N40003.AR.001005
PUERTO RICO NA
5090.3a

DRAFT

SEMI-ANNUAL GROUNDWATER MONITORING REPORT

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

CONTRACT TASK ORDER 0277

SEPTEMBER 11, 2002

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 ACRONYMS AND ABBREVIATIONS v

1.0 INTRODUCTION 1
1.1 Purpose of Sampling 1
1.2 Report Organization 1

2.0 MONITORING ACTIVITIES 2
2.1 Groundwater Sampling 2
2.2 Groundwater Flow 2
2.3 Field Observations 4

3.0 RESULTS OF GROUNDWATER MONITORING EVENT 5
3.1 Volatile Organic Compounds 5
3.2 Metals 5
3.3 Data Quality Control and Validation 5

4.0 DISCUSSION OF RESULTS 7
4.1 Background Groundwater Data 7
4.2 Criteria Comparison and Statistical Analyses 7

5.0 CONCLUSIONS AND RECOMMENDATIONS 10

6.0 REFERENCES 11

LIST OF TABLES

2-1 Method Performance Limits Appendix I Compound List
2-2 Summary of Groundwater Field Parameters
2-3 Groundwater Elevation Summary
2-4 Groundwater Velocity Calculations

3-1 Positive Detection Summary

4-1 Groundwater Quality, Background and Compliance
4-2 Comparison Summary
4-3 Statistical Summary

LIST OF FIGURES

1-1 Site Map

2-1 Groundwater Contour Map, February 2002
2-2 Groundwater Contour Map, March 2002

LIST OF APPENDICES

A	Chain-of-Custody Records
B	Field Notebooks
C	Laboratory Analytical Results
D	Puerto Rican Chemist Certification
E	Laboratory Data Validation Summary
F	Summary of Statistical Analyses

ACRONYMS AND ABBREVIATIONS

Baker	Baker Environmental, Inc.
CTO	Contract Task Order
EPA	United States Environmental Protection Agency
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 March 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 Naval Station Roosevelt Roads (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 approx. 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). Monitoring 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 Background Groundwater Monitoring Report, Burns and McDonnell, 2001.

Subsequent to the background sampling events, replacement of six wells was done by Baker to establish the integrity of the wells for compliance sampling. Three existing wells were retained for compliance sampling. The first round of semi annual compliance sampling was performed on these wells (new and existing) in March 2002 and this document provides the results of this sampling event.

1.2 Report Organization

The report is organized into six sections including this introduction. Section 2 describes the monitoring activities. 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 between February 28, 2002 and March 5, 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 given in Table 2-1. Chain of custody records is given in Appendix A.

Field parameters were obtained according to the procedures listed in the SAP (Burns and McDonnell, 1999). Specifically, measurements of temperature, pH, specific conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity were obtained. Meters were calibrated daily prior to sampling. Dissolved oxygen readings were made using Chemetric® colorimetric ampules. The results of the field analyses are given in Table 2-2. Flow rates used during stabilization were approximately 0.2 – 0.3 Liters/minute.

The Groundwater Sampling and Analysis Plan (SAP) (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. All field notes are given in Appendix B.

2.2 Groundwater Flow

The groundwater elevations were found at the Solid Waste Landfill Facility at two different times during this investigation. The measurements were taken on 2/28/2002 between 9:00 am and 10:00 am and on 3/12/2002 between 8:00 am and 9:00 am. 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.

Figures 2-1 and 2-2 depict the groundwater elevations in the form of contours on a site map. The contours were developed numerically using the inverse distance weighted algorithm with a quadratic nodal function interpolation scheme. Some control points of 100 feet msl were added

along the coast. 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. The average difference in groundwater elevations between the two measurement events taken at this sampling event is about two and one-half inches, with the 2/28/2002 level consistently higher than the 3/12/2002 level.

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 had below sea level elevations during both sampling events. The following web site, http://co-ops.nos.noaa.gov/tides/get_pred.shtml?stn=5371+San+Juan&secstn=Roosevelt+Roads&thh=+0&thm=02&tlh=+0&tlm=20&hh=*0.63&hl=*0.63, lists the water levels at high and low tides for the year 2002. During both measuring events, the tide was going from low to high tide. The groundwater elevation lag at the coast in response to the tides provides one explanation for the groundwater levels at RGW05R being below sea level.

The maximum and minimum groundwater gradients were calculated from the contour drawings of the piezometric surface. The locations where the gradients were calculated from is also shown on Figures 2-1 and 2-2. 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 (ft/day)
K = average hydraulic conductivity (ft/day)
i = hydraulic gradient (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 0.0017 to 0.0085 ft/day during the semi-annual monitoring investigation. The composite average groundwater velocity at this site was 0.0049 ft/day.

2.3 Field Observations

At R7GW07R, it was noted that there appeared to be a blockage in the polyvinyl chloride (PVC) casing approximately 14 feet down. It was broken through with the total depth probe. At R7GW09, a whitish-gray film came up in chunks from the well and caused problems with the conductivity 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, including copies of the raw laboratory analytical results. Appendix D contains the certification from a Puerto Rican chemist.

3.1 Volatile Organic Compounds

Five volatile organic compounds were detected in the monitoring wells at the Solid Waste Landfill Facility. These were carbon disulfide, chloroform, cis-1, 2 dichloroethene, dibromomethane, and toluene. All five compounds were detected in very small quantities. Monitor wells R7GW04R, R7GW05R, and R7GW11 were the only wells with volatile organic compound detections.

3.2 Metals

All the metals on the Appendix I list were detected in this sampling event. The analyses were done on both unfiltered and filtered samples to obtain total metals and dissolved metals. All samples contained one or more detections of these metals. In all cases, very low concentrations of metals were obtained, less than 0.4 milligrams per liter (mg/L). In some wells, the filtered sample analysis yielded a detection of the metal when the unfiltered sample analysis did not. In all these cases, the quantified concentrations were below the reporting limit.

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. Fewer metals were detected in the duplicate sample. The original sample results will be used in the discussion.

Quality control samples included a matrix spike and matrix spike sample duplicate. Also included were three trip blanks, one field blank analysis on the lab grade deionized water, and one equipment rinsate sample analyses on the pump tubing. The positive detections of these analyses

can be seen in Table 3-2. 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 this first round of 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 is provided here to aid in comparison with the compliance round sampling results.

There were a total of eight volatile organic compounds (VOCs) that were detected in the background sampling events. Twelve metals, all 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. 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, or only, quantified concentration was used for comparison.

The upgradient wells are identified as R7GW11 and R7GW01R. During the background sampling only one VOC, acetone was detected in an upgradient well (R7GW11). 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.

During the background sampling analyses, some Appendix I parameters were not analyzed for during one or more of the four sampling events.

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.

Table 4-1 presents the compiled background and compliance round concentrations for all detected compounds either in the background sampling or compliance round sampling events. It should be noted that four additional VOCs and three additional metals were detected in the semi annual compliance round only, increasing the total number of VOCs detected in all rounds to 12 and the total number of metals detected to 15 (all of the metals on the Appendix I list.) The background concentrations for each well were summarized with either there mean or maximum concentration, as stated above.

Table 4-2 presents a summary of which compounds exceeded the criteria with their maximum concentration. As shown, four compounds, arsenic, chromium, thallium and zinc, exceeded criteria. Arsenic and chromium concentrations were very close to criteria. Thallium exceeded the MCL by an order of magnitude, and zinc exceeded the tap water RBC slightly on one occasion, but this concentration may be qualified as an outlier because its concentration is two orders of magnitude higher than any other zinc concentration at the site and at that well.

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 chloroform was detected only in an upgradient well and only during this compliance sampling.

The last two columns indicate whether statistical analyses should be done on these compounds. The criterion that was used to determine if a compound should have a statistical analysis done on it was either the Federal MCL or the Tap Water RBC. As stated above, only four compounds exceeded the criteria during all five sampling events. Of these, only chromium had a sufficient number of non-detect values that a non-parametric analysis of variance (Kruskal-Wallis test) could be done. The other three compounds had a very low rate of detection, and statistical methods were not performed.

The hypothesis used for chromium was that there was no chromium contamination at the 95% confidence level. The Kruskal-Wallis test was used because the rate of non-detects in the chromium data was between 15% and 50% as stated in the SAP (1999). The resulting Kruskal-Wallis statistic was 16.438, with an adjustment for ties. The chi-squared value for 10 degrees of freedom (eleven wells minus one well) and the 95% confidence level is 18.31. Since the Kruskal-Wallis statistic is less than the chi-squared value, the hypothesis is accepted, and there is no chromium contamination resulting from the landfill at the 95% confidence level.

Statistical analyses are summarized in Table 4-3. All calculations for this summary, including the above Kruskal-Wallis statistic, are given in Appendix F and are separated by compound, using all the results from the background and compliance sampling rounds. The concentration maximum, mean, median, and standard deviation were calculated when meaningful results could be obtained. When possible, a modified approach for calculating the mean using non-detect values, the Winsor method, 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.

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 the background and the semi annual compliance round sampling events indicate that only four metal compounds were detected that exceeded Federal MCL criteria. Of these, chromium was the only metal on which statistical analyses were done to determine if contamination was significant, above the 5% significance level (Krustall-Wallis non-parametric ANOVA). It was determined through the use of a non-parametric analysis of variance test that contamination was not significant.

As stated in Section 4.1, several VOCs and one metal compound were not analyzed for during all four background sampling events. Because of this fact, it is recommended that the results of this compliance round and the next compliance round be used to establish the four background concentrations of each parameter at each well where four concentrations are not available. The inclusion of these and future analytical results will satisfy the SAP requirement of four independent background samples.

6.0 REFERENCES

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

TABLE 2-2

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

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}F)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
R7GW11-05	1053	6.92						
02/28/02	1058	7.04	86.0	6.68	915		39.1	56.1
	1120	7.04	85.5	6.80	916		36.8	16.9
	1126	7.06	85.8	6.77	909		41.6	11.2
	1132	7.06	85.3	6.77	911		49.9	10.2
	1139	7.06	85.1	6.80	907		55.1	8.3
	1146	7.05	85.5	6.88	908		58.6	14.0
	1156	7.05	84.7	6.97	909		62.3	10.3
	1204	7.03	84.9	6.95	916	0.6	64.3	6.6
R7GW08R-05	1457	11.12						
02/28/02	1504	11.25	85.6	6.79	44,300		-140.5	472
	1510	11.24	84.9	6.95	42,700		-139.6	306
	1517	11.25	84.4	6.95	40,900		-145.2	142
	1524	11.23	84.9	7.04	40,200		-146.2	53.9
	1530	11.24	85.5	7.05	38,800		-154.5	21.5
	1537	11.25	84.7	7.06	38,900		-161.6	16.3
	1544	11.23	83.7	7.13	37,900	0.6	-160.7	10.7
R7GW07R-05	1707	14.79						
02/28/02	1713	NA	84.2	6.64	1,898		-174.3	601
	1720	NA	84.4	6.66	1,848		-153.2	358
	1729	NA	83.5	6.73	1,826		-131.4	269
	1736	NA	83.7	6.77	1,827		-128.2	233
	1744	NA	83.5	6.86	1,808		-117.1	70.6
	1751	NA	83.7	6.87	1,824	1.0	-127.5	123
R7GW05R-05	0818	14.36						
03/02/02	0831	14.51	82.9	6.95	36,600		-244.4	307
	0841	14.52	82.4	6.88	31,200		-229.1	121
	0847	14.55	82.4	6.86	30,100		-229.9	91.2
	0854	14.55	82.6	6.91	29,200		-233.0	44.4
	0900	14.54	83.1	6.89	28,700		-237.1	29.6
	0909	14.54	83.3	6.91	28,500		-250.1	20.3
	0915	14.55	83.7	6.92	28,200		-259.4	14.8
	0921	14.56	83.8	6.90	28,100	0.6	-268.4	12.2
R7GW04R-05	1315	12.30						
03/03/02	1323	14.10	88.0	6.70	54,200		-91.0	684
	1330	15.52	90.1	6.76	53,700		-92.5	727
	1337	16.40	90.0	6.71	53,600		-85.4	553
	1344	17.56	89.1	6.72	54,100		-80.4	241
	1350	18.02	88.7	6.73	55,100		-73.7	227
	1357	18.49	90.1	6.72	56,500	2.0	-70.1	312

Notes:
PVC - Polyvinyl chloride.
^{o} F - Degrees Fahrenheit.
S.U. - Standard Unit.
umhos/cm - micro ohms per centimeter.
mg/L - milligrams per liter.
mV - millivolts.
N.T.U. - Nephlometric Turbidity Units.
NA - Unable to obtain reading due to roots obstructing inside of casing.

TABLE 2-2

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

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}F)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
R7GW01R-05	1530	7.22						
03/02/02	1536	7.27	84.6	6.96	2,463		-131.7	91.9
	1542	7.28	84.7	6.97	2,406		-122.1	62.6
	1549	7.27	83.8	6.97	2,296		-137.1	17.6
	1558	7.29	83.5	7.03	2,235		-142.7	5.13
	1607	7.27	83.5	7.01	2,227		-179.6	2.29
	1614	7.28	83.1	7.02	2,208		-181.8	2.06
	1621	7.28	83.5	7.03	2,221	0.2	-187.2	2.08
R7GW09-05	1233	9.74						
03/03/02	1242	9.78	86.4	7.09	47,300		-302.0	23.3
	1250	9.78	86.7	7.01	46,100		-285.9	33.4
	1258	9.77	86.0	6.99	49,500		-288.7	17.6
	1305	9.78	86.4	7.02	48,900		-281.2	4.58
	1311	9.78	86.5	6.99	49,600		-288.5	3.14
	1320	9.79	85.3	7.02	54,000		-313.5	2.33
	1335	9.79	86.9	7.03	48,700		-294.0	0.83
	1341	9.80	86.4	7.01	47,600		-292.6	0.85
	1348	9.80	85.8	6.99	50,900	0.3	-279.0	0.47
R7GW10-05	1512	13.60						
03/02/02	1518	13.68	85.6	7.04	4,357		-105.8	13.0
	1524	13.68	85.3	7.03	4,093		-105.4	9.41
	1530	13.68	85.6	7.01	4,001		-104.8	9.14
	1536	13.68	85.3	7.03	3,788		-102.0	7.52
	1542	13.68	85.1	7.01	3,629		-98.9	5.80
	1348	13.68	85.1	7.01	3,532		-100.4	3.66
	1355	13.67	85.6	7.02	3,455		-97.8	3.08
	1602	13.67	85.3	7.01	3,435	0.6	-98.5	2.64
R7GW02R-05	0929	5.41						
03/05/02	0935	5.75	82.9	6.91	46,000		-336.6	Over-Range
	0944	5.73	82.8	6.90	55,100		-307.7	368
	0950	5.69	82.8	6.93	48,100		-294.5	217
	0956	5.72	82.6	7.02	25,600		-277.3	38.0
	1003	5.72	82.6	7.07	22,500		-257.2	9.80
	1057	5.72	84.4	7.05	22,500		-236.9	37.8
	1115	5.70	83.7	7.05	18,870		-231.4	9.43
	1122	5.72	82.9	7.01	17,830		-230.6	7.45
	1128	5.64	82.8	7.01	17,860		-229.9	18.8
	1134	5.74	82.4	6.99	17,510	0.4	-227.4	17.2

Notes:
PVC - Polyvinyl chloride.
^{o} F - Degrees Fahrenheit.
S.U. - Standard Unit.
umhos/cm - micro ohms per centimeter.
mg/L - milligrams per liter.
mV - millivolts.
N.T.U. - Nephlometric Turbidity Units.
NA - Unable to obtain reading due to roots obstructing inside of casing.

TABLE 2-3

GROUNDWATER ELEVATION SUMMARY
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, AUGUST 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	02/28/02	108.9	7.15	101.75
R7GW01R	03/12/02	108.9	7.43	101.47
R7GW02R	02/28/02	105.11	5.07	100.04
R7GW02R	03/12/02	105.11	5.5	99.61
R7GW04R	02/28/02	112.39	12.2	100.19
R7GW04R	03/12/02	112.39	12.44	99.95
R7GW05R	02/28/02	113.73	14.3	99.43
R7GW05R	03/12/02	113.73	14.48	99.25
R7GW07R	02/28/02	114.94	14.79	100.15
R7GW07R	03/12/02	114.94	14.86	100.08
R7GW08R	02/28/02	111.33	11.12	100.21
R7GW08R	03/12/02	111.33	11.26	100.07
R7GW09	02/28/02	109.69	9.33	100.36
R7GW09	03/12/02	109.69	9.6	100.09
R7GW10	02/28/02	113.96	13.58	100.38
R7GW10	03/12/02	113.96	13.79	100.17
R7GW11	02/28/02	110.2	6.92	103.28
R7GW11	03/12/02	110.2	7.03	103.17

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

TABLE 2-4

GROUNDWATER VELOCITY CALCULATIONS
SEMI-ANNUAL GROUNDWATER MONITORING REPORT, AUGUST 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)
2/28/2002	1	408.84	1.00	0.00245	0.0077
2/28/2002	2	1812.00	1.00	0.00055	0.0017
2/28/2002	3	981.27	1.50	0.00153	0.0048
3/12/2002	1	553.37	1.50	0.00271	0.0085
3/12/2002	2	1839.72	1.00	0.00054	0.0017
3/12/2002	3	986.74	1.50	0.00152	0.0048

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

SUMMARY		
average gradient =	0.00155	ft/ft
minimum groundwater velocity =	0.0017	ft/day
maximum groundwater velocity =	0.0085	ft/day
average groundwater velocity =	0.0049	ft/day

TABLE 3-1

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

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R
Sample ID	R7GW01R-05	R7GW02R-05	R7GW02R-05D	R7GW04R-05	R7GW05R-05
Sample Date	03/02/02	03/05/02	03/05/02	03/02/02	03/02/02
Volatiles (ug/l)					
Carbon Disulfide	5 U	5 U	5 U	5 U	1.9 J
Chloroform	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	0.68 J
Dibromomethane	5 U	5 U	5 U	5 U	4.6 J
Toluene	5 U	5 U	5 U	0.61 J	5 U
Total Metals (mg/l)					
Arsenic	0.01 UJ	0.01 U	0.01 U	0.02 UJ	0.01 UJ
Selenium	0.01 UJ	0.01 U	0.01 UJ	0.02 UJ	0.01 UJ
Barium	0.062	0.062	0.062	0.36	0.02
Beryllium	0.004 U	0.0008 J	0.00085 J	0.00065 J	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.0019 J	0.005 U
Chromium	0.01 U	0.01 U	0.01 U	0.0044 J	0.01 U
Cobalt	0.01 U	0.01 U	0.01 U	0.046	0.01 U
Copper	0.02 U	0.02 U	0.02 U	0.056	0.02 U
Nickel	0.04 U	0.04 U	0.04 U	0.011 J	0.04 U
Vanadium	0.01 U	0.0023 J	0.01 U	0.046	0.0029 J
Zinc	0.02 U	0.0061 J	0.02 U	0.29	0.026
Thallium	0.01 U	0.01 U	0.01 U	0.019 J	0.01 U
Mercury	0.00012 J	0.0002 UJ	0.0002 UJ	0.00016 J	0.0002 U
Dissolved Metals (mg/l)					
Arsenic, (Dissolved)	0.01 UJ	0.01 U	0.01 U	0.02 UJ	0.01 UJ
Lead, (Dissolved)	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Selenium (Dissolved)	0.01 UJ	0.01 U	0.01 UJ	0.02 UJ	0.02 UJ
Barium, (Dissolved)	0.06	0.06	0.062	0.25	0.019
Beryllium (Dissolved)	0.004 U	0.0008 J	0.00081 J	0.004 U	0.00056 J
Cobalt (Dissolved)	0.01 U	0.01 U	0.01 U	0.041	0.01 U
Copper, Dissolved	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium (Dissolved)	0.01 U	0.0023 J	0.01 U	0.01 U	0.01 U
Zinc, (Dissolved)	0.02 U	0.015 J	0.02 U	0.064	0.0065 J
Mercury (Dissolved)	0.0002 U	0.0002 UJ	0.0002 UJ	0.000093 J	0.00011 J

Notes:
U - Not Detected
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated

TABLE 3-1

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

Site ID	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW07R-05	R7GW08R-05	R7GW09-05	R7GW10-05	R7GW11-05
Sample Date	02/28/02	02/28/02	03/03/02	03/03/02	02/28/02
Volatiles (ug/l)					
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U
Chloroform	5 U	5 U	5 U	5 U	2.7 J
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
Dibromomethane	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U
Total Metals (mg/l)					
Arsenic	0.01 UJ	0.01 UJ	0.01 UJ	0.0034 J	0.01 UJ
Selenium	0.01 U	0.016 J	0.02 UJ	0.01 UJ	0.01 U
Barium	0.079	0.097	0.1	0.054	0.0033 J
Beryllium	0.004 U	0.004 U	0.00056 J	0.004 U	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	0.0028 J	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.0058 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper	0.028	0.02 U	0.02 U	0.02 U	0.0038 J
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Vanadium	0.023	0.0025 J	0.0029 J	0.0039 J	0.01 U
Zinc	0.056	0.02 U	0.02 U	0.02 U	0.02 U
Thallium	0.01 UJ	0.01 UJ	0.02 U	0.01 U	0.01 UJ
Mercury	0.0002 U	0.000089 J	0.00012 J	0.0002 U	0.0002 U
Dissolved Metals (mg/l)					
Arsenic, (Dissolved)	0.01 UJ	0.01 UJ	0.01 UJ	0.005 J	0.01 UJ
Lead, (Dissolved)	0.005 U	0.01 U	0.01 U	0.005 U	0.0017 J
Selenium (Dissolved)	0.0093 J	0.02 U	0.014 J	0.01 UJ	0.01 U
Barium, (Dissolved)	0.057	0.097	0.11	0.059	0.0029 J
Beryllium (Dissolved)	0.004 U	0.004 U	0.0006 J	0.004 U	0.004 U
Cobalt (Dissolved)	0.0022 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper, Dissolved	0.02 U	0.02 U	0.02 U	0.02 U	0.0014 J
Vanadium (Dissolved)	0.013	0.01 U	0.0041 J	0.0043 J	0.0022 J
Zinc, (Dissolved)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Mercury (Dissolved)	0.000086 J	0.0002 U	0.0001 J	0.00014 J	0.0002 U

Notes:
U - Not Detected
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated

TABLE 4-1

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

Site ID Sample Purpose		R7GW01 Background Average (1) /Max	R7GW01R Compliance 03/02/02	R7GW02 Background Average (1) /Max	R7GW02R Compliance 03/05/02
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**				
1,1-Dichloroethane	NE (798)	ND	5 U	ND	5 U
1,1-Dichloroethene	7	ND	5 U	ND	5 U
Acetone	NE (608)	ND	50 UJ	ND	50 UJ
Carbon Disulfide	NE (1043)	ND	5 U	ND	5 U
Chlorobenzene	100	ND	5 U	ND	5 U
Chloroform	80	ND	5 U	ND	5 U
Chloromethane	NE (2.1)	ND	10 U	ND	10 U
cis-1,2-Dichloroethene	70	ND	5 U	ND	5 U
Dibromomethane	NE (60.8)	ND	5 U	ND	5 U
Ethylbenzene	700	ND	5 U	ND	5 U
Toluene	1000	ND	5 U	ND	5 U
Vinyl chloride	2	ND	10 U	ND	10 U
Total Metals (mg/l)					
Antimony	0.006	ND	0.02 U	ND	0.02 U
Arsenic	0.01	ND	0.01 UJ	0.0169	0.01 U
Barium	2	0.174	0.062	0.014	0.062
Beryllium	0.004	ND	0.004 U	ND	0.0008 J
Cadmium	0.005	ND	0.005 U	ND	0.005 U
Chromium	0.1	0.028	0.01 U	0.059	0.01 U
Cobalt	NE (0.73)	0.02445	0.01 U	0.0016	0.01 U
Copper	1.3	0.0447	0.02 U	0.0217	0.02 U
Lead	0.015	ND	0.005 U	ND	0.005 U
Nickel	0.1	0.0022	0.04 U	0.00064	0.04 U
Selenium	0.05	ND	0.01 UJ	ND	0.01 U
Silver	NE (0.1825)	0.01	0.01 U	0.01	0.01 U
Thallium	0.002	ND	0.01 U	ND	0.01 U
Vanadium	NE (0.2555)	0.0498	0.01 U	0.0149	0.0023 J
Zinc	NE (10.95)	4.066	0.02 U	0.2029	0.0061 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

TABLE 4-1

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

Site ID Sample Purpose		R7GW04 Background Average (1) /Max	R7GW04R Compliance 03/02/02	R7GW05 Background Average (1) /Max	R7GW05R Compliance 03/02/02
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**				
1,1-Dichloroethane	NE (798)	ND	5 U	1	5 U
1,1-Dichloroethene	7	ND	5 U	1	5 U
Acetone	NE (608)	5	50 UJ	ND	50 UJ
Carbon Disulfide	NE (1043)	ND	5 U	ND	1.9 J
Chlorobenzene	100	ND	5 U	0.8	5 U
Chloroform	80	ND	5 U	ND	5 U
Chloromethane	NE (2.1)	7	10 U	ND	10 U
cis-1,2-Dichloroethene	70	ND	5 U	1.3	0.68 J
Dibromomethane	NE (60.8)	ND	5 U	ND	4.6 J
Ethylbenzene	700	ND	5 U	ND	5 U
Toluene	1000	ND	0.61 J	ND	5 U
Vinyl chloride	2	ND	10 U	1	10 U
Total Metals (mg/l)					
Antimony	0.006	ND	0.04 U	ND	0.02 U
Arsenic	0.01	ND	0.02 UJ	0.0062	0.01 UJ
Barium	2	0.343	0.36	0.011	0.02
Beryllium	0.004	ND	0.00065 J	ND	0.004 U
Cadmium	0.005	ND	0.0019 J	ND	0.005 U
Chromium	0.1	0.039	0.0044 J	0.04	0.01 U
Cobalt	NE (0.73)	0.0042	0.046	0.0016	0.01 U
Copper	1.3	0.0494	0.056	0.0194	0.02 U
Lead	0.015	ND	0.01 U	ND	0.005 U
Nickel	0.1	0.0011	0.011 J	0.00083	0.04 U
Selenium	0.05	ND	0.02 UJ	ND	0.01 UJ
Silver	NE (0.1825)	ND	0.02 U	ND	0.01 U
Thallium	0.002	ND	0.019 J	ND	0.01 U
Vanadium	NE (0.2555)	0.0239	0.046	0.0215	0.0029 J
Zinc	NE (10.95)	0.152	0.29	0.182	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

TABLE 4-1

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

Site ID Sample Purpose		R7GW07 Background Average (1) /Max	R7GW07R Compliance 02/28/02	R7GW08 Background Average (1) /Max	R7GW08R Compliance 02/28/02
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**				
1,1-Dichloroethane	NE (798)	ND	5 U	ND	5 U
1,1-Dichloroethene	7	ND	5 U	ND	5 U
Acetone	NE (608)	ND	50 UJ	ND	50 UJ
Carbon Disulfide	NE (1043)	ND	5 U	ND	5 U
Chlorobenzene	100	ND	5 U	ND	5 U
Chloroform	80	ND	5 U	ND	5 U
Chloromethane	NE (2.1)	ND	10 U	ND	10 U
cis-1,2-Dichloroethene	70	ND	5 U	ND	5 U
Dibromomethane	NE (60.8)	ND	5 U	ND	5 U
Ethylbenzene	700	ND	5 U	ND	5 U
Toluene	1000	ND	5 U	ND	5 U
Vinyl chloride	2	ND	10 U	ND	10 U
Total Metals (mg/l)					
Antimony	0.006	ND	0.02 U	ND	0.02 U
Arsenic	0.01	ND	0.01 UJ	ND	0.01 UJ
Barium	2	0.01	0.079	0.035	0.097
Beryllium	0.004	ND	0.004 U	ND	0.004 U
Cadmium	0.005	ND	0.005 U	ND	0.005 U
Chromium	0.1	0.012	0.0028 J	0.048	0.01 U
Cobalt	NE (0.73)	0.0005	0.0058 J	0.001	0.01 U
Copper	1.3	0.0293	0.028	0.0263	0.02 U
Lead	0.015	0.0026	0.005 U	0.008	0.005 U
Nickel	0.1	ND	0.04 U	0.0006	0.04 U
Selenium	0.05	ND	0.01 U	ND	0.016 J
Silver	NE (0.1825)	ND	0.01 U	ND	0.01 U
Thallium	0.002	ND	0.01 UJ	ND	0.01 UJ
Vanadium	NE (0.2555)	0.0496	0.023	0.0337	0.0025 J
Zinc	NE (10.95)	0.196	0.056	0.195	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

TABLE 4-1

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

Site ID Sample Purpose		R7GW09 Background Average (1) /Max	R7GW09 Compliance 03/03/02	R7GW10 Background Average (1) /Max	R7GW10 Compliance 03/03/02
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**				
1,1-Dichloroethane	NE (798)	ND	5 U	ND	5 U
1,1-Dichloroethene	7	ND	5 U	ND	5 U
Acetone	NE (608)	ND	50 UJ	ND	50 UJ
Carbon Disulfide	NE (1043)	ND	5 U	ND	5 U
Chlorobenzene	100	ND	5 U	ND	5 U
Chloroform	80	ND	5 U	ND	5 U
Chloromethane	NE (2.1)	ND	10 U	ND	10 U
cis-1,2-Dichloroethene	70	ND	5 U	ND	5 U
Dibromomethane	NE (60.8)	ND	5 U	ND	5 U
Ethylbenzene	700	ND	5 U	15	5 U
Toluene	1000	ND	5 U	ND	5 U
Vinyl chloride	2	ND	10 U	ND	10 U
Total Metals (mg/l)					
Antimony	0.006	ND	0.04 U	0.002	0.02 U
Arsenic	0.01	ND	0.01 UJ	0.0101	0.0034 J
Barium	2	0.146	0.1	0.174	0.054
Beryllium	0.004	ND	0.00056 J	ND	0.004 U
Cadmium	0.005	0.00057	0.005 U	0.00054	0.005 U
Chromium	0.1	0.037	0.01 U	0.015	0.01 U
Cobalt	NE (0.73)	0.0518	0.01 U	0.0081	0.01 U
Copper	1.3	0.1539	0.02 U	0.0258	0.02 U
Lead	0.015	ND	0.01 U	0.0069	0.005 U
Nickel	0.1	0.0164	0.04 U	0.0068	0.04 U
Selenium	0.05	ND	0.02 UJ	ND	0.01 UJ
Silver	NE (0.1825)	0.01	0.01 U	0.01	0.01 U
Thallium	0.002	ND	0.02 U	ND	0.01 U
Vanadium	NE (0.2555)	0.0447	0.0029 J	0.052	0.0039 J
Zinc	NE (10.95)	0.1712	0.02 U	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

TABLE 4-1

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

Site ID Sample Purpose		R7GW11 Background Average (1) /Max	R7GW11 Compliance 02/28/02
Volatiles (ug/l)	**Federal MCL (Tap Water RBC)**		
1,1-Dichloroethane	NE (798)	ND	5 U
1,1-Dichloroethene	7	ND	5 U
Acetone	NE (608)	2	50 UJ
Carbon Disulfide	NE (1043)	ND	5 U
Chlorobenzene	100	ND	5 U
Chloroform	80	ND	2.7 J
Chloromethane	NE (2.1)	ND	10 U
cis-1,2-Dichloroethene	70	ND	5 U
Dibromomethane	NE (60.8)	ND	5 U
Ethylbenzene	700	ND	5 U
Toluene	1000	ND	5 U
Vinyl chloride	2	ND	10 U
Total Metals (mg/l)			
Antimony	0.006	ND	0.02 U
Arsenic	0.01	ND	0.01 UJ
Barium	2	0.044	0.0033 J
Beryllium	0.004	ND	0.004 U
Cadmium	0.005	ND	0.005 U
Chromium	0.1	0.024	0.01 U
Cobalt	NE (0.73)	0.0004	0.01 U
Copper	1.3	0.0842	0.0038 J
Lead	0.015	0.0018	0.0017 J +
Nickel	0.1	0.03	0.04 U
Selenium	0.05	ND	0.01 U
Silver	NE (0.1825)	0.01	0.01 U
Thallium	0.002	ND	0.01 UJ
Vanadium	NE (0.2555)	0.0406	0.01 U
Zinc	NE (10.95)	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

TABLE 4-2

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

VOCs Detected	Federal MCL (mg/L)	Maximum Detected Concentration (mg/L)	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 ++)	0.001	no	yes	no	no	
1,1-Dichloroethylene	0.007	0.001	no	yes	no	no	
Acetone	NE (0.608 ++)	0.005	no	yes	yes	no	
Carbon Disulfide	NE (1.0428 ++)	0.0019	no	no	no	no	
Chlorobenzene	0.1	0.0008	no	yes	no	no	
Chloroform	0.08*	0.0027	no	no	yes+	no	
cis-1,2-Dichloroethylene	0.07	0.002	no	yes	no	no	
Ethylbenzene	0.7	0.015	no	yes	no	no	
Methyl Chloride (chloromethane)	NE (0.0021 ++)	0.0007	no	yes	no	no	
Methylene Bromide (dibromomethane)	NE (0.0608 ++)	0.0046	no	no	no	no	
Toluene	1	0.00061	no	no	no	no	
Vinyl Chloride	0.002	0.001	no, see note	yes	no	no	
Metals Detected							
Antimony	0.006	0.002	no, see note	yes	no	**no** (1)	98%
Arsenic	0.01	0.0169	yes, see note	yes	no	**no** (1)	91%
Barium	2	0.766	no	yes	yes	no	
Beryllium	0.004	0.0008	no	no	no	no	
Cadmium	0.005	0.0019	no	yes	no	no	
Chromium	0.1	0.104	yes	yes	yes	**yes**	31%
Cobalt	NE (0.73 ++)	0.092	no	yes	yes	no	
Copper	1.3	0.272	no	yes	yes	no	
Lead	0.015	0.008	no	yes	yes	no	
Nickel	0.1	0.03	no	yes	yes	no	
Selenium	0.05	0.016	no	no	no	no	
Silver	NE (0.1825 ++)	0.01	no	yes	yes	no	
Thallium	0.002	0.019	yes, see note	no	no	**no** (1)	98%
Vanadium	NE (0.2555 ++)	0.116	no	yes	yes	no	
Zinc	NE (10.95 ++)	11.9	yes, possible outlier	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
NA: Not Applicable
* Proposed Level (previous level was 0.1)
"+" Detected ONLY in upgradient well R7GW11
"++" Tap Water Risk Based Concentration
(1) Performing statistical analysis for the censored data set (large portion of non-detects) would yield little information

TABLE 4-3

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

VOCs Detected	Maximum Detected Concentration (mg/L)	Background Maximum (mg/L)	Background Mean (mg/L)	Background Median (mg/L)	Background Standard Deviation (mg/L)	Proportion of detects, background and compliance	Notes
1,1-Dichloroethane	0.001	0.001	NM	NM	NM	0.0222	
1,1-Dichloroethylene	0.001	0.001	NM	NM	NM	0.0222	
Acetone	0.005	0.005	0.0035	0.002U	NM	0.0741	
Carbon Disulfide	0.0019	ND	NM	NM	NM	0.037	
Chlorobenzene	0.0008	0.0008	NM	NM	NM	0.0222	
Chloroform	0.0027	ND	NM	NM	NM	0.0222	
cis-1,2-Dichloroethylene	0.002	0.002	NM	NM	NM	0.0741	
Ethylbenzene	0.015	0.015	NM	NM	NM	0.0222	
Methyl Chloride (chloromethane)	0.0007	0.0007	NM	NM	NM	0.0222	
Methylene Bromide (dibromomethane)	0.0046	ND	NM	NM	NM	0.037	
Toluene	0.00061	ND	NM	NM	NM	0.0222	
Vinyl Chloride	0.001	0.001	NM	NM	NM	0.0222	
Metals Detected							
Antimony	0.002	0.002	NM	NM	NM	0.0278	
Arsenic	0.0169	0.0169	0.0111	0.0101	0.0504	0.0889	statistics perfomed on detections only
Barium	0.766	0.766	0.1178	0.025	0.2097 +	0.5778	statistics perfomed on detections only
Beryllium	0.0008	ND	ND	ND	ND	0.0667	
Cadmium	0.0019	0.00057	0.00056	0.00056	NM	0.0667	statistics perfomed on detections only
Chromium	0.104	0.104	0.0335	0.015	0.0291	0.6889	mean and SD from detections only, median from all data
Cobalt	0.092	0.092	0.0191	0.001U	0.027	0.3333	mean and SD from detections only, median from all data
Copper	0.272	0.272	0.0523	0.01U	0.0714 +	0.3111	mean and SD from detections only, median from all data
Lead	0.008	0.008	0.0048	0.008U	0.0031	0.1111	mean and SD from detections only, median from all data
Nickel	0.03	0.03	0.0069	0.01U	0.0115 +	0.2222	mean and SD from detections only, median from all data
Selenium	0.016	ND	ND	ND	ND	0.02	
Silver	0.01	0.01	0.01	0.001U	NM	0.0444	mean and SD from detections only, median from all data
Thallium	0.019	ND	ND	ND	ND	0.02	
Vanadium	0.116	0.116	0.0396	0.0199	0.0305	0.7778	mean and SD from detections only, median from all data, Winsorized mean = 0.0241, sd = 0.0291
Zinc	11.9	11.9	0.6309	0.246	2.257	0.861	11.6 data point is possible outlier. Background mean without outlier = 0.1975, sd without outlier = 0.1514

+' Data may be lognormal

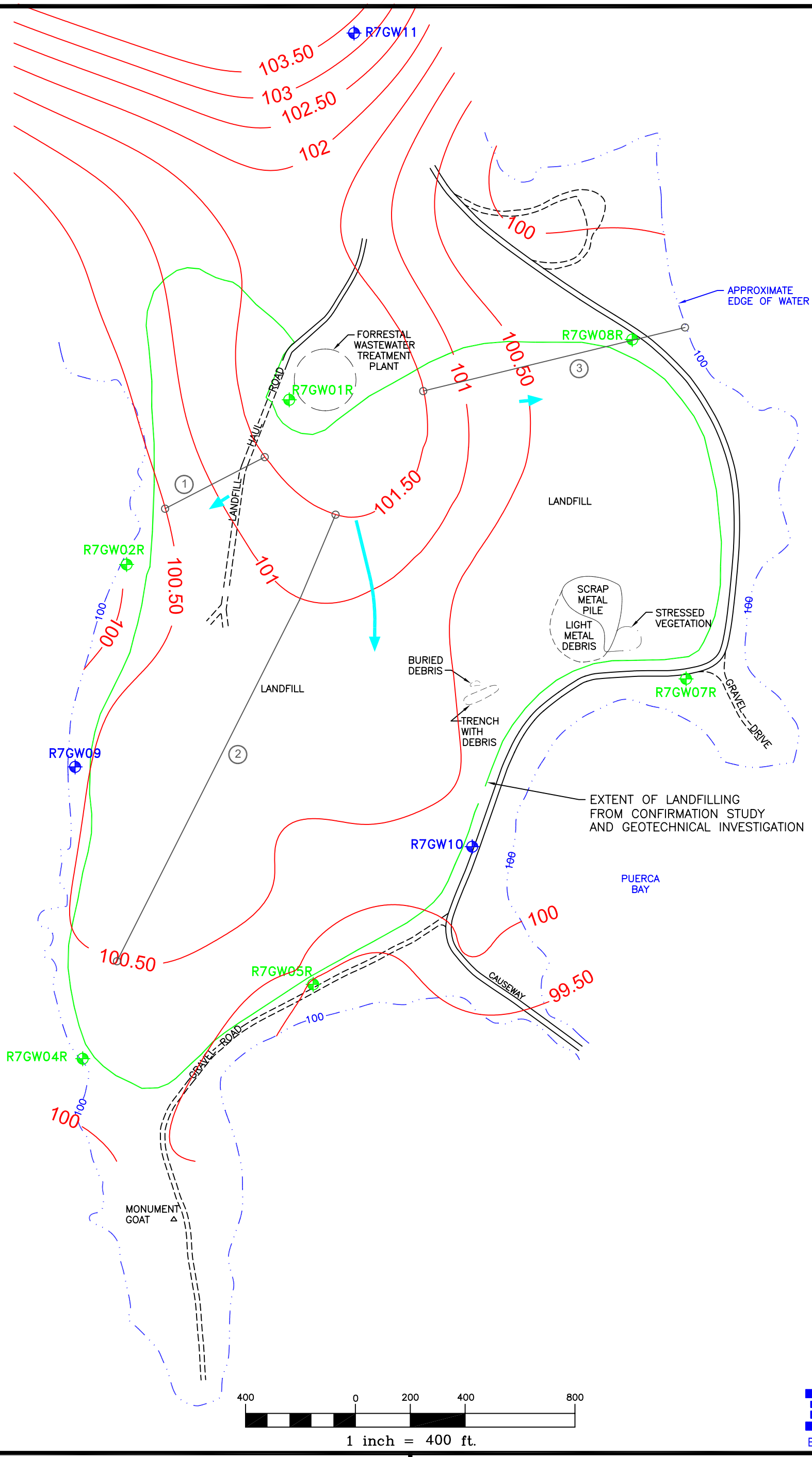
FIGURES

K\26007\265Phase\cad\ 2265513W

FIGURE 1-1
SITE MAP
SOLID WASTE LANDFILL FACILITY

NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

SOURCE: LANTDIV, FEB. 1992



2099805W

Baker
Baker Environmental, Inc.

LEGEND

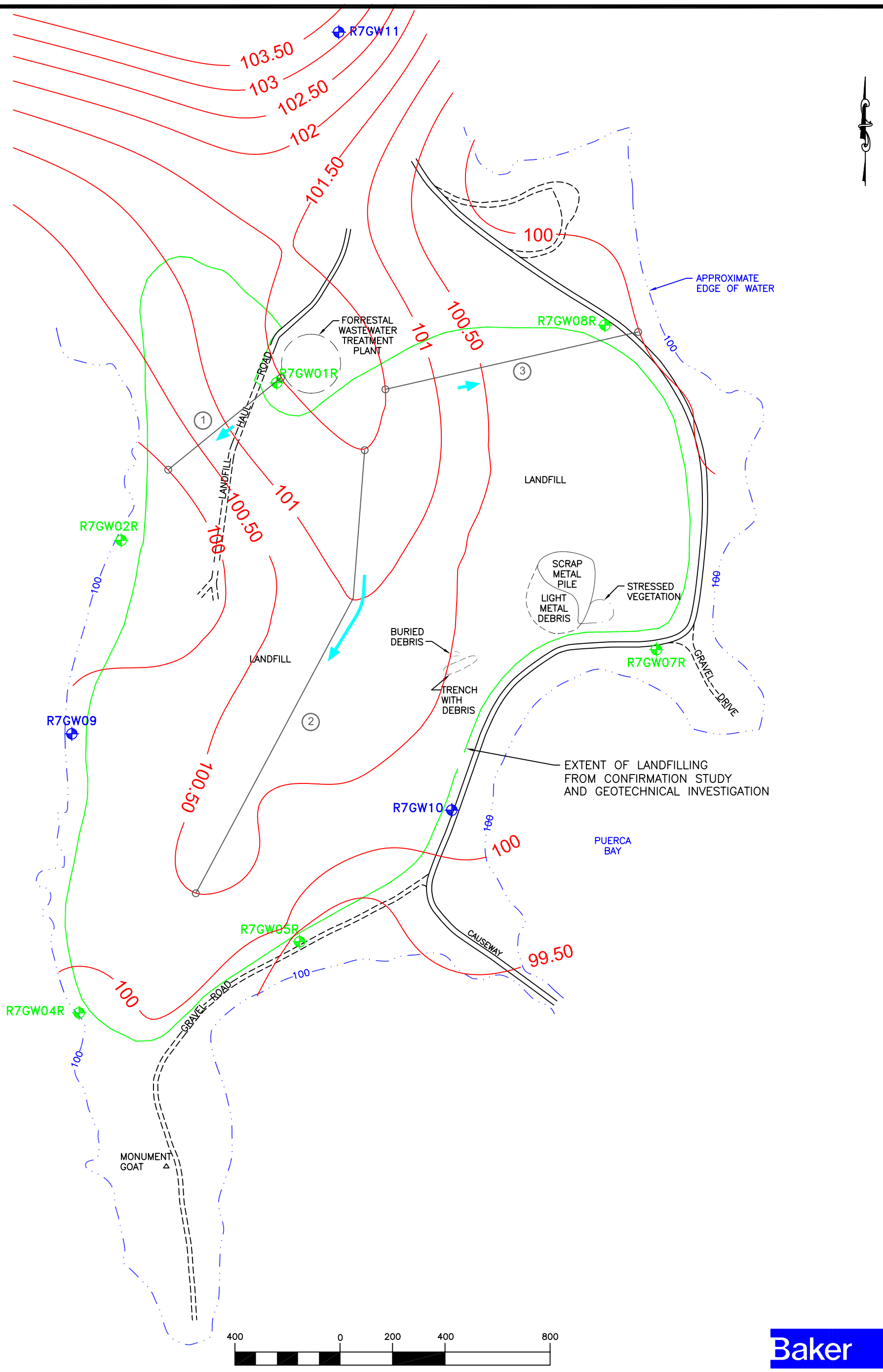
- MONITOR WELL LOCATION (INSTALLED JUNE 1998, BURNS AND McDONNELL)
- MONITOR WELL LOCATION (INSTALLED DECEMBER 2000, BAKER)
- 100 GROUNDWATER CONTOUR LINE AND ELEVATION, DATUM = MEAN SEA LEVEL + 100 FEET
- GROUNDWATER FLOW DIRECTION
- LINE USED TO CALCULATE HYDRAULIC GRADIENT
- APPROXIMATE EXTENT OF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

NOTE: CONTOURS WERE GENERATED WITH GROUNDWATER MODELING SOFTWARE® USING AN INVERSE-DISTANCE WEIGHTED WITH QUADRATIC NODAL FUNCTION INTERPOLATION ROUTINE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO THE INTERPOLATION METHOD USED.

SOURCE: LANTDIV, FEB. 1992

FIGURE 2-1
GROUNDWATER CONTOUR MAP, FEBRUARY 2002
SEMI-ANNUAL GROUNDWATER MONITORING REPORT
SOILD WASTE LANDFILL FACILITY - SWMU 3

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO



2099806W

Baker
Baker Environmental, Inc.

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 AN INVERSE-DISTANCE WEIGHTED WITH QUADRATIC NODAL FUNCTION INTERPOLATION ROUTINE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO THE INTERPOLATION METHOD USED.

SOURCE: LANTDIV, FEB. 1992

FIGURE 2-2
GROUNDWATER CONTOUR MAP, MARCH 2002
SEMI-ANNUAL GROUNDWATER MONITORING REPORT
SOLID WASTE LANDFILL FACILITY - SWMU 3

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

Appendix A:
Chain-of-Custody Records

Serial Number 044999

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5751

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

[redacted] 3-0i

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE	OF
SWMU 3 - NSRR	[redacted] 62470-277	PR	1	1

STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Melanie Jakubsen		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Jon EDEL	787-485-1097	

CLIENT NAME	CLIENT E-MAIL
Baker Environmental	

CLIENT ADDRESS: AOP 3, 420 Rouse Rd., Coraopolis, PA 15108

COMPANY CONTRACTING THIS WORK (if applicable):

STANDARD REPORT DELIVERY [redacted]
DATE DUE 28 TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

MATRIX TYPE — COMPOSITE (C) OR GRAB (G) INDICATE

REQUIRED ANALYSIS

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. IX Volcs (HCl)	App. IX Total Metals (HNO_3)	App. IX Dissolved Metals (Field Filtered) (HNO_3)							REMARKS
2/28/02	1317	R7GW11-05	X				3	1	1							
2/28/02	1648	R7GW08R-05	X				3	1	1							
2/28/02	1854	R7GW02R-05	X				3	1	1							
3/1/02	1235	R7TB01-05	X				3									

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			Jon C. Edel Jr.	3/1/02	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Jon C. Edel Jr.	2/26/02	1550						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	3/2/02	10:38	YES (✓) NO ( )		8241444	

Serial Number 038702

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill #: 8078 5575 5773

STL Savannah

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

3-08

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 3 - NSRR	62470 - 277	PR

STL (LAB) PROJECT MANAGER: Melanie Jakubsen
P.O. NUMBER:
CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL
CLIENT PHONE: 757-485-1097
CLIENT FAX:
CLIENT NAME: Baker Environmental
CLIENT E-MAIL:
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108
COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 OF 1

STANDARD REPORT DELIVERY
DATE DUE: 28 TAT
EXPEDITED REPORT DELIVERY (SURCHARGE)
DATE DUE:

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. I VOCs	App. I Total Metals	App. I Dissolved Metals (Field Filtered)								REMARKS
								HCl	HNO_3	HNO_3	PRESERVATIVE							
3/2/02	1030	R7GW05R-05		X				3	1	1								
3/2/02	1500	R7GW04R-05		X				3	1	1								
3/2/02	1730	R7GW01R-05		X				3	1	1								
3/3/02	1455	R7GW09-05		X				3	1	1								
3/3/02	1710	R7GW10-05		X				3	1	1								
3/4/02	1300	R7TB02-05		X				3										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[illegible]			Jon C. Edel Jr.	3/4/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
F Swafford	3/5/02	9:30	YES ✓ NO		5241490	

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5795

STL Savannah

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

3-22

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 3- NSRR	PROJECT NO.: 62470-277	PROJECT LOCATION (STATE): PR	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:	STANDARD REPORT DELIVERY ●
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX:	DATE DUE: 28TAT
CLIENT NAME: Baker Env.	CLIENT E-MAIL:		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: AOP3, 420 Rouser Rd., Coraopolis, PA 15108			DATE DUE:
COMPANY CONTRACTING THIS WORK (if applicable):			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. H VOCs (HCl)	App. H Total Metals (HNO_3)	App. H Dissolved Metals (Field Filtered) (HNO_3)	REMARKS
3/5/02	1145	R76W02R-05		X				3	1	1	
3/5/02	1145	R76W02R-05D		X				3	1	1	
3/5/02	1145	R76W02R-05MS		X				3	1	1	
3/5/02	1145	R76W02R-05MSD		X				3	1	1	
3/5/02	1400	R75B03-05		X				3			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[illegible]			Jon C. Edel Jr.	3/5/02	1530			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[illegible]	3-6-02	905	YES ○ NO ○		S2-41526	

ORIGINAL - RETURN TO LABORATORY WITH SAMPLE(S)

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Mosbee Air Waybill # 8078 5375 5913

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

3.28

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 3-NSRR	62470-277	PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX
CLIENT NAME: Baker Environmental	CLIENT E-MAIL	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ●
DATE DUE 28 TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. H VOCs (HCl)	App. H Total Metals (HNO_3)	App. H Dissolved Metals (Field Filtered) (HNO_3)	REMARKS
3/6/02	0745	R7FB01-05		X				3	1	1	
3/6/02	0715	R7ER01-05		X				3	1	1	
3/6/02	1200	R7TB04-05 JLE 3/6/02		X				3			
								↳ There is no preservative in these three VOA's. Melanie Jakubsen of STL knows this.			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			Jon C. Edel Jr.	3/6/02	1300			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
FL	3/7/02	914	YES ○ NO ○		S241604	

ORIGINAL - RETURN TO LABORATORY WITH SAMPLE(S)

Baker

Baker Environmental, Inc.

Appendix B: Field Notebooks

Name JON EDEL

Address AOP3, 420 Rouser Rd.
Coraopolis, PA 15108

Phone (412) 269-2031

* Return postage is guaranteed!

Projects

Field Crew

Jon EDEL - JCE
Dave Gaviglia - DMG

This book is published on a fine 50% cotton-content ledger paper, specially treated for maximum archival service, and protected by a water resistant surface sizing.

DT-0659

ELAN Publishing Co., Inc.
Meredith, N.H. 03253

Projects (continued)

Na

Ad

Ph

Th
sp
wi

D

Wednesday February 27, 2002

1530 Arrived at front gate to SWMU 3. (Base Landfill). DMG and I spoke with Rolando who works at the landfill. He requested that we stop back first thing tomorrow morning to pick up a key and he would show us the locations of the wells within the confines of the landfill. He said he would also have a bulldozer lower some of the brush so we could access the wells. We dropped off an empty IDW drum inside the biggest of the three buildings at the gate.

1545 Leaving SWMU 3 for the day. Offsite. Weather was sunny and about 85°F.

Jon C. Edel Jr.

Thursday February 28, 2002

0750 Arrive at Gate to landfill with Dmc to speak with Rolando Martinez (Landfill Manager). He gave us a key to the gate and his card. He took us on a tour of the landfill pointing out all the wells.

0850 Dmc and I are going to start a round of water levels at all the wells before we start to sample.

Time	Well	SWL (From top of PVC)	Comment
0855	R7GW04R	12.20'	Locking Cap was on.
0910	R7GW09	9.33'	"
0915	R7GW02R	5.07'	"
0925	R7GW01R	7.15'	"
0932	R7GW11	6.92'	"
0936	R7GW08R	11.12'	2/28/02 "
0940	R7GW07R	~~[illegible]~~ 14.79	Cap was sitting on top. T.D. 18.60'
0946	R7GW10	13.58'	Locking cap was on
0950	R7GW05R	14.30'	"

2/28/02 (2) Jon C. Edell Jr.

Thursday February 28, 2002

1022 Arrive back at R7GW11 to collect groundwater samples for App I. and App. IX parameters.

1050 All meters were calibrated according to their standards. PH was calibrated for 4, 7, and 10 standards. Turbidity was calibrated to 10.00. Conductivity was calibrated to 1,000 us.

1055 MCK called to get an update on our SWMU 3 status.

1320 Finish sampling. Heading to Gate at SWMU 3 to dump IDW into one of our drums. All analyses were collected with the exception of asbestos which I will collect tomorrow and ship out.

1325 Arrive at gate at SWMU 3. Spoke with Rolando about placement of well purge water. We are staging IDW in the vicinity of R7GW01R. Labeled drum and disposed of water.

1340 Leaving SWMU 3 to get some lunch.

1443 Arrive at R7GW08R to collect groundwater samples.

1652 Finish sampling R7GW08R. Heading back to Baker truck to get more sample containers after stopping at our drum at SWMU 3 to dump IDW water.

1705 Arrived at R7GW07R to collect

2/28/02 (3) Jon C. Edell Jr.

Thursday February 28, 2002

R7GW11

T.D = 15.6'
Ø = 2"
SWL = 6.92'

* Start pump 1055
* Bottom of tubing within Screen.

Time	SWL	pH	(us) Cond.	Turb.	(mV) Redox	Temp.
1058	7.04	6.68	915	56.1	39.1	30.0°C
	~~[illegible]~~ JLE 2/28/02					86.0°F
1120	7.04	6.80	916	16.9	36.8	29.7°C
						85.5°F
1126	7.06	6.77	909	11.2	41.6	29.9°C
						85.8°F
1132	7.06	6.77	911	10.18	49.9	29.6°C
						85.3°F
1139	7.06	6.80	907	8.26	55.1	29.5°C
						85.1°F
1146	7.05	6.88	908	14.0	58.6	29.7°C
						85.5°F
1156	7.05	6.97	909	10.25	62.3	29.3°C
						84.7°F
1204	7.03	6.95	916	6.56	64.3	29.4°C
						84.9°F

Jon C. Edell Jr.

Thursday February 28, 2002

R7GW11 (cont.)

* Sample time for App. IX analysis with the exception of Asbestos, is 1240.
* Finish purging at 1217.
* D.O. = 0.6 mg/L
* Sample time for App. I containers was 1317.
  ↳ (3) 40 mL VOAs - HCl ↳ (2) 250 mL Poly - HNO_3
* Flow Rate used was approx. 0.2 to 0.3 L/Min.
* Peristaltic pump was utilized for sampling and purging.
* Weather was hot and humid. (85° F and Sunny)
* DMG sampled this well.
* An interface probe was to measure ~~[illegible]~~ the SWL.
* Sample appeared very clear with no observed odor.
* Full App. IX list and App. I list was requested.
* A TD probe was used to measure TD.

Jon C. Edell Jr.

Thursday February 28, 2002

RTGW08R

T.D. = 20.6

Ø = 2"

SWL = 11.12

* Start pump 1457
* Bottom of tubing within screen

Time	SWL	pH	Cond. (mS)	Turb.	Redox (mv)	Temp.
1504	11.25	6.79	44.3	472	-140.5	29.8°C
	JCE 2/28/02					85.6°F
1510	11.24	6.95	42.7	306	-139.6	29.4°C
						84.9°F
1517	11.25	6.95	40.9	142	-145.2	29.1°C
						84.4°F
1524	11.23	7.04	40.2	53.9	-146.2	29.4°C
						84.9°F
1530	11.24	7.05	38.8	21.5	-154.5	29.7°C
						85.5°F
1537	11.25	7.06	38.9	16.3	-161.6	29.3°C
						84.7°F
1544	11.23	7.13	37.9	10.7	-160.7	28.7°C
						83.7°F

* Sample time for App. IX parameters is 1555.
* Purging stopped at 1544.
* D.O = 0.6 mg/L

2/28/02 (6) Jon C. Edel Jr

Thursday February 28, 2002

* Sample time for App. I parameters was 1648. (3) 40 mL VOAs - HCl (2) 250 mL poly - HNO_3.
* Flow rate used was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was utilized for purging and sampling.
* Weather was very hot and humid. (85°F and sunny)
* DMG sampled this well.
* An interface probe was used to measure the SWL. TD probe to measure TD. JCE 2/28/02
* Sample appeared very clear with no observed odor.
* Full App. IX list and App. I list was requested.
* App. IX asbestos will be collected Friday.

Jon C. Edel Jr

2/28/02 (7)

Thursday

February 28, 2002

R7GW07R

T.D. = 18.6'

Ø = 2"

SWL = 14.79

Start pump 1707

Bottom of tubing within screen.

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	Temp.
1713	*	6.64	~~[illegible]~~ 1898	601	-174.3	29.0°C 84.2°F
1720	*	6.66	1848	358	-153.2	29.1°C 84.4°F
1729	*	6.73	1826	269	-131.4	28.6°C 83.8°F
1736	*	6.77	1827	233	-128.2	28.7°C 83.7°F
1744	*	6.86	1808	70.6	-117.1	28.6°C 83.5°F
1751	*	6.87	1824	123	-127.5	28.7°C 83.7°F

* See page 11 for more details.
* D.O. = 1.0 mg/L
* Sample time for App. IX Parameters is 1810.
* We could not get SWL meter past vegetative roots along with having the tubing down the hole.
* Purging stopped at 1751.

2/28/02 (8) Jon E. Edell Jr

Thursday

February 28, 2002

groundwater samples. When we took a SWL here earlier, DMG and I thought there was a blockage at around 14.0'. We were able to bust through it with a T.D. probe only. The blockage appears to be vegetative roots. We will try sampling.

1807 Checking calibration of meters. Conductivity meter is reading 982 us. Turbidity is reading 9.94 on a 10.00 standard. The standard for the conductivity meter is 1,000 us. The ph meter is reading 7.13 on a 7.00 standard. PH meter reading 4.13 on a 4.01 standard. Ph meter reading 10.15 on a 10.01 standard.

1900 Finish sampling R7GW07R with the exception of App IX asbestos. Heading to drum at landfill to dump IDW.

1910 Arrive at BAKER box truck at TWFS to take it back over to SWMU 54.

1930 Arrive at SWMU 54 with box truck. DMG was following in van. We are placing equipment back in the box truck.

2/28/02 (9) Jon E. Edell Jr.

Friday

March 1, 2002

0830 Arrive at R7GW11 to collect asbestos sample.

0885 Collected asbestos sample for R7GW11. Finished sampling R7GW11. Heading to R7GW08R.

0849 Arrive at R7GW08R to collect asbestos sample.

0855 Collected asbestos sample for R7GW08R.

0902 Finished sampling R7GW08R. Heading to R7GW07R to collect asbestos sample.

0905 Arrive at R7GW07R to collect asbestos sample.

1023 Finish sampling R7GW07R for Asbestos. Recharge rate was very slow to fill sample bottle. Heading to Marina to get ice then onto SWMU 54.

1103 Arrive back to SWMU 54. Weather conditions today were rainy in morning and partly cloudy in afternoon around 80°F. FedEx is our shipping company.

1451 Called in for a FedEx pickup. Pick up number is NRR044.

3/1/02 JCE

Jon C. Edell Jr.

(cont. from page 8)

* Sample time for App. I parameters was 1854.
  ↳ (3) 40 mL VOAs - HCl ↳ (2) 250 mL poly - HNO_3.
* Flow rate used was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used for purging and sampling.
* Weather was approx. 80°F and sunny.
* DMG sampled this well.
* An interface probe was used to measure SWL. A TD probe was use to measure TD.
* Sample appeared turbid with a bluish-gray tint. No observed odor.
* Full App. IX and App. I lists was requested.
* Asbestos sample (App. IX) will be collected Friday.

Jon C. Edell Jr.

Friday

March 1, 2002

JCE 3/1/02

1633 FedEx came to pickup ~~[illegible]~~ package of App. I Samples. Master Air Waybill # is 8078 5375 5751, Custody Seals were used (38030 & 38040).

Jon C. Edel Jr.

Saturday

March 2, 2002

0739 Arrive at R7GW05R to collect groundwater samples.

1041 Finish sampling R7GW05R. Heading to drum to dump IDW from this well.

1050 Arrived at drum in landfill to dump IDW.

1100 Heading back to SWMU 54.

1114 Arrive back at SWMU 54 to pick up DMG and more sample containers.

1143 Leaving SWMU 54 to go to lunch then onto SWMU 3.

1300 Arrived at R7GW04R to collect groundwater samples.

1500 Finished sampling R7GW04R to go dump IDW at drum.

1522 Arrive at R7GW01R to collect groundwater samples.

1646 Checking calibration of meters. Turbidity is reading 9.95 on a 10.0 Standard. Conductivity meter is reading 963 us on a 1,000 us Standard. Ph meter is reading 7.25 on a 7.00 Standard. Ph meter is reading 4.13 on a 4.00 Standard. Ph meter is reading 10.34 on a 10.00 Standard.

1732 Finished sampling R7GW01R. Dumped the IDW from one well in the drum station beside it. Heading back to SWMU 54.

Saturday March 2, 2002

R7GW05R

TD = 25.7'
Ø = 2"
SWL = 14.36'

* Start pump at 0818
* Bottom of tubing within screen.

Time	SWL	pH	Cond. (mS) 3/2/02	Turb.	Redox (mv)	Temp.
0831	14.51	6.95	36.6	307	-244.4	28.3 °C
0841	14.52	6.88	31.2	121	-229.1	28.0 °C
0847	14.55	6.86	30.1	91.2	-229.9	28.0 °C
0854	14.55	6.91	29.2	44.4	-233.0	28.1 °C
0900	14.54	6.89	28.7	27.1	-237.1	28.4 °C
0909	14.54	6.91	28.5	20.3	-250.1	28.5 °C
0915	14.55	6.92	28.2	14.8	-259.4	28.7 °C
0921	14.56	6.90	28.1	12.2	-268.4	28.8 °C

* Sample time for App. IX Parameters is 0935.
* Purging stopped at 0921.
* Bluish-gray tint in the sample. No distinguishable odor.
* Sample time for App. I Parameters is 1030.
* D.O. = 0.6 mg/L
* Flow Rate used was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used for purging and sampling.
* Weather today is hot (85°F) and

3/2/02 (14) Jon C. Edel Jr.

Saturday March 2, 2002

mostly Sunny.

* I sampled this well.
* An Interface probe was used to measure the SWL.
* A total depth probe was used to measure the T.D.
* Full App I. list and App. IX list was requested.
  - (2) 40 mL VOAs - HCL (App. I)
  - (2) 250 mL poly - HNO_3 (App. I)
* App. IX ~~dissolved~~ sample will be collected Monday.
* Temperature Conversion:

Time	Temp °F
0831	82.9
0841	82.4
0847	82.4
0854	82.6
0900	83.1
0909	83.3
0915	83.7
0921	83.8

Jon C. Edel Jr.

3/2/02 (15)

Saturday March 2, 2002

R76W04R

T.D. = 29.7'
Ø = 2"
SWL = 12.30'

* Start pump at 1315.
* Bottom of tubing within Screen

Time	pH	Cond. (mS)	Turb.	Redox (mV)	Temp.	SWL
1323	6.70	54.2	684	-91.0	31.1°C	14.10
1330	6.76	53.7	727	-92.5	32.3°C	15.52
1337	6.71	53.6	553	-85.4	32.2°C	16.40
1344	6.72	54.1	241	-80.4	31.7°C	17.56
1350	6.73	55.1	227	-73.7	31.5°C	18.02
1357	6.72	56.5	312	-70.1	32.3°C	18.49

* Sample time for App. IX parameters is 1410
* Purging stopped at 1357.
* Sample did not contain any odor. It had a yellowish-tan tint.
* Sample time for App. I parameters is 1500.
* D.O. = 2 mg/L
* Flow rate used was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used for purging and sampling.
* Weather today is hot (85°F) and sunny.

3/2/02 (16) Jon C. Edel Jr.

Saturday March 2, 2002

* DMC sampled well.
* An Interface probe was used to measure SWL.
* A total depth probe was used to measure T.D.
* FUM App. I and App. IX list was requested.
  - (3) 40 mL VOAs - HCl
  - (2) 250 mL Poly - HNO_3
* App. IX Asbestos Sample will be collected Monday.
* Temperature Conversion:

Time	Temp. °F
1323	88.0
1330	90.1
1337	90.0
1344	89.1
1350	88.7
1357	90.1

Jon C. Edel Jr.

3/2/02 (17)

Saturday

March 2, 2002

RZGW01R

TD = 16.5'

Ø = 2"

SWL = 7.22'

* Start pump at 1530
* Bottom of tubing within well screen.

Time	SWL	pH	(µS) Cond.	Turb.	(mV) Redox	Temp.
1536	7.27	6.96	2,463	91.9	-131.7	29.2 °C
1542	7.28	6.97	2,406	62.6	-122.1	29.3 °C
1549	7.27	6.97	2,296	17.6	-137.1	28.9 °C
1558	7.29 JLS 3/2/02	7.03	2,235	5.13	-142.7	28.6 °C
1607	7.27	7.01	2,227	2.29	-179.6	28.6 °C
1614	7.28	7.02	2,208	2.06	-181.8	28.4 °C
1621	7.28	7.03	2,221	2.08	-187.2	28.6 °C

* Stop purging at 1621
* Sample time for App. IX parameters is 1635.
* Sample did not contain noticeable odor. It had a grayish tint to it.
* D.O. = 0.2 mg/L
* Sample time for App. I parameters is 1730.
* Flow rate was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used for purging and sampling.
* Weather today is hot (85°F) and sunny.

3/2/02 (18) Jon C. Edel Jr.

Saturday

March 2, 2002

* DMG sampled well.
* An interface probe was used to measure SWL.
* A Dotan depth probe was used to measure TD.
* Full App. I list and App. IX list was requested.
  - ↳ (3) 40 mL VOAs - HCl
  - ↳ (2) 250 mL Poly - HNO_3
* App. IX Asbestos sample will be collected Monday.
* Temperature Conversion:

Time	Temp. °F
1536	84.6
1542	84.7
1549	83.8
1558	83.5
1607	83.5
1614	83.1
1621	83.5

Jon C. Edel Jr.

3/2/02 (19)

Saturday March 2, 2002

1806 Arrive at SWMU 54. Dropping off equipment.

1820 Leaving SWMU 54 for the day. Offsite. All meters were calibrated first thing this morning at the Barker box truck.

Jon C. Edell Jr.

3/2/02 (20)

Sunday March 3, 2002

1207 Arrive at R7GW09 to collect groundwater samples.

1500 JCE 3/3/02 Finish sampling R7GW09. Heading to drum to dump IDW water.

1510 Arrive at R7GW10 to collect groundwater samples.

1617 Checking calibration of meters. Meters were calibrated originally this morning over at SWMU 54. Turbidity is reading 10.02 on a 10.0 Standard. Conductivity is reading 1074 on a 1,000 us standard. Ph is reading 7.21 on a 7.00 standard. Ph is reading 4.15 on a 4.00 standard. Ph is reading 10.33 on a 10.01 standard.

1713 Finished sampling R7GW10. Heading back to drum in SWMU 3 to dump over IDW.

1730 Arrived back at SWMU 54 after dumping purge water from R7GW10 in drum at SWMU 3. Dropping off equipment and samples

Jon C. Edell Jr.

3/3/02 (21)

Sunday

March 3, 2002

RZGW09

T.D. = 20.05'

Ø = 2"

SWL = 9.74'

* Start pump at 1233
* Bottom of tubing within well screen.

Time	SWL	pH	Cond. (ms)	Turb.	Redox (mv)	Temp.
1242	9.78	7.09	47.3	23.3	-302.0	30.2°C 86.4°F
1250	9.78	7.01	46.1	33.4	-285.9	30.4°C 86.7°F
1258	9.77	6.99	49.5	17.6	-288.7	30.0°C 86.0°F
1305	9.78	7.02	48.9	4.58	-281.2	30.2°C 86.4°F
1311	9.78	6.99	49.6 [redacted] JEE 3/3/02	3.14	-288.5	30.3°C 86.5°F
1320	9.79	7.02	54.0 [redacted] JEE 3/3/02	2.33	-313.5	29.6°C 85.3°F
1335	9.79	7.03	48.7	0.83	-294.0	30.5°C 86.9°F
1341	9.80	7.01	47.6	0.85	-292.6	30.2°C 86.4°F
1348	9.80	6.99	50.9	0.47	-297.0	29.9°C 85.8°F

Sunday

March 3, 2002

* When first started to purge DMG and I approved the water to have a strong smell, possibly from bacteria. We noticed a whitish-gray film coming up in chunks from the well.
* Water is causing problems with conductivity meter. Had to clean the probe again.
* Stop purging at 1348.
* Sample time for App. IX parameters is 1410.
* D.O. = 0.3 mg/L
* Sample time for App. I parameters is 1455.
* Sample appeared very clear with little odor.
* Flow rate was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used to sample and purge.
* Weather today is hot (85°F) and sunny.
* DMG sampled well.
* An interface probe was used to measure SWL.
* A total depth probe was used to measure TD.
* Full App. I and App. IX list was requested.
  - ↳ (3) 40 mL VOAs-HCl
  - ↳ (2) 250 mL Poly-HNO_3
* Asbestos sample will be collected Monday.

Sunday

March 3, 2002

RZGW10

T.D. = 20.5'

Ø = 2"

SWL = 13.60'

* Start pump at 1512
* Pump at tubing within well screen.

Time	SWL	pH	Cond. (us)	Turb.	Redox (mv)	Temp.
1518	13.68	7.04	4,357	13.0	-105.8	29.8°C 85.6°F
1524	13.68	7.03	4,093	9.41	-105.4	29.6°C 85.3°F
1530	13.68	7.01	4,001	9.14	-104.8	29.8°C 85.6°F
1536	13.68	7.03	3,788	7.52	-102.0	29.6°C 85.3°F
1542	13.68	7.01	3,629	5.80	-98.9	29.5°C 85.1°F
1548	13.68	7.01	3,532	3.66	-100.4	29.5°C 85.1°F
1555	13.67	7.02	3,455	3.08	-97.8	29.8°C 85.6°F
1602	13.67	7.01	3,435	2.64	-98.5	29.6°C 85.3°F

JCE 3/3/02

* Stop purging 1602.

* Sample time for App. IX parameters is 1615.

3/3/02 (24) Jon C. Edell Jr.

Sunday

March 3, 2002

* D.O. = 0.6 mg/L
* Sample time for App. I parameters is 1710
* Sample appeared clear with no odor.
* Flow rate was approx. 0.2 to 0.3 L/min.
* Peristaltic pump was used to purge and sample.
* Weather today is hot (85°F) and sunny.
* DMG sampled well.
* An interface probe was used to measure swl.
* A total depth probe was used to measure total depth.
* Full App. I and IX list was requested.
  - (3) 40 mL Vials-HCl
  - (2) 250 mL Poly-HNO_3
* Asbestos Sample will be collected Monday.

Jon C. Edell Jr.

3/3/02 (25)

0830 Arrive at R7GW05R to collect App. IX Asbestos Sample.
0835 Sample R7GW05R for Asbestos.
0838 Leaving R7GW05R (Finished sampling).
0841 Arrive at R7GW10 to collect App. IX Groundwater Asbestos sample.
0844 Collected Asbestos sample at R7GW10.
0854 Finished sampling R7GW10.
0905 Arrive at R7GW09 to collect App. IX Asbestos sample.
0910 Collected Asbestos sample at R7GW09 Our surveyor is onsite at the landfill also.
0927 Arrived at R7GW04R to collect App. IX asbestos sample.
0935 Collected Asbestos sample at R7GW04R.
0947 Finish sampling R7GW04R for Asbestos.
0952 Arrive at R7GW01R to collect App. IX Asbestos sample.
0955 Collected Asbestos sample at R7GW01R.
1005 Finished sampling R7GW01R.
1007 Spoke with ~~[illegible]~~ JCE 3/4/02 Rolando about our status. He said there is no

problem if we have to come back next week sample last well.
1012 Heading to get ice then onto Swmu 54.
1033 Arrive back at Swmu 54.
1450 Called FedEx to arrange pickup. Pickup numbers are NRR 268 and 272. Master Air Waybill number is 8078 5375 5773
1650 FedEx came to pick up the 12 coolers that we had. Custody seals were used (38230 and 38210).

Jon C. Edel Jr.

Tuesday

March 5, 2002

0910 All meters were calibrated which could be calibrated.

0915 Arrive at R76W02R at SWMU 3.

1010 Stopped purging temporarily to go to front gate to let another crew of drillers in for Ertec (Gate 1 of Base.)

1055 Arrive back at R76W02R to continue to purge.

1321 Rechecking calibration of meters. Turbidity is 10.07 on a 10.00 standard. Conductivity meter is reading 999 us on a 1,000 us standard. Ph is reading 7.42 on a 7.00 standard. Ph meter is reading 4.30 on a 4.01 standard. Ph is reading 10.45 on a 10.01 standard.

1351 Finish sampling R76W02R. Heading to drum to dump ≈ 10w.

1419 Arrive back at SWMU 54 to pack up samples.

1450 Called Fedex to arrange pickup. Pick up number was NRR235.

1600 Fedex came to pick up our 6 coolers. Master Air Waybill #

3/5/02

Jon C. Edel Jr.

Tuesday

March 5, 2002

R76W02R

T.D. = 18.0'
Ø = 2"
SWL = 5.41'

* Start pump at 0929
* Bottom of tubing within well screen.

Time	SWL	pH	Cond. (ms)	Turb.	Redox (mv)	Temp.
0935	5.75	6.91	46.0	overrange	-336.6	28.3°C 82.9°F
0944	5.73	6.90	55.1	368	-307.7	28.2°C 82.8°F
0950	5.69	6.93	48.1	217	-294.5	JCE 3/5/02 82.8°F ← 28.2°C
0956	5.72	7.02	25.6	58.0	-277.3	28.1°C 82.6°F
1003	5.72	7.07	22.5	9.8	-257.2	28.1°C 82.6°F
1057	5.72	7.05	22.5	37.8	-236.9	29.1°C 84.4°F
1115	5.70	7.05	18.87	9.43	-231.4	28.7°C 83.7°F
1122	5.71	7.01	17.83	7.45	-230.6	28.3°C 82.9°F
1128	5.64	7.01	17.86	18.8	-229.9	28.2°C 82.8°F
1134	5.74	6.99	17.51	17.2	-227.4	28.0°C 82.4°F

* Sample time for App. IX parameters is 1145
* Stop purging at 1134.
* Will be collecting dup, ms, and msd at this well.
* Sample time for App. I parameters is 1240

3/5/02

Jon C. Edel Jr.

Tuesday March 5, 2002

(cont. from page 29)

* D.O. = 0.4 mg/L
* Sampled appeared relatively clear, with just 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 (88°F) and sunny.
* DMG sampled well.
* An interface probe was used to collect SWL.
* A solid depth probe was used to read T.D.
* Full App. I and Full App. IX list were requested.

App. I. - (3) 40 mL VOAs - HCl
(2) 250 mL Poly - HNO_3

Jon C. Gall Jr.

Tuesday March 5, 2002

used was 8078 5375 5795. Custody seals were used (380250 and 380240).

Jon C. Gall Jr.

Wednesday March 6, 2002

0640 Pass Gate 3.

0645 Arrive at SWMU 54 at box truck will be collecting field blank and equipment rinsate.

0715 Collecting equipment rinsate using PE & silicon tubing with lab grade D.I.

0745 Collecting Field blank using lab grade D.I.

0810 Called Andy (Eftec) to find out what time they would be on base. left a message.

0821 DMG and I are leaving SWMU 54 to go to Fajardo to extend box truck agreement.

0925 Arrive back at SWMU54 after going to Leaseway and getting new pass for truck. Drillers are here.

0940 Drillers left site. I called them to verify they would be back to move drums. They will be back.

1008 Leaving SWMU 54 to go pick up coolers from fuels building.

1040 Arrive at fuels to pickup our

3/6/02 (32) Jon C. Edell Jr.

Wednesday March 6, 2002

empty coolers.

1115 Arrive back at SWMU 54 to pack up all the samples.

1437 Called Fedex to arrange a pickup. Pick up number is 4662231.

1455 Drillers arrive back at SWMU 54 to move drums.

1580 Drillers are finished with SWMU 54. They left.

1636 Left site for the day. We are heading over to surface operations for next weeks work.

1648 Arrive at surface operations. They said to stop by next week to arrange something. Heading to condo.

Jon C. Edell Jr.

3/6/02 JCE 3/6/02 (33)

Tuesday March 12, 2002

0815 Arrive at R7GW02R to start collecting a round of water levels.

	Well	SWL (Top PVC)	Comment
0820	R7GW02R	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	"

0853 Leaving SWMU 3. All work has been completed here. Our 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)

Baker

Baker Environmental, Inc.

Appendix C:
Laboratory Analytical Results

APPENDIX C

GROUNDWATER ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R
Sample ID	R7GW01R-05	R7GW02R-05	R7GW02R-05D	R7GW04R-05	R7GW05R-05
Sample Date	03/02/02	03/05/02	03/05/02	03/02/02	03/02/02
Volatiles (ug/l)					
Acetone	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Acrylonitrile	100 U	100 U	100 U	100 U	100 U
Benzene	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U
Bromoform	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Carbon Disulfide	5 U	5 U	5 U	5 U	1.9 J
Carbon tetrachloride	5 U	5 U	5 U	5 U	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 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromoethane (EDB)	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
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 U	5 U	5 U	5 U	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	0.68 J
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 UJ	25 UJ	25 UJ	25 UJ	25 UJ
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	4.6 J
Dichloromethane	5 U	5 U	5 U	5 U	5 U
2-Butanone (MEK)	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Iodomethane	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Styrene	5 U	5 U	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	0.61 J	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	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 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
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 C

GROUNDWATER ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

Site ID	R7GW01R	R7GW02R	R7GW02R	R7GW04R	R7GW05R
Sample ID	R7GW01R-05	R7GW02R-05	R7GW02R-05D	R7GW04R-05	R7GW05R-05
Sample Date	03/02/02	03/05/02	03/05/02	03/02/02	03/02/02
Total Metals (mg/l)					
Antimony	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U
Arsenic	0.01 UJ	0.01 U	0.01 U	0.02 UJ	0.01 UJ
Lead	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U
Selenium	0.01 UJ	0.01 U	0.01 UJ	0.02 UJ	0.01 UJ
Barium	0.062	0.062	0.062	0.36	0.02
Beryllium	0.004 U	0.0008 J	0.00085 J	0.00065 J	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.0019 J	0.005 U
Chromium	0.01 U	0.01 U	0.01 U	0.0044 J	0.01 U
Cobalt	0.01 U	0.01 U	0.01 U	0.046	0.01 U
Copper	0.02 U	0.02 U	0.02 U	0.056	0.02 U
Nickel	0.04 U	0.04 U	0.04 U	0.011 J	0.04 U
Silver	0.01 U	0.01 U	0.01 U	0.02 U	0.01 U
Vanadium	0.01 U	0.0023 J	0.01 U	0.046	0.0029 J
Zinc	0.02 U	0.0061 J	0.02 U	0.29	0.026
Thallium	0.01 U	0.01 U	0.01 U	0.019 J	0.01 U
Mercury	0.00012 J	0.0002 UJ	0.0002 UJ	0.00016 J	0.0002 U
Dissolved Metals (mg/l)					
Antimony (Dissolved)	0.02 U	0.02 U	0.02 U	0.04 U	0.04 U
Arsenic, (Dissolved)	0.01 UJ	0.01 U	0.01 U	0.02 UJ	0.01 UJ
Lead, (Dissolved)	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Selenium (Dissolved)	0.01 UJ	0.01 U	0.01 UJ	0.02 UJ	0.02 UJ
Barium, (Dissolved)	0.06	0.06	0.062	0.25	0.019
Beryllium (Dissolved)	0.004 U	0.0008 J	0.00081 J	0.004 U	0.00056 J
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	0.02 U	0.01 U
Cobalt (Dissolved)	0.01 U	0.01 U	0.01 U	0.041	0.01 U
Copper, Dissolved	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
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	0.02 U	0.01 U
Thallium (Dissolved)	0.01 U	0.0074 J	0.0097 J	0.016 J	0.02 U
Vanadium (Dissolved)	0.01 U	0.0023 J	0.01 U	0.01 U	0.01 U
Zinc, (Dissolved)	0.02 U	0.015 J	0.02 U	0.064	0.0065 J
Mercury (Dissolved)	0.0002 U	0.0002 UJ	0.0002 UJ	0.000093 J	0.00011 J

Notes:
U - Not Detected
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated

APPENDIX C

GROUNDWATER ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

Site ID	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW07R-05	R7GW08R-05	R7GW09-05	R7GW10-05	R7GW11-05
Sample Date	02/28/02	02/28/02	03/03/02	03/03/02	02/28/02
Volatiles (ug/l)					
Acetone	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
Acrylonitrile	100 U	100 U	100 U	100 U	100 U
Benzene	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U
Bromoform	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	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	2.7 J
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromoethane (EDB)	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
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 U	5 U	5 U	5 U	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 UJ	25 UJ	25 UJ	25 UJ	25 UJ
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 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Iodomethane	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Styrene	5 U	5 U	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	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 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
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 C

GROUNDWATER ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

Site ID	R7GW07R	R7GW08R	R7GW09	R7GW10	R7GW11
Sample ID	R7GW07R-05	R7GW08R-05	R7GW09-05	R7GW10-05	R7GW11-05
Sample Date	02/28/02	02/28/02	03/03/02	03/03/02	02/28/02
Total Metals (mg/l)					
Antimony	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U
Arsenic	0.01 UJ	0.01 UJ	0.01 UJ	0.0034 J	0.01 UJ
Lead	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U
Selenium	0.01 U	0.016 J	0.02 UJ	0.01 UJ	0.01 U
Barium	0.079	0.097	0.1	0.054	0.0033 J
Beryllium	0.004 U	0.004 U	0.00056 J	0.004 U	0.004 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	0.0028 J	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.0058 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper	0.028	0.02 U	0.02 U	0.02 U	0.0038 J
Nickel	0.04 U	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	0.023	0.0025 J	0.0029 J	0.0039 J	0.01 U
Zinc	0.056	0.02 U	0.02 U	0.02 U	0.02 U
Thallium	0.01 UJ	0.01 UJ	0.02 U	0.01 U	0.01 UJ
Mercury	0.0002 U	0.000089 J	0.00012 J	0.0002 U	0.0002 U
Dissolved Metals (mg/l)					
Antimony (Dissolved)	0.02 U	0.04 U	0.04 U	0.02 U	0.02 U
Arsenic, (Dissolved)	0.01 UJ	0.01 UJ	0.01 UJ	0.005 J	0.01 UJ
Lead, (Dissolved)	0.005 U	0.01 U	0.01 U	0.005 U	0.0017 J
Selenium (Dissolved)	0.0093 J	0.02 U	0.014 J	0.01 UJ	0.01 U
Barium, (Dissolved)	0.057	0.097	0.11	0.059	0.0029 J
Beryllium (Dissolved)	0.004 U	0.004 U	0.0006 J	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)	0.0022 J	0.01 U	0.01 U	0.01 U	0.01 U
Copper, Dissolved	0.02 U	0.02 U	0.02 U	0.02 U	0.0014 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
Thallium (Dissolved)	0.01 UJ	0.02 UJ	0.02 U	0.01 U	0.01 UJ
Vanadium (Dissolved)	0.013	0.01 U	0.0041 J	0.0043 J	0.0022 J
Zinc, (Dissolved)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Mercury (Dissolved)	0.000086 J	0.0002 U	0.0001 J	0.00014 J	0.0002 U

Notes:
U - Not Detected
J - Qualified as Estimated
UJ - Reported quantitation limit is qualified as estimated

APPENDIX C

QA/QC ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

	Trip Blanks				Field Balnks	Eq. Rinsate
Sample ID	R7TB01-05	R7TB02-05	R7TB03-05	R7TB04-05	R7FB02-05	R7ER01-05
Sample Date	03/01/02	03/04/02	03/05/02	03/06/02	03/06/02	03/06/02
Volatiles (ug/l)						
Acetone	50 UJ	50 UJ	50 UJ	50 UJ	50 U	50 U
Acrylonitrile	100 U	100 U	100 U	100 UJ	100 U	100 U
Benzene	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromochloromethane	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromoform	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U
Carbon Disulfide	5 U	5 U	5 U	5 UJ	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 UJ	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 UJ	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 UJ	10 U	10 U
Chloroform	5 U	5 U	5 U	5 UJ	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2-Dibromo-3-chloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dibromoethane (EDB)	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
1,2-Dichlorobenzene	5 U	5 U	5 U	5 UJ	5 U	5 U
1,4-Dichlorobenzene	5 U	5 U	5 U	5 UJ	5 U	5 U
trans-1,4-Dichloro-2-butene	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
1,1-Dichloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 UJ	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 UJ	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 UJ	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 UJ	5 U	5 U
2-Hexanone	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Bromomethane	10 U	10 U	10 U	10 UJ	10 U	10 U
Chloromethane	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Dibromomethane	5 U	5 U	5 U	5 UJ	5 U	5 U
Dichloromethane	5 U	5 U	5 U	5 UJ	5 U	5 U
2-Butanone (MEK)	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	26 J
Iodomethane	5 U	5 U	5 U	5 UJ	5 U	5 U
4-Methyl-2-pentanone (MIBK)	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Styrene	5 U	5 U	5 U	5 UJ	5 U	5 U
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,1,2,2-Tetrachloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Tetrachloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U
Toluene	5 U	5 U	5 U	0.68 J	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U
Trichlorofluoromethane	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2,3-Trichloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Vinyl acetate	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 UJ	10 U	10 U
Xylenes, Total	10 U	10 U	10 U	10 UJ	10 U	10 U
Total Metals (mg/l)						

APPENDIX C

QA/QC ANALYTICAL DATA
ROUND 01 GROUNDWATER SAMPLING EVENT
NAVAL STATION ROOSEVELT ROADS LANDFILL
CEIBA, PR

	Trip Blanks				Field Balnks	Eq. Rinsate
Sample ID	R7TB01-05	R7TB02-05	R7TB03-05	R7TB04-05	R7FB02-05	R7ER01-05
Sample Date	03/01/02	03/04/02	03/05/02	03/06/02	03/06/02	03/06/02
Antimony	NA	NA	NA	NA	0.02 U	0.02 U
Arsenic	NA	NA	NA	NA	0.01 U	0.01 U
Lead	NA	NA	NA	NA	0.005 U	0.0018 J
Selenium	NA	NA	NA	NA	0.01 UJ	0.01 UJ
Barium	NA	NA	NA	NA	0.01 U	0.01 U
Beryllium	NA	NA	NA	NA	0.004 U	0.004 U
Cadmium	NA	NA	NA	NA	0.005 U	0.005 U
Chromium	NA	NA	NA	NA	0.01 U	0.01 U
Cobalt	NA	NA	NA	NA	0.01 U	0.01 U
Copper	NA	NA	NA	NA	0.02 U	0.02 U
Nickel	NA	NA	NA	NA	0.04 U	0.04 U
Silver	NA	NA	NA	NA	0.01 U	0.01 U
Vanadium	NA	NA	NA	NA	0.01 U	0.01 U
Zinc	NA	NA	NA	NA	0.02 U	0.02 U
Thallium	NA	NA	NA	NA	0.01 U	0.01 U
Mercury	NA	NA	NA	NA	0.0002 UJ	0.0002 UJ
Dissolved Metals (mg/l)						
Antimony (Dissolved)	NA	NA	NA	NA	0.02 U	0.02 U
Arsenic, (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Lead, (Dissolved)	NA	NA	NA	NA	0.005 U	0.005 U
Selenium (Dissolved)	NA	NA	NA	NA	0.01 UJ	0.01 UJ
Barium, (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Beryllium (Dissolved)	NA	NA	NA	NA	0.004 U	0.004 U
Cadmium (Dissolved)	NA	NA	NA	NA	0.005 U	0.005 U
Chromium, (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Cobalt (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Copper, Dissolved	NA	NA	NA	NA	0.02 U	0.02 U
Nickel, (Dissolved)	NA	NA	NA	NA	0.04 U	0.04 U
Silver (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Thallium (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Vanadium (Dissolved)	NA	NA	NA	NA	0.01 U	0.01 U
Zinc, (Dissolved)	NA	NA	NA	NA	0.02 U	0.02 U
Mercury (Dissolved)	NA	NA	NA	NA	0.0002 UJ	0.0002 UJ

Baker

Baker Environmental, Inc.

Appendix D:
Puerto Rican Chemist Certification

CERTIFICATION PAGE

I hereby certify that I have reviewed the QA data for the following log numbers: **S2-41444D, S2-41490B, S2-41526, S2-41604,** signed by Melanie Jakubsen and to the best of my knowledge the results are correct and reliable.

$1.00 $1.00

A 740537

ESTADO LIBRE ASOCIADO DE PUERTO RICO

Lic. Abraham Ortiz Charriez

Lic. 2

Apr 29, 02

QUIMICO LICENCIADO

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Appendix 1 Volatile Organics (8260)			
Acetone, ug/l	50U	50U	50U
Acrylonitrile, ug/l	100U	100U	100U
Benzene, ug/l	5.0U	5.0U	5.0U
Bromochloromethane, ug/l	5.0U	5.0U	5.0U
Bromodichloromethane, ug/l	5.0U	5.0U	5.0U
Bromoform, ug/l	5.0U	5.0U	5.0U
Carbon Disulfide, ug/l	5.0U	5.0U	5.0U
Carbon tetrachloride, ug/l	5.0U	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U	5.0U
Chloroethane, ug/l	10U	10U	10U
Chloroform, ug/l	2.7J	5.0U	5.0U
Dibromochloromethane, ug/l	5.0U	5.0U	5.0U
1,2-Dibromo-3-chloropropane, ug/l	5.0U	5.0U	5.0U
1,2-Dibromoethane (EDB), ug/l	5.0U	5.0U	5.0U
1,2-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U
1,4-Dichlorobenzene, ug/l	5.0U	5.0U	5.0U
trans-1,4-Dichloro-2-butene, ug/l	10U	10U	10U
1,1-Dichloroethane, ug/l	5.0U	5.0U	5.0U
1,2-Dichloroethane, ug/l	5.0U	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U	5.0U

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
cis-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U
trans-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U	5.0U
2-Hexanone, ug/l	25U	25U	25U
Bromomethane, ug/l	10U	10U	10U
Chloromethane, ug/l	10U	10U	10U
Dibromomethane, ug/l	5.0U	5.0U	5.0U
Dichloromethane, ug/l	5.0U	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U	25U
Iodomethane, ug/l	5.0U	5.0U	5.0U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U	25U
Styrene, ug/l	5.0U	5.0U	5.0U
1,1,1,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U
Tetrachloroethene, ug/l	5.0U	5.0U	5.0U
Toluene, ug/l	5.0U	5.0U	5.0U
1,1,1-Trichloroethane, ug/l	5.0U	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U	5.0U

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Trichloroethene, ug/l	5.0U	5.0U	5.0U
Trichlorofluoromethane, ug/l	5.0U	5.0U	5.0U
1,2,3-Trichloropropane, ug/l	5.0U	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U	10U
Vinyl chloride, ug/l	10U	10U	10U
Xylenes, Total, ug/l	10U	10U	10U
Surrogate-TOL	92 %	92 %	90 %
Surrogate-BFB	84 %	86 %	82 %
Surrogate - Dibromofluoromethane	96 %	94 %	92 %
Dilution Factor	1	1	1
Prep Date	03.14.02	03.14.02	03.14.02
Analysis Date	03.14.02	03.14.02	03.14.02
Batch ID	1A0314	1A0314	1A0314

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Appendix 1 Metals (6010)			
Antimony, mg/l	0.020U	0.020U	0.020U
Arsenic, mg/l	0.010U	0.010U	0.010U
Lead, mg/l	0.0050U	0.0050U	0.0050U
Selenium, mg/l	0.010U	0.016	0.010U
Barium, mg/l	0.0033B	0.097	0.079
Beryllium, mg/l	0.0040U	0.0040U	0.0040U
Cadmium, mg/l	0.0050U	0.0050U	0.0050U
Chromium, mg/l	0.010U	0.010U	0.0028B
Cobalt, mg/l	0.010U	0.010U	0.0058B
Copper, mg/l	0.0038B	0.020U	0.028
Nickel, mg/l	0.040U	0.040U	0.040U
Silver, mg/l	0.010U	0.010U	0.010U
Vanadium, mg/l	0.010U	0.0025B	0.023
Zinc, mg/l	0.020U	0.020U	0.056
Dilution Factor	1	1	1
Prep Date	03.14.02	03.14.02	03.14.02
Analysis Date	03.15.02	03.15.02	03.15.02
Batch ID	0314I	0314I	0314I

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Thallium (6010)			
Thallium, mg/l	0.010U	0.010U	0.010U
Dilution Factor	1	1	1
Prep Date	03.14.02	03.14.02	03.14.02
Analysis Date	03.15.02	03.15.02	03.15.02
Batch ID	0314I	0314I	0314I
Mercury (7470)			
Mercury, mg/l	0.00020U	0.000089B	0.00020U
Dilution Factor	1	1	1
Prep Date	03.06.02	03.06.02	03.06.02
Analysis Date	03.11.02	03.11.02	03.11.02
Batch ID	0306R	0306R	0306R

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Appendix 1 Metals (Dissolved)			
Antimony (Dissolved), mg/l	0.020U	0.040U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.010U	0.010U
Lead, (Dissolved), mg/l	0.0017B	0.010U	0.0050U
Selenium (Dissolved), mg/l	0.010U	0.020U	0.0093B
Barium, (Dissolved), mg/l	0.0029B	0.097	0.057
Beryllium (Dissolved), mg/l	0.0040U	0.0040U	0.0040U
Cadmium (Dissolved), mg/l	0.0050U	0.0050U	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.010U	0.010U	0.0022B
Copper, Dissolved, mg/l	0.0014B	0.020U	0.020U
Nickel, (Dissolved), mg/l	0.040U	0.040U	0.040U
Silver (Dissolved), mg/l	0.010U	0.010U	0.010U
Vanadium (Dissolved), mg/l	0.0022B	0.010U	0.013
Zinc, (Dissolved), mg/l	0.020U	0.020U	0.020U
Dilution Factor	1	1	1
Prep Date	03.14.02	03.14.02	03.14.02
Analysis Date	03.15.02	03.15.02	03.15.02
Batch ID	0314I	0314I	0314I

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-1	R7GW11-05	02-28-02/13:17	PRNS39
41444D-2	R7GW08R-05	02-28-02/16:48	PRNS39
41444D-3	R7GW07R-05	02-28-02/18:54	PRNS39

PARAMETER	41444D-1	41444D-2	41444D-3
Thallium (Dissolved) (6010)			
Thallium, mg/l	0.010U	0.020U	0.010U
Dilution Factor	1	2	1
Prep Date	03.14.02	03.14.02	03.14.02
Analysis Date	03.15.02	03.22.02	03.15.02
Batch ID	0314I	0314I	0314I
Mercury (Dissolved) (7470)			
Mercury (Dissolved), mg/l	0.00020U	0.00020U	0.000086B
Dilution Factor	1	1	1
Prep Date	03.06.02	03.06.02	03.06.02
Analysis Date	03.11.02	03.11.02	03.11.02
Batch ID	0306R	0306R	0306R

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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-4	R7TB01-05	03-01-02/12:35	PRNS39

PARAMETER	41444D-4
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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-4	R7TB01-05	03-01-02/12:35	PRNS39

PARAMETER	41444D-4
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: S2-41444D
Received: 04 MAR 02
Reported: 05 APR 02

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

Cl Project No: 62470-277

Project: PRNS39/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41444D-4	R7TB01-05	03-01-02/12:35	PRNS39

PARAMETER	41444D-4
Vinyl chloride, ug/l	10U
Xylenes, Total, ug/l	10U
Surrogate-TOL	94 %
Surrogate-BFB	86 %
Surrogate - Dibromofluoromethane	94 %
Dilution Factor	1
Prep Date	03.14.02
Analysis Date	03.14.02
Batch ID	1A0314

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.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

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).

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.

Melanie Jakubsen, Project Manager

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-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	1.9J	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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-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	0.68J	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	4.6J	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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-5
Tetrachloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Toluene, ug/l	5.0U	0.61J	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	94 %	92 %	92 %	92 %	92 %
Surrogate-BFB	86 %	88 %	86 %	88 %	88 %
Surrogate - Dibromofluoromethane	92 %	90 %	90 %	92 %	92 %
Dilution Factor	1	1	1	1	1
Analysis Date	03.14.02	03.14.02	03.14.02	03.14.02	03.14.02
Batch ID	1A0314	1A0314	1A0314	1A0314	1A0314

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-5
Appendix 1 Metals (6010)					
Antimony, mg/l	0.020U	0.040U	0.020U	0.040U	0.020U
Arsenic, mg/l	0.010U	0.020U	0.010U	0.010U	0.0034B
Lead, mg/l	0.0050U	0.010U	0.0050U	0.010U	0.0050U
Selenium, mg/l	0.010U	0.020U	0.010U	0.020U	0.010U
Barium, mg/l	0.020	0.36	0.062	0.10	0.054
Beryllium, mg/l	0.0040U	0.00065B	0.0040U	0.00056B	0.0040U
Cadmium, mg/l	0.0050U	0.0019B	0.0050U	0.0050U	0.0050U
Chromium, mg/l	0.010U	0.0044B	0.010U	0.010U	0.010U
Cobalt, mg/l	0.010U	0.046	0.010U	0.010U	0.010U
Copper, mg/l	0.020U	0.056	0.020U	0.020U	0.020U
Nickel, mg/l	0.040U	0.011B	0.040U	0.040U	0.040U
Silver, mg/l	0.010UN	0.020UN	0.010UN	0.010UN	0.010UN
Vanadium, mg/l	0.0029B	0.046	0.010U	0.0029B	0.0039B
Zinc, mg/l	0.026	0.29	0.020U	0.020U	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	03.19.02	03.19.02	03.19.02	03.19.02	03.19.02
Batch ID	0308K	0308K	0308K	0308K	0308K

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-5
Thallium (6010)					
Thallium, mg/l	0.010U	0.019B	0.010U	0.020U	0.010U
Dilution Factor	1	2	1	2	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	03.19.02	04.03.02	03.19.02	04.03.02	04.03.02
Batch ID	0308K	0308K	0308K	0308K	0308K
Mercury (7470)					
Mercury, mg/l	0.00020U	0.00016B	0.00012B	0.00012B	0.00020U
Dilution Factor	1	1	1	1	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	03.11.02	03.11.02	03.11.02	03.11.02	03.11.02
Batch ID	0308R	0308R	0308R	0308R	0308R

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-5
Appendix 1 Metals (Dissolved)					
Antimony (Dissolved), mg/l	0.040U	0.040U	0.020U	0.040U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.020U	0.010U	0.010U	0.0050B
Lead, (Dissolved), mg/l	0.010U	0.010U	0.0050U	0.010U	0.0050U
Selenium (Dissolved), mg/l	0.020U	0.020U	0.010U	0.014B	0.010U
Barium, (Dissolved), mg/l	0.019	0.25	0.060	0.11	0.059
Beryllium (Dissolved), mg/l	0.00056B	0.0040U	0.0040U	0.00060B	0.0040U
Cadmium (Dissolved), mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.020U	0.010U	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.010U	0.041	0.010U	0.010U	0.010U
Copper, Dissolved, mg/l	0.020U	0.020U	0.020U	0.020U	0.020U
Nickel, (Dissolved), mg/l	0.040U	0.040U	0.040U	0.040U	0.040U
Silver (Dissolved), mg/l	0.010UN	0.020UN	0.010UN	0.010UN	0.010UN
Vanadium (Dissolved), mg/l	0.010U	0.010U	0.010U	0.0041B	0.0043B
Zinc, (Dissolved), mg/l	0.0065B	0.064	0.020U	0.020U	0.020U
Dilution Factor	1	1	1	1	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	03.19.02	03.19.02	03.19.02	03.19.02	03.19.02
Batch ID	0308K	0308K	0308K	0308K	0308K

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-1	R7GW05R-05	03-02-02/10:30	PRNS42
41490B-2	R7GW04R-05	03-02-02/15:00	PRNS42
41490B-3	R7GW01R-05	03-02-02/17:30	PRNS42
41490B-4	R7GW09-05	03-03-02/14:55	PRNS42
41490B-5	R7GW10-05	03-03-02/17:10	PRNS42

PARAMETER	41490B-1	41490B-2	41490B-3	41490B-4	41490B-5
Thallium (Dissolved) (6010)					
Thallium, mg/l	0.020U	0.016B	0.010U	0.020U	0.010U
Dilution Factor	2	2	1	2	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	04.03.02	04.03.02	03.19.02	04.03.02	04.03.02
Batch ID	0308K	0308K	0308K	0308K	0308K
Mercury (Dissolved) (7470)					
Mercury (Dissolved), mg/l	0.00011B	0.000093B	0.00020U	0.00010B	0.00014B
Dilution Factor	1	1	1	1	1
Prep Date	03.08.02	03.08.02	03.08.02	03.08.02	03.08.02
Analysis Date	03.11.02	03.12.02	03.11.02	03.11.02	03.11.02
Batch ID	0308R	0308R	0308R	0308R	0308R

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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-6	R7TB02-05	03-04-02/13:00	PRNS42

PARAMETER	41490B-6
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-6	R7TB02-05	03-04-02/13:00	PRNS42

PARAMETER	41490B-6
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: S2-41490B
Received: 05 MAR 02
Reported: 09 APR 02

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

Cl Project No: 62470-277

Project: PRNS42/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41490B-6	R7TB02-05	03-04-02/13:00	PRNS42

PARAMETER	41490B-6
Vinyl chloride, ug/l	10U
Xylenes, Total, ug/l	10U
Surrogate-TOL	92 %
Surrogate-BFB	86 %
Surrogate - Dibromofluoromethane	94 %
Dilution Factor	1
Analysis Date	03.14.02
Batch ID	1A0314

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.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

U = Indicates compound was analyzed for but not detected.

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.

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.

Melanie L. Jakubsen

Melanie Jakubsen, Project Manager

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
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

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
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	94 %	92 %
Surrogate-BFB	86 %	86 %
Surrogate - Dibromofluoromethane	94 %	92 %
Dilution Factor	1	1
Analysis Date	03.14.02	03.14.02
Batch ID	1A0314	1A0314

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
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	0.062	0.062
Beryllium, mg/l	0.00080B	0.00085B
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	0.0023B	0.010U
Zinc, mg/l	0.0061B	0.020U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
Thallium (6010)		
Thallium, mg/l	0.010U	0.010U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J
Mercury (7470)		
Mercury, mg/l	0.00020UN	0.00020UN
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	03.15.02	03.15.02
Batch ID	0312S	0312S

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
Appendix 1 Metals (Dissolved)		
Antimony (Dissolved), mg/l	0.020U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.010U
Lead, (Dissolved), mg/l	0.0050U	0.0050U
Selenium (Dissolved), mg/l	0.010U	0.010U
Barium, (Dissolved), mg/l	0.060	0.062
Beryllium (Dissolved), mg/l	0.00080B	0.00081B
Cadmium (Dissolved), mg/l	0.0050U	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.010U	0.010U
Copper, Dissolved, mg/l	0.020U	0.020U
Nickel, (Dissolved), mg/l	0.040U	0.040U
Silver (Dissolved), mg/l	0.010U	0.010U
Vanadium (Dissolved), mg/l	0.0023B	0.010U
Zinc, (Dissolved), mg/l	0.015B	0.020U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J

SEVERN TRENT SERVICES

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

STL Savannah

LOG NO: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-1	R7GW02R-05	03-05-02/11:45	PRNS46
41526-2	R7GW02R-05D	03-05-02/11:45	PRNS46

PARAMETER	41526-1	41526-2
Thallium (Dissolved) (6010)		
Thallium, mg/l	0.0074B	0.0097B
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J
Mercury (Dissolved) (7470)		
Mercury (Dissolved), mg/l	0.00020UN	0.00020UN
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	03.15.02	03.15.02
Batch ID	0312S	0312S

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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-3	R7TB03-05	03-05-02/14:00	PRNS46

PARAMETER	41526-3
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: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-3	R7TB03-05	03-05-02/14:00	PRNS46

PARAMETER	41526-3
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41526
Received: 06 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS38/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41526-3	R7TB03-05	03-05-02/14:00	PRNS46

PARAMETER	41526-3
Vinyl chloride, ug/l	10U
Xylenes, Total, ug/l	10U
Surrogate-TOL	92 %
Surrogate-BFB	86 %
Surrogate - Dibromofluoromethane	92 %
Dilution Factor	1
Analysis Date	03.14.02
Batch ID	1A0314

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.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

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.

Melanie Jakubsen, Project Manager

Final Page Of Report

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
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	26
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

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
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	92 %	92 %
Surrogate-BFB	86 %	86 %
Surrogate - Dibromofluoromethane	90 %	90 %
Dilution Factor	1	1
Analysis Date	03.15.02	03.15.02
Batch ID	2A0314	2A0314

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
Appendix 1 Metals (6010)		
Antimony, mg/l	0.020U	0.020U
Arsenic, mg/l	0.010U	0.010U
Lead, mg/l	0.0050U	0.0018B
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	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
Thallium (6010)		
Thallium, mg/l	0.010U	0.010U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J
Mercury (7470)		
Mercury, mg/l	0.00020UN	0.00020UN
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	03.15.02	03.15.02
Batch ID	0312S	0312S

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
Appendix 1 Metals (Dissolved)		
Antimony (Dissolved), mg/l	0.020U	0.020U
Arsenic, (Dissolved), mg/l	0.010U	0.010U
Lead, (Dissolved), mg/l	0.0050U	0.0050U
Selenium (Dissolved), mg/l	0.010U	0.010U
Barium, (Dissolved), mg/l	0.010U	0.010U
Beryllium (Dissolved), mg/l	0.0040U	0.0040U
Cadmium (Dissolved), mg/l	0.0050U	0.0050U
Chromium, (Dissolved), mg/l	0.010U	0.010U
Cobalt (Dissolved), mg/l	0.010U	0.010U
Copper, Dissolved, mg/l	0.020U	0.020U
Nickel, (Dissolved), mg/l	0.040U	0.040U
Silver (Dissolved), mg/l	0.010U	0.010U
Vanadium (Dissolved), mg/l	0.010U	0.010U
Zinc, (Dissolved), mg/l	0.020U	0.020U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-1	R7FB02-05	03-06-02/07:45	PRNS46
41604-2	R7ER01-05	03-06-02/07:15	PRNS46

PARAMETER	41604-1	41604-2
Thallium (Dissolved) (6010)		
Thallium, mg/l	0.010U	0.010U
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	04.04.02	04.04.02
Batch ID	0312J	0312J
Mercury (Dissolved) (7470)		
Mercury (Dissolved), mg/l	0.00020UN	0.00020UN
Dilution Factor	1	1
Prep Date	03.12.02	03.12.02
Analysis Date	03.15.02	03.15.02
Batch ID	0312S	0312S

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: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-3	R7TB04-05	03-06-02/12:00	PRNS46

PARAMETER	41604-3
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-3	R7TB04-05	03-06-02/12:00	PRNS46

PARAMETER	41604-3
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	0.68J
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
STL Savannah
5102 LaRoche Avenue • Savannah, GA 31404 • Tel: 912 354 7858 • Fax: 912 352 0165 • www.stl-inc.com

LOG NO: S2-41604
Received: 07 MAR 02
Reported: 10 APR 02

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

Cl Project No: 62470-277

Project: PRNS46/CTO-99/SWMU 3-NSRR/26007-05-D-6007
Sampled By: Client
Code: 121820416

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
41604-3	R7TB04-05	03-06-02/12:00	PRNS46

PARAMETER	41604-3
Vinyl chloride, ug/l	10U
Xylenes, Total, ug/l	10U
Surrogate-TOL	94 %
Surrogate-BFB	88 %
Surrogate - Dibromofluoromethane	90 %
Dilution Factor	1
Analysis Date	03.15.02
Batch ID	2A0314

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.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

U = Indicates compound was analyzed for but not detected.

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.

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.

Melanie L. Jakubsen

Melanie Jakubsen, Project Manager

Baker

Baker Environmental, Inc.

Appendix E:
Laboratory Data Validation Summary

Data Validation Report

CH2M Hill / Baker Environmental, Inc.
Roosevelt Roads
SDG#: PRNS39

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS39
Date:	April 23, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 28 & March 1, 2002
Number of Samples:	4 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Appendix IX Volatiles, Total 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:

Lisa Jurneau
for Paul B. Humburg, President

4-23-02
Date

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

SDG# PRNS39

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		MET		D MET	
R7GW11-05	WATER	X		X		X	
R7GW08R-05	WATER	X		X		X	
R7GW07R-05	WATER	X		X		X	
R7TB01-05	WATER	X					
Total Billable Samples (Water/Soil)		4	0	3	0	3	0

VOA= Appendix IX Volatiles
MET= Total Metals
D MET= Dissolved Metals

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

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, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS39

A validation was performed on the Volatile Data from SDG #PRNS39. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, AQ553 and AQ554, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	acetone
	2-butanone
	4-methyl-2-pentanone
	2-hexanone
	1,2-dibromoethane
	bromoform
	1,1,2,2-tetrachloroethane
	1,2,3-trichloropropane
	1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

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

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 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 CRQL and is greater than 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 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromoethane bromoform 1,1,2,2-tetrachloroethane 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* 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 SW 846 methods for Metals and wet chemistry and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA 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.

SDGs # PRNS39

A validation was performed on the Metals Data from SDG PRNS39. 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

The calibration verification standard for Arsenic and Thallium were below the lower control limits for 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. (J1)

The calibration verification standard for Selenium and Lead were above the control limits for waters (>120%). All positive results are qualified as estimated, "J" for any samples below two times the CRDL plus the CRI. (J2)

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. (J3)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
all water samples	As andTl.	+/U	J/UJ	1
all water samples	Se and Pb.	+	J	2
all "B" results	all analytes	B	J	3

Data Validation Report

Baker Environmental, Inc.
Roosevelt Roads
SDG#: PRNS42

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS42
Date:	May 16, 2002
Client Name:	Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 2 - 4, 2002
Number of Samples:	6 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Appendix IX Volatiles, Total 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. Sewfass
for Paul B. Humburg, President

5-16-02
Date

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

SDG# PRNS42

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		T MET		D MET	
R7GW05R-05	WATER	X		X		X	
R7GW05R-05 MS	WATER			X			
R7GW05R-05 MSD	WATER			X			
R7GW04R-05	WATER	X		X		X	
R7GW01R-05	WATER	X		X		X	
R7GW09-05	WATER	X		X		X	
R7GW10-05	WATER	X		X		X	
R7TB02-05	WATER	X					
Total Billable Samples (Water/Soil)		6	0	7	0	5	0

VOA= Appendix IX Volatiles
T MET= Total Metals
D MET= Dissolved Metals

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

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, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS42

A validation was performed on the Volatile Data from SDG #PRNS42. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, AQ553 and AQ554, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	acetone
	2-butanone
	4-methyl-2-pentanone
	2-hexanone
	1,2-dibromoethane
	bromoform
	1,1,2,2-tetrachloroethane
	1,2,3-trichloropropane
	1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

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

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 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 CRQL and is greater than 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 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromoethane bromoform 1,1,2,2-tetrachloroethane 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* 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 SW 846 methods for Metals and wet chemistry and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA 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.

SDGs # PRNS42

A validation was performed on the Metals Data from SDG PRNS42. 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

The calibration verification standard for Arsenic and Selenium were below the lower control limits for 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. (J1)

Matrix Spike Recovery results

The matrix spike recovery results for waters for Silver (128%) was above the upper control limits (>125% but <150%). All positive results are qualified as estimated, "J". (J2)

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. (J3)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
all water samples	As and Se.	+/U	J/UJ	1
all water samples	Ag.	+	J	2
all "B" results	all analytes	B	J	3

Data Validation Report

Baker Environmental, Inc.
Roosevelt Roads
SDG#: PRNS~~42~~ 46

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS46
Date:	April 30, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 5 - 6, 2002
Number of Samples:	6 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Total 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. Scayson
Paul B. Humburg, President

4-30-02
Date

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

SDG# PRNS46

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		T MET		D MET	
R7GW02R-05	WATER	X		X		X	
R7GW02R-05 MS	WATER	X		X		X	
R7GW02R-05 MSD	WATER	X		X		X	
R7GW02R-05D	WATER	X		X		X	
R7FB02-05	WATER	X		X		X	
R7ER01-05	WATER	X		X		X	
R7TB03-05	WATER	X					
R7TB04-05	WATER	X					
Total Billable Samples (Water/Soil)		8	0	6	0	6	0

VOA= Volatiles
T MET= Total Metals
D MET= Dissolved Metals

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

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, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS46

A validation was performed on the Volatile Data from SDG #PRNS46. The data was evaluated based on the following parameters.

*	Data Completeness
	Holding Times
*	GC/MS Tuning
	Calibrations
*	Internal Standard Performance
	Blanks
*	Surrogate Recoveries
*	Laboratory Control Samples
*	Matrix Spike/Matrix Spike duplicate
*	Field Duplicates
	Compound Identification/Quantitation

* - All criteria were met for this parameter

Holding Times

Sample R7TB04-05 exceeded the seven day extraction holding time for non-preserved samples by two days. Qualify all results as estimated (J/UJ).

Calibrations

The continuing calibrations, AQ553 and AQ554, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

R7GW02R-05	acetone
R7GW02R-05D	2-butanone
R7TB03-05	4-methyl-2-pentanone
	2-hexanone
	1,2-dibromomethane
	bromoform
	1,1,2,2-tetrachloroethane
	1,2,3-trichloropropane
	1,2-dibromo-3-chloropropane

The continuing calibrations, AQ557 and AQ558, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

R7FB02-05	chloromethane
R7ER01-05	vinyl acetate
R7TB04-05	2-butanone
	4-methyl-2-pentanone
	2-hexanone
	1,2-dibromoethane
	1,1,2,2-tetrachloroethane
	1,2,3-trichloropropane
	trans-1,4-dichloro-2-butene
	1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

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

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 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 CRQL and is greater than 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
R7TB04-05	all results	+/-	J/UJ
R7GW02R-05 R7GW02R-05D R7TB03-05	acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromomethane bromoform 1,1,2,2-tetrachloroethane 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	J/UJ
R7FB02-05 R7ER01-05 R7TB04-05	chloromethane vinyl acetate 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromoethane 1,1,2,2-tetrachloroethane 1,2,3-trichloropropane trans-1,4-dichloro-2-butene 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* 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 AND WET CHEMISTRY

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 SW 846 methods for Metals and wet chemistry and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA 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.

SDGs # PRNS46

A validation was performed on the Metals and wet chemistry Data from SDG PRNS46. 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

The calibration verification standard for Selenium and mercury were below the lower control limits for waters (<80%). Only samples R7GW02R-05D and -05DF, R7FB02-05 and -05F and R7ER01-05 and 05F are affected. 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. (J1)

Matrix Spike Recovery results

The matrix spike recovery results for waters for Mercury (66%) was below the lower control limits (>10% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ". (J2)

The matrix spike recovery results for waters for Silver (128%) was above the upper control limits (>125% but <150%). All positive results are qualified as estimated, "J". (J3)

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. (J4)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
R7GW02-05D, R7FB02-05 and R7ER01-05.	Se and Hg.	+/U	J/UJ	1
all water samples	Hg.	+/U	J/UJ	2
all water samples	Ag.	+	J	3
all "B" results	all analytes	B	J	4

Baker

Baker Environmental, Inc.

Appendix F:
Summary of Statistical Analyses

Antimony (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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	0.04 U
R7GW07	0.0018 U	0.02 U R	0.02 UJ*	0.02 U	R7GW07R	0.04 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	0.04 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	0.0278
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		3/3/2002
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	0.02 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	0.01 UJ
R7GW08	0.0066 U	0.01 U	0.01 U	0.01 U	R7GW08R	0.01 UJ
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	0.0034 J
R7GW11	0.0021 U	0.01 U	0.01 U	0.01 U	R7GW11	0.01 UJ

proportion of detects	0.0889	
background maximum	0.0169	note: statistics performed on detections only
background mean	0.0111	
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		3/3/2002
R7GW01	0.324	0.022	J*	0.248	0.098	0.173	R7GW01R	0.062
R7GW02	0.0141 B	0.001 U	J*	0.001 U	0.001 U	0.014	R7GW02R	0.062
R7GW04	0.106 B	0.001 U	J*	0.766	0.158	0.343	R7GW04R	0.36
R7GW05	0.0105 B	0.001 U	J*	0.001 U	0.001 U	0.011	R7GW05R	0.02
R7GW07	0.0096 B	0.001 U	J*	0.001 U	0.001 U	0.010	R7GW07R	0.079
R7GW08	0.0451 B	0.001 U	J*	0.024	0.001 U	0.035	R7GW08R	0.097
R7GW09	0.195 B	0.001 U	J*	0.096	0.001 U	0.146	R7GW09	0.1
R7GW10	0.174 B	0.001 U	J*	0.001 U	0.001 U	0.174	R7GW10	0.054
R7GW11	0.025 B	0.001 U	J*	0.062	0.001 U	0.044	R7GW11	0.0033 J

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		3/3/2002
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	0.0008 J
R7GW04	0.0002 U	0.001 U J*	0.001 U	0.001 U	R7GW04R	0.00065 J
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	0.004 U
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	0.00056 J
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	0.066667
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		3/3/2002
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	0.0019 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	0.005 U
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	0.066667	
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		3/3/2002
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	0.0044 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	0.0028 J
R7GW08	0.0017 B	0.06	J*	0.08	0.052	0.048	R7GW08R	0.01 U
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	0.688889	
background 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 the 89 detected values in the 6/1998 data.

CHROMIUM Hypothesis: there is no chromium contamination at the 5% significance level, one-way nonparametric analysis of variance

Krustal Wallis test

	rank	concentration	sum of ranks	sum of ranks squared	average rank
R7GW01	12	0.0034			
R7GW01	19	0.01			
R7GW01	31	0.026			
R7GW01	33.5	0.038			
R7GW01	36	0.044	131.5	17292.25	26.3
R7GW02	1.5	0.0008			
R7GW02	4	0.001			
R7GW02	19	0.01			
R7GW02	35	0.04			
R7GW02	43	0.078	102.5	10506.25	20.5
R7GW04	1.5	0.0008			
R7GW04	13	0.0044			
R7GW04	19	0.01			
R7GW04	26.5	0.014			
R7GW04	40.5	0.064	100.5	10100.25	20.1
R7GW05	7	0.0014			
R7GW05	19	0.01			
R7GW05	32	0.03			
R7GW05	38.5	0.06			
R7GW05	42	0.07	138.5	19182.25	27.7
R7GW07	6	0.0013			
R7GW07	10	0.0028			
R7GW07	19	0.01			
R7GW07	25	0.012			
R7GW07	30	0.022	90	8100	18
R7GW08	8	0.0017			
R7GW08	19	0.01			
R7GW08	37	0.052			
R7GW08	38.5	0.06			
R7GW08	44	0.08	146.5	21462.25	29.3
R7GW09	4	0.001			
R7GW09	11	0.0032			
R7GW09	19	0.01			
R7GW09	33.5	0.038			
R7GW09	45	0.104	112.5	12656.25	22.5
R7GW10	4	0.001			
R7GW10	19	0.01			
R7GW10	19	0.01			
R7GW10	26.5	0.014			
R7GW10	28	0.016	96.5	9312.25	19.3
R7GW11	9	0.0021			
R7GW11	19	0.01			
R7GW11	19	0.01			
R7GW11	29	0.02			
R7GW11	40.5	0.064	116.5	13572.25	23.3

	adjustment for ties	
12	0.0034	
1.5	0.0008	
1.5	0.0008	6
4	0.001	
4	0.001	24
4	0.001	
6	0.0013	
7	0.0014	
8	0.0017	
9	0.0021	
10	0.0028	
11	0.0032	
13	0.0044	
19	0.01	
19	0.01	
19	0.01	1320
19	0.01	
19	0.01	
19	0.01	
19	0.01	
19	0.01	
19	0.01	
19	0.01	
19	0.01	
25	0.012	
26.5	0.014	
26.5	0.014	6
28	0.016	
29	0.02	
30	0.022	
31	0.026	
32	0.03	
33.5	0.038	6
33.5	0.038	
35	0.04	
36	0.044	
37	0.052	
38.5	0.06	6
38.5	0.06	
40.5	0.064	6
40.5	0.064	
42	0.07	
43	0.078	
44	0.08	
45	0.104	
		1374

krustal- wallis statistic 16.102

adjustment for ties 16.348

chi-squared value for 10 degrees of freedom (11 -1 wells) and 5% level = 18.31 (standard tables)

Since 16.3 < 18.31, can accept hypothesis that no chromium contamination is present at the 5% level

note: Test was performed on data with no adjustment for non-detect values above detected values.

If the higher non-detect values were replaced with the lowest non-detect values, the effect would be to reduce the krustal-wallis statistic. Hypothesis is still accepted.

Cobalt (mg/L)

	Date							
	6/17/1998	2/2/2000		5/9/2000	8/15/2000	avg		3/3/2002
R7GW01	0.0089 B	0.001 U	J*	0.04	0.001 U	0.02445	R7GW01R	0.01
R7GW02	0.0016 B	0.001 U	J*	0.001 U	0.001 U	0.0016	R7GW02R	0.01
R7GW04	0.0042 B	0.001 U	J*	0.001 U	0.001 U	0.0042	R7GW04R	0.046
R7GW05	0.0016 B	0.001 U	J*	0.001 U	0.001 U	0.0016	R7GW05R	0.01
R7GW07	0.0005 B	0.001 U		0.001 U	0.001 U	0.0005	R7GW07R	0.0058
R7GW08	0.001 B	0.001 U	J*	0.001 U	0.001 U	0.001	R7GW08R	0.01
R7GW09	0.0155 B	0.001 U		0.092	0.048	0.0518	R7GW09	0.01
R7GW10	0.0081	0.001 U	J*	0.001 U	0.001 U	0.0081	R7GW10	0.01
R7GW11	0.0004 B	0.001 U	J*	0.026	0.001 U	0.0004	R7GW11	0.01

proportion of detects	0.333333	
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	

Copper (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	avg		3/3/2002
R7GW01	0.0134 B	0.01 U	0.076	0.026 U*	0.0447	R7GW01R	0.02 U
R7GW02	0.0094 B	0.01 U J*	0.034	0.01 U	0.0217	R7GW02R	0.02 U
R7GW04	0.0228 B	0.01 U J*	0.076	0.01 U	0.0494	R7GW04R	0.056
R7GW05	0.0088 B	0.01 U	0.03	0.01 U	0.0194	R7GW05R	0.02 U
R7GW07	0.0046 B	0.01 U	0.054	0.01 U	0.0293	R7GW07R	0.028
R7GW08	0.0086 B	0.01 U	0.044	0.01 U	0.0263	R7GW08R	0.02 U
R7GW09	0.0358	0.01 U	0.272	0.052 U*	0.1539	R7GW09	0.02 U
R7GW10	0.0195 B	0.01 U	0.032	0.028 U*	0.02575	R7GW10	0.02 U
R7GW11	0.0046 B	0.01 U	0.216	0.032	0.0842	R7GW11	0.0038 J

proportion of detects	0.311111	
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		

Lead (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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	0.01 U
R7GW05	0.0017 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW05R	0.01 U
R7GW07	0.0026 BJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW07R	0.005 U
R7GW08	0.0085 UJ*	0.008 U J*	0.008	0.008 U	R7GW08R	0.01 U
R7GW09	0.0085 UJ*	0.008 U J*	0.008 UJ*	0.008 U	R7GW09	0.01 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	0.0017 J

proportion of detects	0.111111	
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	

Nickel (mg/L)

	Date						
	6/17/1998	2/2/2000	5/9/2000	8/15/2000	average		3/3/2002
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	0.011 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	0.04 U
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	0.222222	
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

Selenium (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
R7GW01	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW01R	0.01 UJ
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	0.02 UJ
R7GW05	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW05R	0.01 UJ
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	0.016 J
R7GW09	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW09	0.02 UJ
R7GW10	0.0022 U	0.01 U J*	0.01 U	0.01 U	R7GW10	0.01 UJ
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		3/3/2002
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	0.044444
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

Thallium (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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	0.019 J
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 UJ
R7GW08	0.0031 U	0.02 U J*	0.02 U	0.02 U	R7GW08R	0.01 UJ
R7GW09	0.0031 U	0.02 U J*	0.02 UJ*	0.02 U	R7GW09	0.02 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 UJ

proportion of detects	0.0200
background maximum	ND
background mean	ND
background median	ND
background standard deviation	not meaningful
	compliance round

Vanadium (mg/L)

	Date							
	6/17/1998	2/2/2000		5/9/2000	8/15/2000	average		3/3/2002
R7GW01	0.0152 B	0.034	J*	0.048	0.102	0.0498	R7GW01R	0.01 U
R7GW02	0.0098 B	0.001 U	J*	0.02	0.001 U	0.0149	R7GW02R	0.0023 J
R7GW04	0.0198 B	0.012	J*	0.04	0.001 U	0.0239	R7GW04R	0.046
R7GW05	0.013 B	0.001 U	J*	0.03	0.001 U	0.0215	R7GW05R	0.0029 J
R7GW07	0.0084 B	0.04	J*	0.116	0.034	0.0496	R7GW07R	0.023
R7GW08	0.0092 B	0.001 U	J*	0.06	0.032	0.0337	R7GW08R	0.0025 J
R7GW09	0.0182 B	0.078	J*	0.038	0.001 U	0.0447	R7GW09	0.0029 J
R7GW10	0.0899	0.016	J*	0.044	0.06	0.0525	R7GW10	0.0039 J
R7GW11	0.0059 B	0.001 U	J*	0.088	0.028	0.0406	R7GW11	0.01 U

proportion of detects	0.7778	
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	

note: Winsorized mean = 0.024075
note: Winsorized standard deviation = 0.02906

Zinc (mg/L)

Well	6/17/1998	2/2/2000	8/15/2000	average		3/2/2002
			Date			
R7GW01	0.0128 B	11.9	0.286	4.0663	R7GW01R	0.02 U
R7GW02	0.0227	0.262	0.324	0.2029	R7GW02R	0.0061 J
R7GW04	0.0296 B	0.174	0.252	0.1519	R7GW04R	0.29
R7GW05	0.0386	0.26	0.248	0.1822	R7GW05R	0.026
R7GW07	0.0084 B	0.334	0.246	0.1961	R7GW07R	0.056
R7GW08	0.0225	0.24	0.322	0.1948	R7GW08R	0.02 U
R7GW09	0.0296	0.226	0.258	0.1712	R7GW09	0.02 U
R7GW10	0.0207	0.214	0.308	0.1809	R7GW10	0.02 U
R7GW11	0.0254 B	0.628	0.342	0.3318	R7GW11	0.02 U

proportion of detects	0.861	
background maximum	11.9000	note: possible outlier
background mean	0.6309	note: including possible outlier
background median	0.2460	
background standard deviation	2.2570	note: including possible outlier

compliance round

note: background mean without possible outlier = 0.1975

note: background standard deviation without possible outlier = 0.1514

Toluene (mgL)

well	6/17/1998	2/2/2000	5/9/2000	8/15/2000	well	3/3/2002
			Date			
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	0.00061 J
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	0.005 U

proportion of detects	0.022222
background maximum	ND
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

1,1-Dichloroethane(mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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	0.022222
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		3/3/2002
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	0.022222
background maximum	0.001
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

cis-1,2-Dichloroethylene (mg/L)

Well	6/17/1998	2/2/2000		3/3/2002
		Date		
R7GW01	0.0005 U	0.01 U	R7GW01R	0.005
R7GW02	0.0005 U	0.01 U	R7GW02R	0.005
R7GW04	0.0005 U	0.01 U	R7GW04R	0.005
R7GW05	0.002	0.01 U	R7GW05R	0.00068 J
R7GW07	0.0005 U	0.01 U	R7GW07R	0.005
R7GW08	0.0005 U	0.01 U	R7GW08R	0.005
R7GW09	0.0005 U	0.01 U	R7GW09	0.005
R7GW10	0.0005 U	0.01 U	R7GW10	0.005
R7GW11	0.0005 U	0.01 U	R7GW11	0.005

proportion of detects	0.074074
background maximum	0.002
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

Ethylbenzene (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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		3/3/2002
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	0.0007	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	0.022222
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		3/3/2002
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	0.022222
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		3/3/2002
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	0.0027 J

proportion of detects	0.022222
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
R7GW01	0.002 U	0.01 U	R7GW01R	0.005 U
R7GW02	0.002 U	0.01 U	R7GW02R	0.005 U
R7GW04	0.002 U	0.01 U	R7GW04R	0.005 U
R7GW05	0.002 U	0.01 U	R7GW05R	0.0019 J
R7GW07	0.002 U	0.01 U	R7GW07R	0.005 U
R7GW08	0.002 U	0.01 U	R7GW08R	0.005 U
R7GW09	0.002 U	0.01 U	R7GW09	0.005 U
R7GW10	0.002 U	0.01 U	R7GW10	0.005 U
R7GW11	0.002 U	0.01 U	R7GW11	0.005 U

proportion of detects	0.037037
background maximum	ND
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round

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

proportion of detects	0.037037
background maximum	ND
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
R7GW01	0.002 U	0.01 U	R7GW01R	0.05 UJ
R7GW02	0.002 U	0.01 U	R7GW02R	0.05 UJ
R7GW04	0.005	0.01 U	R7GW04R	0.05 UJ
R7GW05	0.002 U	0.01 U	R7GW05R	0.05 UJ
R7GW07	0.002 U	0.01 U	R7GW07R	0.05 UJ
R7GW08	0.002 U	0.01 U	R7GW08R	0.05 UJ
R7GW09	0.002 U	0.01 U	R7GW09	0.05 UJ
R7GW10	0.002 U	0.01 U	R7GW10	0.05 UJ
R7GW11	0.002	0.01 U	R7GW11	0.05 UJ

proportion of detects	0.074074
background maximum	0.005
background mean	0.0035
background median	0.0035
background standard deviation	not meaningful
	compliance round

Chlorobenzene (mg/L)

	Date					
	6/17/1998	2/2/2000	5/9/2000	8/15/2000		3/3/2002
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	0.022222
background maximum	0.0008
background mean	not meaningful
background median	not meaningful
background standard deviation	not meaningful
	compliance round