.0U	5.0U
1,1,1,2-Tetrachloroethane, ug/l	5.0U	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U
Tetrachloroethene, ug/l	5.0U	5.0U
Toluene, ug/l	5.0U	5.0U
1,1,1-Trichloroethane, ug/l	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U
Trichloroethene, ug/l	5.0U	5.0U
Trichlorofluoromethane, ug/l	5.0U	5.0U

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-11	R7ER01-06	09-25-02/09:32	PRNS56
46929-12	R7FB01-06	09-25-02/09:30	PRNS56

PARAMETER	46929-11	46929-12
1,2,3-Trichloropropane, ug/l	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U
Vinyl chloride, ug/l	10U	10U
Xylenes, Total, ug/l	10U	10U
Surrogate-TOL	90 %	94 %
Surrogate-BFB	92 %	90 %
Surrogate - Dibromofluoromethane	84 %	86 %
Dilution Factor	1	1
Prep Date	10.03.02	10.04.02
Analysis Date	10.03.02	10.04.02
Batch ID	1O1003	1O1004

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-11	R7ER01-06	09-25-02/09:32	PRNS56
46929-12	R7FB01-06	09-25-02/09:30	PRNS56

PARAMETER	46929-11	46929-12
Appendix 1 Metals (6010)		
Antimony, mg/l	0.020U	0.020U
Arsenic, mg/l	0.010U	0.010U
Lead, mg/l	0.0050U	0.0050U
Selenium, mg/l	0.010U	0.010U
Barium, mg/l	0.010U	0.010U
Beryllium, mg/l	0.0040U	0.0040U
Cadmium, mg/l	0.0050U	0.0050U
Chromium, mg/l	0.010U	0.010U
Cobalt, mg/l	0.010U	0.010U
Copper, mg/l	0.020U	0.020U
Nickel, mg/l	0.040U	0.040U
Silver, mg/l	0.010UN	0.010UN
Vanadium, mg/l	0.010U	0.010U
Zinc, mg/l	0.020U	0.020U
Dilution Factor	1	1
Prep Date	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02
Batch ID	1003J	1003J

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-11	R7ER01-06	09-25-02/09:32	PRNS56
46929-12	R7FB01-06	09-25-02/09:30	PRNS56

PARAMETER	46929-11	46929-12
Thallium (6010)		
Thallium, mg/l	0.010U	0.010U
Dilution Factor	1	1
Prep Date	10.03.02	10.03.02
Analysis Date	10.09.02	10.09.02
Batch ID	1003J	1003J
Mercury (7470)		
Mercury, mg/l	0.00020UN	0.00020UN
Dilution Factor	1	1
Prep Date	10.02.02	10.02.02
Analysis Date	10.03.02	10.03.02
Batch ID	1002S	1002S

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-13	R7TB01-06	09-25-02	PRNS56

PARAMETER	46929-13
Appendix 1 Volatile Organics (8260)	
Acetone, ug/l	50U
Acrylonitrile, ug/l	100U
Benzene, ug/l	5.0U
Bromochloromethane, ug/l	5.0U
Bromodichloromethane, ug/l	5.0U
Bromoform, ug/l	5.0U
Carbon Disulfide, ug/l	5.0U
Carbon tetrachloride, ug/l	5.0U
Chlorobenzene, ug/l	5.0U
Chloroethane, ug/l	10U
Chloroform, ug/l	5.0U
Dibromochloromethane, ug/l	5.0U
1,2-Dibromo-3-chloropropane, ug/l	5.0U
1,2-Dibromoethane (EDB), ug/l	5.0U
1,2-Dichlorobenzene, ug/l	5.0U
1,4-Dichlorobenzene, ug/l	5.0U
trans-1,4-Dichloro-2-butene, ug/l	10U
1,1-Dichloroethane, ug/l	5.0U
1,2-Dichloroethane, ug/l	5.0U
1,1-Dichloroethene, ug/l	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U
trans-1,2-Dichloroethene, ug/l	5.0U

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-13	R7TB01-06	09-25-02	PRNS56

PARAMETER	46929-13				
1,2-Dichloropropane, ug/l	5.0U				
cis-1,3-Dichloropropene, ug/l	5.0U				
trans-1,3-Dichloropropene, ug/l	5.0U				
Ethylbenzene, ug/l	5.0U				
2-Hexanone, ug/l	25U				
Bromomethane, ug/l	10U				
Chloromethane, ug/l	10U				
Dibromomethane, ug/l	5.0U				
Dichloromethane, ug/l	5.0U				
2-Butanone (MEK), ug/l	25U				
Iodomethane, ug/l	5.0U				
4-Methyl-2-pentanone (MIBK), ug/l	25U				
Styrene, ug/l	5.0U				
1,1,1,2-Tetrachloroethane, ug/l	5.0U				
1,1,2,2-Tetrachloroethane, ug/l	5.0U				
Tetrachloroethene, ug/l	5.0U				
Toluene, ug/l	5.0U				
1,1,1-Trichloroethane, ug/l	5.0U				
1,1,2-Trichloroethane, ug/l	5.0U				
Trichloroethene, ug/l	5.0U				
Trichlorofluoromethane, ug/l	5.0U				
1,2,3-Trichloropropane, ug/l	5.0U				
Vinyl acetate, ug/l	10U				

SEVERN TRENT SERVICES

5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

STL Savannah

LOG NO: S2-46929
Received: 26 SEP 02
Reported: 24 OCT 02

Mr. Mark Kimes
Michael Baker Corporation/Baker Environmental Inc.
420 Rouser Rd., AOP, Bldg. 3
Coraopolis, PA 15108

Client PO. No.: 277-06200
Cl Project No: 62470-277

Project: PRNS56/CTO-0277/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 164921025

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
46929-13	R7TB01-06	09-25-02	PRNS56

PARAMETER	46929-13
Vinyl chloride, ug/l	10U
Xylenes, Total, ug/l	10U
Surrogate-TOL	92 %
Surrogate-BFB	92 %
Surrogate - Dibromofluoromethane	88 %
Dilution Factor	1
Prep Date	10.03.02
Analysis Date	10.03.02
Batch ID	101003

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

U = Indicates compound was analyzed for but not detected.

B (Inorganic) = This flag indicates the reported value was obtained from a reading that was less than the Project Reporting Limits but greater than or equal to the Method Detection Limit (MDL).

N (Inorganic) = This flag indicates that spiked sample recovery is not within control limits.

J = The flag "J" indicates the presence of a compound that meets the identification criteria, but the result is less than the sample RL and greater than the MDL.

Angie Weimerskirk

Angie Weimerskirk, Project Manager

Baker

Baker Environmental, Inc.

Appendix E:
Laboratory Data Validation Summary

Data Validation Report

Baker Environmental, Inc.
Roosevelt Roads
SDG#: PRNS56

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS56
Date:	November 6, 2002
Client Name:	Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	September 24 - 25, 2002
Number of Samples:	13 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Metals and Dissolved Metals

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Swafford

Paul B. Humburg, President

11-7-02.

Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS56

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		MET		D MET	
R7GW01R-06	WATER	X		X		X	
R7GW02R-06	WATER	X		X		X	
R7GW02R-06 MS	WATER	X		X		X	
R7GW02R-06 MSD	WATER	X		X		X	
R7GW02R-06D	WATER	X		X		X	
R7GW04R-06	WATER	X		X		X	
R7GW05R-06	WATER	X		X		X	
R7GW07R-06	WATER	X		X		X	
R7GW08R-06	WATER	X		X		X	
R7GW09-06	WATER	X		X		X	
R7GW10-06	WATER	X		X		X	
R7GW11-06	WATER	X		X		X	
R7ER01-06	WATER	X		X			
R7FB01-06	WATER	X		X			
R7TB01-06	WATER	X					
Total Billable Samples (Water/Soil)		15	0	14	0	12	0

VOA= Volatiles
MET= Metals
D MET= Dissolved Metals

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE
VOLATILES

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, internal standard recoveries and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B; Region II SOP HW-24, Revision 1, 6/99; and NEESA level D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PRNS56

A validation was performed on the Volatile Data from SDG PRNS56. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tunning
	•	Calibrations
	•	Blanks
	•	Internal Standards
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration standards OQ092/096 and OQ104/105 exhibited one compound with RRFs less than 0.05. For the following samples and non-compliant compounds, the reported positive results are qualified as estimated, J, and the non-detect results are rejected, R.

All Samples	acetone

Calibrations (continued)

The continuing calibration standard OQ092/096 exhibited several compounds with %Ds greater than 20% but less than 90%. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

R7TB01-06	trichlorofluoromethane
R7ER01-06	iodomethane
R7GW01R-06	acrylonitrile
R7GW02R-06	1,1,1-trichloroethane
R7GW02R-06D	carbon tetrachloride
R7GW04R-06	1,2-dichloroethane
R7GW05R-06	bromodichloromethane
R7GW07R-06	tetrachloroethene
R7GW09-06	1,1,1,2-tetrachloroethane
R7GW10-06	

The continuing calibration standard OQ092/096 exhibited several compounds with %Ds greater than 20% but less than 90%. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

R7GW08R-06	chloromethane
R7FB01-06	iodomethane
R7GW11-06	vinyl acetate
	2-butanone
	bromochloromethane
	2-hexanone
	1,1,2,2-tetrachloroethane
	trans-1,4-dichloro-2-butene
	1,4-dichlorobenzene
	1,2-dichlorobenzene
	1,2-dibromo-3-chloropropane

Blanks

The associated method blank exhibited TIC contamination. All TIC results within 5X the concentration for the TICs noted below are rejected, R.

CO_2	RT 0.95	220JN
CO_2	RT 0.95	150JN

Internal Standard Recoveries

The following samples were analyzed behind an Appendix IX mix continuing calibration standard which exhibited an area count for chlorobenzene-d5 that was below the SW-846 method QC limits when compared to the initial calibration standard of the same concentration. Therefore, the noted compound, which is the only target compound quantitated with the non-compliant internal standard in the Appendix IX mix, is qualified as estimated, J/UJ, in the following samples.

R7GW08R-06	trans-1,4-dichloro-2-butene
R7GW11-06	
R7FB01-06	

System Performance and Overall Assessment

The data did require qualifications/rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

~~**D** = Result value is based on dilution analysis~~

METHOD BLANK QUALIFICATION CODES

RL = The sample result for the blank contaminant is less than the sample RL and is less than 5X or 10X the method blank value. The sample result for the blank contaminant is rejected and the RL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample RL and is less than 5X or 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample RL and is greater than 5X or 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acetone	+/-	J/R
R7TB01-06 R7ER01-06 R7GW01R-06 R7GW02R-06 R7GW02R-06D R7GW04R-06 R7GW05R-06 R7GW07R-06 R7GW09-06 R7GW10-06	trichlorofluoromethane iodomethane acrylonitrile 1,1,1-trichloroethane carbon tetrachloride 1,2-dichloroethane bromodichloromethane tetrachloroethene 1,1,1,2-tetrachloroethane	+/-	J/UJ
R7GW08R-06 R7FB01-06 R7GW11-06	chloromethane iodomethane vinyl acetate 2-butanone bromochloromethane 2-hexanone 1,1,2,2-tetrachloroethane trans-1,4-dichloro-2-butene 1,4-dichlorobenzene 1,2-dichlorobenzene 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	B flagged TICs	+JN	R
R7GW08R-06 R7GW11-06 R7FB01-06	trans-1,4-dichloro-2-butene	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM4.1 methods for Metals and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # PRNS56

A validation was performed on the Metals Data from SDG PRNS56. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
	●	Calibrations
*	●	Blanks
*	●	Interferences
	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Calibration Verification Standard results

1. The calibration verification standard for Arsenic and (77%) Zinc was below the lower control limits for total waters (<80%). All positive and non-detect results are qualified as estimated, "J" or "UJ" for any sample results below two times the CRDL plus the CRI.

2. The calibration verification standards for Selenium (130%) for total samples and for Thallium (121%) for dissolved samples were above the upper control limits for soils (>120% but <150%). All positive results are qualified as estimated, "J" for any sample results below two times the CRDL plus the CRI.

Matrix Spike Recovery results

3. The matrix spike recovery results for total and dissolved samples for Mercury (58%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

4. The matrix spike recovery results for total and dissolved samples for Silver (130%) was above the upper control limits (>125%). All positive results are qualified as estimated, "J".

5. All results with a "B" qualifier that have not been previously flagged will be changed to a "J" qualifier. These results fall between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL) and may have an element of uncertainty associated with them due to the variability of IDLs.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
1.all total samples	As.	+/U	J/UJ
2.all total samples	Se.	+	J
all dissolved samples	Tl.		
3.all total and dissolved samples	Hg.	+/U	J/UJ
4.all total and dissolved samples	Ag.	+	J
5.all "B" results	all analytes	B	J

Baker

Baker Environmental, Inc.

Appendix F:
Summary of Statistical Analyses

1,1-Dichloroethane(mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.001	0.01 U	0.01 U	0.01 U	R7GW05R	0.005 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.005 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.0222222
background maximum	0.001
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

1,1-Dichloroethylene(mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U J*	0.01 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.001 U	0.01 U J*	0.01 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U J*	0.01 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.001	0.01 U J*	0.01 U	0.01 U	R7GW05R	0.005 U
R7GW07	0.0005 U	0.01 U J*	0.01 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.0005 U	0.01 U J*	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U J*	0.01 U	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.005 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.0222222
background maximum	0.001
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Acetone (mg/L)				Date		
Well	6/17/1998	2/2/2000			3/3/2002	09/24/02
R7GW01	0.002 U	0.01 U	R7GW01R		0.05 UJ	0.05 R
R7GW02	0.002 U	0.01 U	R7GW02R		0.05 UJ	0.05 R
R7GW04	0.005	0.01 U	R7GW04R		0.05 UJ	0.05 R
R7GW05	0.002 U	0.01 U	R7GW05R		0.05 UJ	0.05 R
R7GW07	0.002 U	0.01 U	R7GW07R		0.05 UJ	0.05 R
R7GW08	0.002 U	0.01 U	R7GW08R		0.05 UJ	0.05 R
R7GW09	0.002 U	0.01 U	R7GW09		0.05 UJ	0.05 R
R7GW10	0.002 U	0.01 U	R7GW10		0.05 UJ	0.05 R
R7GW11	0.002	0.01 U	R7GW11		0.05 UJ	0.05 R

proportion of detects	0.0740741
background maximum	0.001
background mean	0.0035
background median	0.0035
background standard deviation	not meaningful
	compliance round

R--rejected by the validator

note: 3/2002 compliance round moved to background round.

Chlorobenzene (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.0008	0.01 U	0.01 U	0.01 U	R7GW05R	0.005 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.005 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.0222222
background maximum	0.0008
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

cis-1,2-Dichloroethylene (mg/L)					
			Date		
Well	6/17/1998	2/2/2000		3/3/2002	9/24/2002
R7GW01	0.0005 U	0.01 U	R7GW01R	0.005 U	0.005 U
R7GW02	0.0005 U	0.01 U	R7GW02R	0.005 U	0.005 U
R7GW04	0.0005 U	0.01 U	R7GW04R	0.005 U	0.005 U
R7GW05	0.002	0.01 U	R7GW05R	0.00068 J	0.005 U
R7GW07	0.0005 U	0.01 U	R7GW07R	0.005 U	0.005 U
R7GW08	0.0005 U	0.01 U	R7GW08R	0.005 U	0.005 U
R7GW09	0.0005 U	0.01 U	R7GW09	0.005 U	0.005 U
R7GW10	0.0005 U	0.01 U	R7GW10	0.005 U	0.005 U
R7GW11	0.0005 U	0.01 U	R7GW11	0.005 U	0.005 U

proportion of detects	0.0555556
background maximum	0.002
background mean	0.0013
background median	not meaningful
background standard deviation	not meaningful
	compliance round

note: 3/2002 compliance round moved to background round.

Ethylbenzene (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW05R	0.005 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.015	0.01 U	R7GW10	0.005 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.0222222
background maximum	0.015
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Methyl Chloride (mg/L)			Date			
(chloromethane)	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.01 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.01 U
R7GW04	0.0007	0.01 U	0.01 U	0.01 U	R7GW04R	0.01 U
R7GW05	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW05R	0.01 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.01 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.01 UJ
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.01 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.01 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.01 UJ

proportion of detects	0.0222222
background maximum	0.0007
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Vinyl Chloride (mg/L)	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.01 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.01 U
R7GW04	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.01 U
R7GW05	0.001	0.01 U	0.01 U	0.01 U	R7GW05R	0.01 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.01 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.01 U
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.01 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.01 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.01 U

proportion of detects	0.0222222
background maximum	0.001
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Chloroform (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW05R	0.005 U
R7GW07	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW10	0.005 U
R7GW11	0.0005 U	0.01 U	0.01 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.0222222
background maximum	ND
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Carbon Disulfide (mg/L)

	Date				
	6/17/1998	2/2/2000		3/3/2002	9/24/2002
R7GW01	0.002 U	0.01 U	R7GW01R	0.005 U	0.005 U
R7GW02	0.002 U	0.01 U	R7GW02R	0.005 U	0.005 U
R7GW04	0.002 U	0.01 U	R7GW04R	0.005 U	0.005 U
R7GW05	0.002 U	0.01 U	R7GW05R	0.0019 J	0.005 U
R7GW07	0.002 U	0.01 U	R7GW07R	0.005 U	0.005 U
R7GW08	0.002 U	0.01 U	R7GW08R	0.005 U	0.005 U
R7GW09	0.002 U	0.01 U	R7GW09	0.005 U	0.0016 J
R7GW10	0.002 U	0.01 U	R7GW10	0.005 U	0.005 U
R7GW11	0.002 U	0.01 U	R7GW11	0.005 U	0.005 U

proportion of detects	0.0555556
background maximum	0.0019 J
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

note: 3/2002 compliance round moved to background round.

Methylene Bromide (mg/L)			Date		
(Dibromomethane)	6/17/1998	2/2/2000		3/3/2002	9/24/2002
R7GW01	0.0005 U	0.01 U	R7GW01R	0.005 U	0.005 U
R7GW02	0.0005 U	0.01 U	R7GW02R	0.005 U	0.005 U
R7GW04	0.0005 U	0.01 U	R7GW04R	0.005 U	0.005 U
R7GW05	0.0005 U	0.01 U	R7GW05R	0.0046 J	0.005 U
R7GW07	0.0005 U	0.01 U	R7GW07R	0.005 U	0.005 U
R7GW08	0.0005 U	0.01 U	R7GW08R	0.005 U	0.005 U
R7GW09	0.0005 U	0.01 U	R7GW09	0.005 U	0.005 U
R7GW10	0.0005 U	0.01 U	R7GW10	0.005 U	0.005 U
R7GW11	0.0005 U	0.01 U	R7GW11	0.005 U	0.005 U

proportion of detects	0.0277778
background maximum	0.0046
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

note: 3/2002 compliance round moved to background round.

Toluene (mgL)			Date			
well	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW01R	0.005 U
R7GW02	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW02R	0.005 U
R7GW04	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW04R	0.005 U
R7GW05	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW05R	0.005 U
R7GW07	0.0006 U*	0.01 U	0.01 UJ*	0.01 U	R7GW07R	0.005 U
R7GW08	0.0006 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW09	0.005 U
R7GW10	0.0005 U	0.01 U	0.01 UJ*	0.01 U	R7GW10	0.005 U
R7GW11	0.0006 U*	0.01 U	0.01 UJ*	0.01 U	R7GW11	0.00069 J

proportion of detects	0.0222222
background maximum	ND
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Upgradient wells, R7GW01/01R, and R7GW11.

Volatiles (ug/l)	upgradient average/max	Comment
1,1-Dichloroethane	ND	
1,1-Dichloroethene	ND	
Acetone	0.002	
Carbon Disulfide	ND	
Chlorobenzene	ND	
Chloroform	ND	
Chloromethane	ND	
cis-1,2-Dichloroethene	ND	
Dibromomethane	ND	
Ethylbenzene	ND	
Toluene	ND	note: toluene was detected in R7GW11 on 9/24/02
Vinyl chloride	ND	

Antimony (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW01R	0.02 U
R7GW02	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW02R	0.02 U
R7GW04	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW04R	0.02 U
R7GW05	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW05R	0.02 U
R7GW07	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW07R	0.02 U
R7GW08	0.0018 U	0.02 U R	0.02 U	0.02 U	R7GW08R	0.02 U
R7GW09	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW09	0.02 U
R7GW10	0.002 B	0.02 U R	0.02 UJ*	0.02 U	R7GW10	0.02 U
R7GW11	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW11	0.02 U

proportion of detects	0.0222
background maximum	0.002
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Arsenic (mg/L)	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW01R	0.01 UJ
R7GW02	0.0169	0.01 U	0.01 U	0.01 U	R7GW02R	0.01 UJ
R7GW04	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW04R	0.01 UJ
R7GW05	0.0062 B	0.01 U	0.01 U	0.01 U	R7GW05R	0.01 UJ
R7GW07	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW07R	0.013 J
R7GW08	0.0066 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.015 J
R7GW09	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW09	0.01 UJ
R7GW10	0.0101	0.01 U	0.01 U	0.01 U	R7GW10	0.01 UJ
R7GW11	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW11	0.01 UJ

proportion of detects	0.1111	
background maximum	0.0169	
background mean	0.0111	note: statistics performed on detections only
background median	0.0101	
background standard deviation	0.0054	

compliance round

Barium (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	Average		9/24/2002
R7GW01	0.324	0.022 J*	0.248	0.098	0.173	R7GW01R	0.055
R7GW02	0.0141 B	0.001 U J*	0.001 U	0.001 U	0.014	R7GW02R	0.099
R7GW04	0.106 B	0.001 U J*	0.766	0.158	0.343	R7GW04R	0.24
R7GW05	0.0105 B	0.001 U J*	0.001 U	0.001 U	0.011	R7GW05R	0.034
R7GW07	0.0096 B	0.001 U J*	0.001 U	0.001 U	0.010	R7GW07R	0.34
R7GW08	0.0451 B	0.001 U J*	0.024	0.001 U	0.035	R7GW08R	0.12
R7GW09	0.195 B	0.001 U J*	0.096	0.001 U	0.146	R7GW09	0.097
R7GW10	0.174 B	0.001 U J*	0.001 U	0.001 U	0.174	R7GW10	0.12
R7GW11	0.025 B	0.001 U J*	0.062	0.001 U	0.044	R7GW11	0.019

proportion of detects 0.577777778

background maximum 0.7660
background mean 0.1178 note: statistics performed on detections only
background median 0.0250
background standard deviation 0.2097 note: may be lognormally distributed

compliance round

Beryllium

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW01R	0.004 U
R7GW02	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW02R	0.004 U
R7GW04	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW04R	0.004 U
R7GW05	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW05R	0.004 U
R7GW07	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW07R	0.00059 J
R7GW08	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW08R	0.004 U
R7GW09	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW09	0.004 U
R7GW10	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW10	0.004 U
R7GW11	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW11	0.004 U

proportion of detects	0.0222222
background maximum	ND
background mean	ND
background median	ND
background standard deviation	ND
	compliance round

Cadmium (mg/L)	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW01R	0.005 U
R7GW02	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW02R	0.005 U
R7GW04	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW04R	0.0011 J
R7GW05	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW05R	0.005 U
R7GW07	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW07R	0.005 U
R7GW08	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW08R	0.005 U
R7GW09	0.00057 B	0.001 U J*	0.001 U	0.001 U	R7GW09	0.00077 J
R7GW10	0.00054 B	0.001 U J*	0.001 U	0.001 U	R7GW10	0.005 U
R7GW11	0.0003 U	0.001 U J*	0.001 U	0.001 U	R7GW11	0.005 U

proportion of detects	0.0888889	
background maximum	0.00057	
background mean	0.00056	note: statistics performed on detections only
background median	0.00056	
background standard deviation	not meaningful	
	compliance round	

Chromium (mg/L)

	Date							
	6/17/1998	2/2/2000		5/9/2000	8/15/2000	average		9/24/2002
R7GW01	0.0034 B	0.026	J*	0.038	0.044	0.028	R7GW01R	0.01 U
R7GW02	0.0008 U	0.078	J*	0.001 U	0.04	0.059	R7GW02R	0.01 U
R7GW04	0.0008 U	0.014	J*	0.064	0.01 U	0.039	R7GW04R	0.0028 J
R7GW05	0.0014 B	0.07	J*	0.06	0.03	0.040	R7GW05R	0.01 U
R7GW07	0.0013 B	0.012	J*	0.022	0.01 U	0.012	R7GW07R	0.02
R7GW08	0.0017 B	0.06	J*	0.08	0.052	0.048	R7GW08R	0.0053 J
R7GW09	0.0032 B	0.001	J*	0.104	0.038	0.037	R7GW09	0.01 U
R7GW10	0.016	0.014	J*	0.001 U	0.01 U	0.015	R7GW10	0.01 U
R7GW11	0.0021 B	0.01	J*	0.064	0.02	0.024	R7GW11	0.01 U

proportion of detects background	0.711111	
maximum	0.1040	
background mean	0.0335	note: mean determined from detections only
background median	0.0150	note: median determined from all data
background standard deviation	0.0291	note: standard deviation determined from detections only

compliance round

note: other methods of determining the mean of this data set are invalid because of the 0.01 non-detect value for the 8/2000 data. They are higher than then detected values in the 6/1998 data.

upgradient average	0.0259	note: mean determined from detections only

Cobalt (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	avg		9/24/2002
R7GW01	0.0089 B	0.001 U J*	0.04	0.001 U	0.02445	R7GW01R	0.01 U
R7GW02	0.0016 B	0.001 U J*	0.001 U	0.001 U	0.0016	R7GW02R	0.01 U
R7GW04	0.0042 B	0.001 U J*	0.001 U	0.001 U	0.0042	R7GW04R	0.021
R7GW05	0.0016 B	0.001 U J*	0.001 U	0.001 U	0.0016	R7GW05R	0.01 U
R7GW07	0.0005 B	0.001 U	0.001 U	0.001 U	0.0005	R7GW07R	0.045
R7GW08	0.001 B	0.001 U J*	0.001 U	0.001 U	0.001	R7GW08R	0.0065 J
R7GW09	0.0155 B	0.001 U	0.092	0.048	0.0518	R7GW09	0.01 U
R7GW10	0.0081	0.001 U J*	0.001 U	0.001 U	0.0081	R7GW10	0.01 U
R7GW11	0.0004 B	0.001 U J*	0.026	0.001 U	0.0004	R7GW11	0.0014 J

proportion of detects	0.377778	
background maximum	0.0920	
background mean	0.0191	note: mean determined from detections only
background median	0.0010 U	note: median determined from all data
background standard deviation	0.0270	note: standard deviation determined from detections only
compliance round		
upgradient average	0.0188	note: mean determined from detections only

Copper (mg/L)								
	Date							
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	avg		9/24/2002	
R7GW01	0.0134 B	0.01 U	0.076	0.026 U*	0.0447	R7GW01R	0.0056 J	
R7GW02	0.0094 B	0.01 U J*	0.034	0.01 U	0.0217	R7GW02R	0.0051 J	
R7GW04	0.0228 B	0.01 U J*	0.076	0.01 U	0.0494	R7GW04R	0.063	
R7GW05	0.0088 B	0.01 U	0.03	0.01 U	0.0194	R7GW05R	0.0022 J	
R7GW07	0.0046 B	0.01 U	0.054	0.01 U	0.0293	R7GW07R	0.34	
R7GW08	0.0086 B	0.01 U	0.044	0.01 U	0.0263	R7GW08R	0.021	
R7GW09	0.0358	0.01 U	0.272	0.052 U*	0.1539	R7GW09	0.0055 J	
R7GW10	0.0195 B	0.01 U	0.032	0.028 U*	0.02575	R7GW10	0.0014 J	
R7GW11	0.0046 B	0.01 U	0.216	0.032	0.0842	R7GW11	0.00093 J	

proportion of detects	0.622222	
background maximum	0.2720	
background mean	0.0523	note: mean determined from detections only
background median	0.0100 U	note: median determined from all data
background standard deviation	0.0714	note: standard deviation determined from detections only, data may be lognormal
compliance round		
upgradient average	0.0684	note: mean determined from detections only

Lead (mg/L)	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0017 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW01R	0.005 U
R7GW02	0.0085 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW02R	0.005 U
R7GW04	0.0085 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW04R	0.0018 J
R7GW05	0.0017 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW05R	0.005 U
R7GW07	0.0026 BJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW07R	0.012
R7GW08	0.0085 UJ*	0.008 U J*	0.008	0.008 U	R7GW08R	0.005 U
R7GW09	0.0085 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW09	0.005 U
R7GW10	0.0069 J*	0.008 U J*	0.008 UJ*	0.008 U	R7GW10	0.005 U
R7GW11	0.0018 BJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW11	0.005 U

proportion of detects	0.1333333	
background maximum	0.008	
background mean	0.0048	note: mean determined from detections only
background median	0.0080 U	note: median determined from all data
background standard deviation	0.0031	note: standard deviation determined from detections only

compliance round

Thallium (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW01R	0.01 U
R7GW02	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW02R	0.01 U
R7GW04	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW04R	0.01 U
R7GW05	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW05R	0.01 U
R7GW07	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW07R	0.01 U
R7GW08	0.0031 U	0.02 U J*	0.02 U	0.02 U	R7GW08R	0.01 U
R7GW09	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW09	0.01 U
R7GW10	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW10	0.01 U
R7GW11	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW11	0.01 U

proportion of detects	0.0200	detection from 03/02
background maximum	ND	
background mean	ND	
background median	ND	
background standard deviation	not meaningful	
	compliance round	

Nickel (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	average		9/24/2002
R7GW01	0.0022 B	0.01 U J*	0.008 UJ*	0.01 U		R7GW01R	0.04 U
R7GW02	0.00064 B	0.01 U J*	0.01 UJ*	0.01 U		R7GW02R	0.04 U
R7GW04	0.0011 B	0.01 U J*	0.01 UJ*	0.01 U		R7GW04R	0.0055 J
R7GW05	0.00083 B	0.01 U J*	0.01 UJ*	0.01 U		R7GW05R	0.04 U
R7GW07	0.0006 U	0.01 U J*	0.01 UJ*	0.01 U		R7GW07R	0.021 J
R7GW08	0.0006 B	0.01 U J*	0.01 U	0.01 U		R7GW08R	0.04 U
R7GW09	0.0067 B	0.01 U J*	0.026 J*	0.01 U	0.01635	R7GW09	0.04 U
R7GW10	0.0068 B	0.01 U J*	0.01 UJ*	0.01 U		R7GW10	0.04 U
R7GW11	0.0006 U	0.01 U J*	0.03 J*	0.01 U		R7GW11	0.04 U

proportion of detects	0.2222222	
background maximum	0.0300	
background mean	0.0069	note: mean determined from detections only
background median	0.0100 U	note: median determined from all data
background standard deviation	0.0115	note: standard deviation determined from detections only, data may be lognormal

compliance round

upgradient average	0.0161	note: mean determined from detections only

Selenium (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		9/24/2002
R7GW01	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW01R	0.01 U
R7GW02	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW02R	0.01 U
R7GW04	0.011 U	0.01 U J*	0.01 U	0.01 U	R7GW04R	0.0053 J
R7GW05	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW05R	0.01 U
R7GW07	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW07R	0.01 U
R7GW08	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW08R	0.01 U
R7GW09	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW09	0.01 U
R7GW10	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW10	0.01 U
R7GW11	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW11	0.01 U

proportion of detects	0.02
background maximum	ND
background mean	ND
background median	ND
background standard deviation	not meaningful
	compliance round

Silver (mg/L)

	Date								
	6/17/1998		2/2/2000		5/9/2000	8/15/2000		9/24/2002	
R7GW01	0.0007	U	0.01	J*	0.001 UR	0.001 U	R7GW01R	0.01	U
R7GW02	0.00076	U	0.01	R	0.001 UR	0.001 U	R7GW02R	0.01	U
R7GW04	0.0007	U	0.001 U	R	0.001 R	0.001 U	R7GW04R	0.01	U
R7GW05	0.0007	U	0.001 U	R	0.001 UR	0.001 U	R7GW05R	0.01	U
R7GW07	0.0007	U	0.001 U	R	0.001 UR	0.001 U	R7GW07R	0.01	U
R7GW08	0.0007	U	0.001 U	R	0.001 U	0.001 U	R7GW08R	0.01	U
R7GW09	0.0007	U	0.01	R	0.001 UR	0.001 U	R7GW09	0.01	U
R7GW10	0.0007	U	0.001 U	R	0.001 UR	0.01	R7GW10	0.01	U
R7GW11	0.0007	U	0.01	R	0.001 UR	0.001 U	R7GW11	0.01	U

proportion of detects	0.0444444	
background maximum	0.0100	
background mean	0.0100	note: mean determined from detections only
background median	0.0010	U
background standard deviation	not meaningful	
	compliance round	

Vanadium (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	average		9/24/2002
R7GW01	0.0152 B	0.034 J*	0.048	0.102	0.0498	R7GW01R	0.0073 J
R7GW02	0.0098 B	0.001 U J*	0.02	0.001 U	0.0149	R7GW02R	0.024
R7GW04	0.0198 B	0.012 J*	0.04	0.001 U	0.0239	R7GW04R	0.047
R7GW05	0.013 B	0.001 U J*	0.03	0.001 U	0.0215	R7GW05R	0.019
R7GW07	0.0084 B	0.04 J*	0.116	0.034	0.0496	R7GW07R	0.16
R7GW08	0.0092 B	0.001 U J*	0.06	0.032	0.0337	R7GW08R	0.043
R7GW09	0.0182 B	0.078 J*	0.038	0.001 U	0.0447	R7GW09	0.038
R7GW10	0.0899	0.016 J*	0.044	0.06	0.0525	R7GW10	0.0087 J
R7GW11	0.0059 B	0.001 U J*	0.088	0.028	0.0406	R7GW11	0.0023 J

proportion of detects 0.8222

background maximum 0.1160

background mean 0.0396 note: mean determined from detections only

background median 0.0199 note: median determined from all data

background standard deviation 0.0305 note: standard deviation determined from detections only

compliance round

upgradient average 0.0459 note: mean determined from detections only

note: Winsorized mean = 0.024075

note: Winsorized standard deviation = 0.02906

Zinc (mg/L)				Date			
Well	6/17/1998	2/2/2000	8/15/2000		3/2/2002	average	9/24/2002
R7GW01	0.0128 B	11.9	0.286	R7GW01R	0.02 U	4.0663	0.015 J
R7GW02	0.0227	0.262	0.324	R7GW02R	0.0061 J	0.1537	0.02 U
R7GW04	0.0296 B	0.174	0.252	R7GW04R	0.29	0.1864	0.14
R7GW05	0.0386	0.26	0.248	R7GW05R	0.026	0.1432	0.02 U
R7GW07	0.0084 B	0.334	0.246	R7GW07R	0.056	0.1611	0.66
R7GW08	0.0225	0.24	0.322	R7GW08R	0.02 U	0.1948	0.026
R7GW09	0.0296	0.226	0.258	R7GW09	0.02 U	0.1712	0.02 U
R7GW10	0.0207	0.214	0.308	R7GW10	0.02 U	0.1809	0.02 U
R7GW11	0.0254 B	0.628	0.342	R7GW11	0.02 U	0.3318	0.02 U

proportion of detects	0.778	
background maximum	11.9000	note: possible outlier
background mean	0.5617	note: including possible outlier
background median	0.1940	
background standard deviation	2.1095	note: including possible outlier

compliance round

note: background mean without possible outlier = 0.183747

note: background standard deviation without possible outlier = 0.151081

note: 3/2002 compliance round moved to background round.

upgradient average	2.1990	note: including possible outlier
upgradient average	0.2588	note: excluding possible outlier
R7GW01 average without outlier	0.1494	

Upgradient wells, R7GW01/01R, and R7GW11.

Total Metals (mg/l)	upgradient average/max	Comments
Antimony	ND	
Arsenic	ND	
Barium	0.1298	note: mean determined from detections only
Beryllium	ND	
Cadmium	ND	
Chromium	0.0259	note: mean determined from detections only
Cobalt	0.0188	note: mean determined from detections only
Copper	0.0684	note: mean determined from detections only
Lead	0.0018	maximum
Nickel	0.0161	note: mean determined from detections only
Selenium	ND	
Silver	0.01	maximum
Thallium	ND	
Vanadium	0.0459	note: mean determined from detections only
Zinc	2.2/0.2588	note: lower number excluding outlier