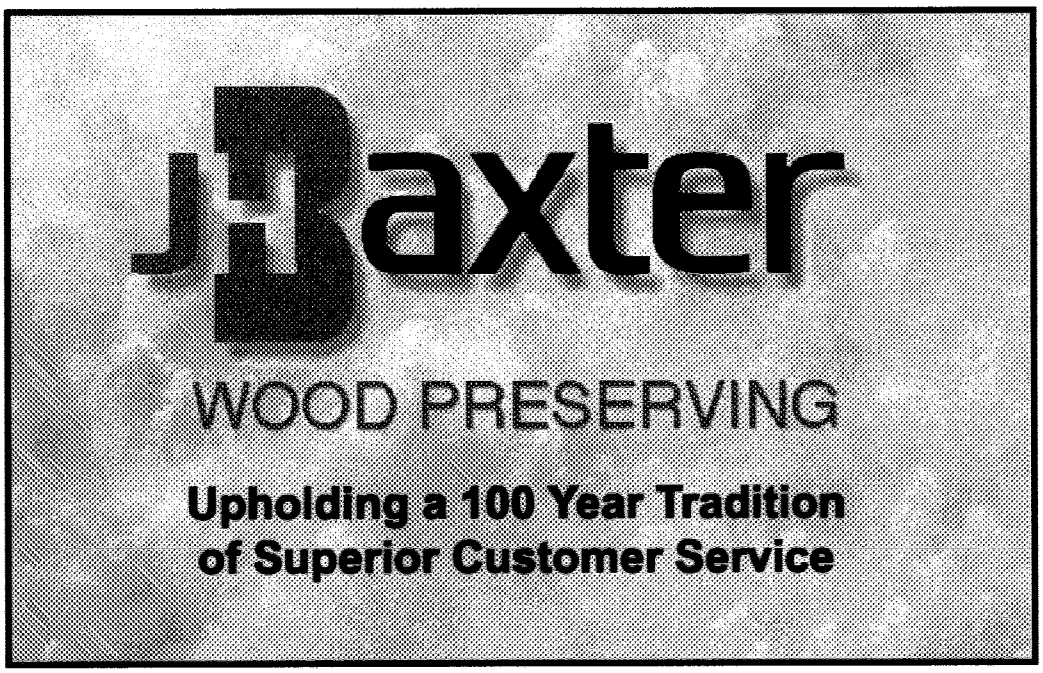
2004 Groundwater Monitoring Report
South Woodwaste Landfill
J.H. Baxter & Company
Arlington, Washington



Prepared for:

Snohomish Health District
3020 Rucker Avenue, Suite 104
Everett, Washington 98201

Prepared by:

J. H. Baxter & Company
P.O. Box 10797
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May 2005

JHBaxter

PREMIER
ENVIRONMENTAL SERVICES, INC

entered 5/26/05

May 25, 2005

Melissa Spencer
Environmental Health Specialist
Snohomish Health District
3020 Rucker Avenue, Suite 104
Everett, Washington 98201

Re: 2004 Groundwater Monitoring Reports, North and South Woodwaste Landfills
J.H. Baxter & Co. Facility, Arlington, Washington

Dear Ms. Spencer:

Please find enclosed copies of the *2004 Groundwater Monitoring Report – North Woodwaste Landfill* and the *2004 Groundwater Monitoring Report – South Woodwaste Landfill* for J.H. Baxter & Company's (Baxter) two closed woodwaste landfills in Arlington, Washington. These reports are being submitted to you in accordance with Washington Administrative Code (WAC) 173-304-490. A copy has also been sent directly to the Washington Department of Ecology, per your request.

If you have any questions or comments regarding these reports, please do not hesitate to contact me at (541) 689-3801.

Sincerely,

RueAnn Thomas
Environmental Programs Director

cc: Krystyna Kowalik, Ecology
Mary Larson, J.H. Baxter & Co.
J. Stephen Barnett, Premier Environmental Services, Inc.

2004 Groundwater Monitoring Report
Arlington, Washington

May 2005

The J. H. Baxter & Co. (Baxter) Project Team (Baxter and Premier Environmental Services, Inc.) is submitting this Groundwater Monitoring Report for Baxter's South Woodwaste Landfill in Arlington, Washington. This report was prepared by or performed under the direction of a State of Washington Licensed Hydrogeologist. If you have any questions or comments concerning the report, please contact the individuals listed below.

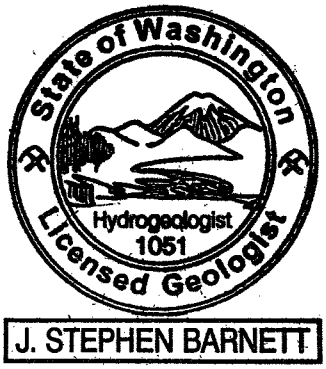

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Table of Contents

List of Figures

List of Tables

Figures and tables are included at the end of the main text.

Appendices

Appendix A. Field Groundwater Sampling Records

Appendix B. Laboratory Results and Chain of Custody Records

Appendix C. Statistical Analysis of Groundwater Quality Results (BXS-1 through BXS-4)

Acronyms and Abbreviations

AVD	absolute value difference
Baxter	J. H. Baxter & Company
COD	chemical oxygen demand
CAS	Columbia Analytical Services, Inc.
EPA	Environmental Protection Agency
MCL	maximum contaminant level
MRL	method reporting limit
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
RPD	relative percent difference
SMCL	secondary maximum contaminant level
TDS	total dissolved solids
TOC	total organic carbon
WAC	Washington Administrative Code

1 Introduction

This report presents quarterly groundwater data collected from February to October 2004 for the J. H. Baxter & Company's (Baxter) closed South Woodwaste Landfill (South Landfill), located at 6520 188th Street NE in the City of Arlington, Snohomish County, Washington (Figure 1). The South Landfill is closed and covered with a vegetated soil cap.

Groundwater sampling was performed on monitoring wells BXS-1, BXS-2, BXS-3, and BXS-4 during quarterly monitoring events conducted in February, April, July, and October 2004.

All of the monitoring wells were installed in 1988. Monitoring wells BXS-1, BXS-2, and BXS-3 are located hydraulically downgradient of the South Landfill. Monitoring well BXS-4 is located hydraulically upgradient of the South Landfill (Figure 2). Monitoring well BXS-4 is the source of background groundwater analytical data to which the analytical data from the downgradient wells are compared. Boring logs, groundwater monitoring procedures, and a summary of site conditions encountered during the installation of the monitoring wells are included in the hydrogeologic report prepared by Sweet-Edwards/EMCON, Inc. (EMCON 1989) in 1989.

2 Hydrogeology

As discussed, quarterly groundwater monitoring events were performed during February, April, July, and October 2004 for the South Landfill. Monitoring activities included well purging, groundwater sampling, laboratory analysis, and water level measurement. Groundwater samples were collected from monitoring well locations BXS-1, BXS-2, BXS-3, and BXS-4 during each quarterly sampling event.

2.1 Groundwater Elevations

Groundwater levels were measured in each well during each of the four monitoring events. The elevation of the groundwater surface was calculated relative to the Baxter plant datum by subtracting the depth to water from the surveyed top of casing elevation. Measured groundwater levels throughout the 2004 monitoring period are summarized in Table 1.

Groundwater elevations were generally highest during the February and April events, and were lowest during the July and October events. The static groundwater level in wells BXS-1, BXS-2, BXS-3, and BXS-4 fluctuated throughout the year by 0.28 feet, 2.27 feet, 4.19 feet, and 5.25 feet, respectively. Groundwater surface elevations measured during the wet season in February 2004 (Figure 2) and the dry season in October 2004 (Figure 3) are provided for reference.

The groundwater flow direction throughout the year was toward the northwest and is consistent with the regional groundwater flow in the aquifer (Figure 4). The average

gradient varied between 0.026 ft/ft in February to 0.022 ft/ft in April, July and October 2004 (Table 2).

2.2 Groundwater Velocities

Groundwater velocities ($\mathbf{v_x}$) for each monitoring event were estimated using Darcy's Law.

$$v_x = -Ki / n_e$$

Hydraulic conductivity (**K**) in the fine sand unit beneath the landfill was estimated at 3 x 10^{-2} to 6 x 10^{-2} centimeters per second (cm/sec) based on slug tests performed in BXS-2 and BXS-4 (EMCON 1989). Porosity ($\mathbf{n_e}$) was assumed to be 0.3 (i.e., 30%).

The average gradient (***i***) ranged from 0.022 ft/ft to 0.026 ft/ft, resulting in velocity estimates of 6.098 to 14.750 ft/day.

Table 2 shows the calculated hydraulic gradients and groundwater velocities during the monitoring events in 2004.

3 Groundwater Quality

Groundwater samples were collected on February 10, 12, and 18 for the first quarter, April 20-22 for the second quarter, July 12-13 for the third quarter, and September 30 and October 11-12 for the fourth quarter of 2004 using sampling procedures originally described in Appendix C of EMCON's Hydrogeologic Report (EMCON 1989). In addition, monitoring wells BXS-1, BXS-2, and BXS-3 were re-sampled for total coliform on March 17th, 2004. Field sampling records are located in Appendix A. With the exception of the total coliform analyses of the July and October events, all groundwater samples were submitted to Columbia Analytical Services, Inc. (CAS) in Kelso, Washington for laboratory analysis. The groundwater samples from all four wells during the July and October 2004 sampling events were submitted to Edge Analytical in Burlington, Washington for total coliform analyses.

3.1 Groundwater Sampling

Groundwater sampling was performed using dedicated submersible pumps (bladder pumps) in the downgradient wells BXS-1, BXS-2, and BXS-3. Well BXS-4, the upgradient well, was sampled using a portable submersible (bladder) pump. A field duplicate, labeled BXS-6, was collected from well BXS-4 during each sampling event. Additionally, a field blank of deionized water, labeled BXS-5, was collected during each sampling event.

The analytical data for the groundwater samples are summarized in Table 3. Laboratory analytical reports and chain-of-custody forms for the 2004 groundwater monitoring events are presented in Appendix B.

4 Data Review

This section describes the data review process that was performed to evaluate the adequacy and quality of the analytical data from the 2004 groundwater monitoring events. The objective of the data review was to identify estimated, unreliable, or invalid measurements. Information on the reliability of the data is critical to the interpretation of the results. The review was performed according to guidelines prepared by the United States Environmental Protection Agency (EPA) (EPA 1994).

4.1 Field Quality Assurance/Quality Control (QA/QC)

During the quarterly groundwater sampling events, deionized water blanks and field duplicates were prepared and containerized by Baxter field personnel in accordance with standard practice. During each of the quarterly 2004 groundwater monitoring events, field duplicate samples were collected from BXS-1 and labeled BXS-6, and field blank samples were collected and labeled BXS-5.

Field duplicate results aid in the assessment of sampling and analytical precision. Analytical results for the original and duplicate samples collected from each sampling event were evaluated using the relative percent difference (RPD). The RPD between the two samples was calculated when both the natural/duplicate pair had positive results. If the RPD was greater than 35 percent, the reported values are considered estimated concentrations.

The precision of the field duplicate samples collected in 2004 is acceptable, with the following exceptions.

- It appears the metals aliquots of sample BXS-4 and the field blank were switched during the sampling or analysis of the February samples. As a result, the metals results of sample BXS-4 and the field blank are unreliable and should not be used.

- The RPD value of dissolved iron for sample BXS-4 collected in April is 73, indicating imprecision in the results.

The RPD value of dissolved manganese for sample BXS-4 collected in July is 49, indicating imprecision in the results. Field blank results (deionized water blanks) aid in evaluating the validity of the reported concentrations in the collected samples. All results greater than or equal to the method detection limit (MDL) but less than five times the concentration of the associated field blank are considered nondetected.

The field blanks are free of target analytes above the MDLs with few exceptions. Conductivity, COD, nitrate + nitrite, tannin and lignin, and dissolved zinc were detected at low levels in one or more field blank. The field blank concentrations are below the MCL or SMCL and indicate that field and laboratory contamination was minimal.

4.2 Laboratory QA/QC

Collected groundwater samples were received by the laboratory with the proper chain-of-custody (COC) documentation, were properly preserved, and at the proper temperature. With the exception of the July and October total coliform samples, the groundwater samples were analyzed by CAS. The total coliform analyses for the July and October evens were analyzed by Edge Analytical. The analyses were performed within the required holding time for the parameters of interest, with the exceptions noted below.

- The total coliform analyses of monitoring wells BXS-1, BXS-2, and BXS-3 collected in February were performed past the 30-hour method holding time. Groundwater monitoring wells BXS-1, BXS-2 and BXS-3 were re-sampled on March 17, 2004 and were analyzed by CAS for total coliform within 30 hours of collection.

- The total coliform analyses of monitoring wells BXS-2, BXS-3, BXS-5, and the field blank BXS-6 collected in April were performed past the 30-hour method holding time. These samples were not re-collected.

The laboratory reports are complete and contain the results for all samples and corresponding analyses requested on the COC forms.

4.3 Statistical Analysis of Data

Groundwater sample chemical analysis results were statistically evaluated to assess if there was a significant difference between the downgradient wells and the upgradient background well. The following approach was used for performing the statistical analysis:

- **Non-Detects.** Non-detect results were replaced with a value of half of the laboratory method reporting limit (MRL).

- **Data Distribution**. A key assumption of Student's t-test was that the data are normally distributed.

- **Parametric hypothesis testing** was performed using Student's t-test for all parameters that were normally or lognormally distributed in both the upgradient and downgradient well. For each comparison, the null hypothesis was that there

was no difference between the downgradient and upgradient concentrations. The null hypothesis was tested using a one-tailed test at a significance level of 0.05. The t-test statistic ($\mathbf{t_{stat}}$) was calculated from the average and variance of sampling results in a downgradient well and the upgradient well. Each quarterly sample was compared to the previous three quarterly samples to provide a four sample running average. The average concentration in the downgradient well was significantly higher than the upgradient well if $\mathbf{t_{stat}}$ was greater than the critical test statistic ($\mathbf{t_c}$). The critical test statistic was computed using the percent point function. The percent point function (ppf) is the inverse of the cumulative distribution function.

Statistically significant detections using the above method are shown in **bold** in the tables presented in Appendix C for parameters detected above background. Statistically significant detections for items detected below background are shown in ***gray italics*** in the accompanying tables (Appendix C).

5 Discussion of Results

5.1 Statistical Results

Appendix C presents the results of the statistical analyses for each individual parameter tested in the groundwater samples from BXS-1 through BXS-4. These include average concentration, variance, standard deviation, and Student's t-test statistic. The parameters detected at statistically higher concentrations in specific downgradient wells compared to the upgradient well are listed below:

- Total dissolved solids, total organic carbon: BXS-1, BXS-2, and BXS-3
- Barium, chemical oxygen demand, chloride, conductivity, manganese: BXS-2 and BXS-3
- Nitrate and nitrite as nitrogen: BXS-1
- Iron, nickel, tannin and lignin: BXS-2

5.2 Concentration Trends over Time

Figures 5 through 18 show the concentration trends from 2002 through 2004 for each parameter discussed below.

Ammonia as Nitrogen (Figure 5) – The sample collected from BXS-3 during the April event was slightly higher than the concentrations in the background well. However, the concentrations detected in BXS- 3 during the other three events and in BXS-1 and BXS-2, were lower than the concentrations in the background well, BXS-4.

Arsenic (Figure 6) – Arsenic was not detected above the maximum contaminant level (MCL) of 10 µg/L for arsenic during the 2004 monitoring events. The concentrations of arsenic in the downgradient wells were statistically the same as the concentration in the background well. Concentrations in all wells were relatively stable during the past two years.

Barium (Figure 7) – The concentrations of barium in the downgradient wells, BXS-3 and BXS-2, were statistically higher than the concentrations in the background well, BXS-4. The concentrations of barium in the most downgradient well, BXS-1, were statistically the same as the concentrations in the background well. The concentrations of barium in all of the groundwater samples were below the MCL of 2,000 µg/L. Concentrations of barium have been relatively stable in all four wells during the last three years.

Chemical Oxygen Demand (COD) (Figure 8) – The COD in wells BXS-2 and BXS-3 were statistically higher than the COD in the background well, BXS-4. The COD in BXS-1 is statistically equal to that in the background well. There is no current MCL or secondary MCL (SMCL) established for COD. COD concentrations have been relatively stable over the last three years.

Chloride (see Figure 9) – The concentrations of chloride in the downgradient wells BXS-2 and BXS-3 were statistically higher than the concentrations in the background well. However, groundwater samples collected from all wells did not contain chloride at concentrations at or above the SMCL of 250 mg/L for chloride. Concentrations of chloride have been relatively stable over the last three years.

Conductivity (Field) (Figure 10) – Conductivity of the groundwater samples from the downgradient wells, BXS-2 and BXS-3, were statistically higher than the background well. Groundwater collected from wells BXS-2 and BXS-3 had conductivity values consistently above the SMCL of 700 micromhos/centimeter (µmhos/cm), but the conductivity of the samples from BXS-1 were below the SMCL. Conductivity values have been relatively stable over the last year.

Iron (Figure 11) – Iron concentrations in well BXS-2 were statistically higher than the background well, and were above the SMCL of 300 µg/L for iron. Iron concentrations in well BXS-3 was statistically equal to that of the upgradient well, but was above the SMCL. Concentrations of iron in groundwater samples collected from wells BXS-1 and BXS-4 have remained stable and were below the 300 µg/L SMCL.

Manganese (Figure 12) – The concentrations of manganese in the downgradient wells BXS-2 and BXS-3 were statistically higher than the levels in the background well. All four monitoring wells, including the background well, showed concentrations of manganese that were above the manganese SMCL of 50 µg/L. Manganese concentrations have been relatively stable over the last three years.

Nickel (Figure 13) – The concentration of nickel in the downgradient well BXS-2 was statistically higher than the concentration in the background well, BXS-4. However, the concentrations of nickel in all of the monitoring wells did not exceed the MCL of 100 µg/L.

Sulfate (Figure 14) – During the April sampling event the sulfate concentration in the downgradient well BXS-1 was statistically higher than the background well, BXS-4. However, the concentrations of sulfate collected from well BXS-1 during the other three sampling events, were statistically equal to the BXS-4. The sulfate concentrations in wells BXS-2 and BXS-3 were statistically lower than the concentrations in the

background well. The concentrations of sulfate in all the wells were below the SMCL of 250 mg/L for sulfate and have remained relatively stable over the last two years.

Tannin and Lignin (Figure 15) – Concentrations of tannin and lignin detected in BXS-2 during the February and April sampling events were statistically higher than the concentrations in the background well. There is no MCL or SMCL for tannin and lignin.

Total Organic Carbon (TOC) (Figure 16) – Concentrations of TOC in the groundwater samples collected from the downgradient wells were statistically higher than the TOC detected in background well BXS-4. Concentrations of TOC have remained relatively stable over the last three years. There is no MCL or SMCL for TOC.

Field pH (Figure 17) – Field pH concentrations in the background well BXS-4 are slightly basic (i.e., 7.14 to 7.54). With the exception of the groundwater sample collected from BXS-1 in February (8.87), the pH results of the background well are statistically higher than the pH of the groundwater samples collected from downgradient wells BXS-1 through BXS-3 (i.e., 4.73 to 6.16). The laboratory pH range of the downgradient wells is 6.14 to 6.67. The pH range of the background well is 7.91 top 8.04. With the exception of the February BXS-2 sample, the pH results of the downgradient wells are below the SMCL of 6.5 to 8.5.

Total Dissolved Solids (TDS) (Figure 18) – TDS measured in the downgradient wells were statistically higher than the TDS in the background well. However, the TDS in the background well (BXS-4) and in the most downgradient well (BXS-1) were consistently below the SMCL.

5.3 Comparison to Standards

MCLs for groundwater are established in WAC 173-304-9901 as equal to the primary drinking water standards set forth in WAC 246-290-310. MCLs are the maximum permissible concentration of a contaminant in drinking water supplies, whereas SMCLs are guidelines related to criteria other than adverse health effects. MCLs and SMCLs are shown on the time series plots on Figures 5 through 18 for reference.

5.3.1 Comparison to MCLs

Of the monitored parameters, MCLs apply to arsenic, barium, cadmium, copper, nickel, and nitrate and nitrite as nitrogen. The concentrations in all of the groundwater samples were lower than the MCLs for arsenic, barium, copper, nickel, nitrate and nitrite as nitrogen during the 2004 monitoring events. The concentrations of cadmium in all of the groundwater samples were lower than the MCL except for the sample collected in July 2004 from well BXS-3 which exceeded the MCL of 5 µg/L with a concentration of 6 µg/L.

The MCL for total coliform is a drinking water criteria used to alert treatment system operators of potential bacterial contamination. This criterion does not apply to groundwater and the MCL is provided for information purposes only. The low levels of total coliform found in the monitoring well samples indicates that the potential for bacterial contamination is minimal.

5.3.2 Comparison to SMCLs

Among the monitored parameters, SMCLs apply to pH, conductivity, chloride, TDS, sulfate, iron, manganese, and zinc. The data from the 2004 monitoring events indicated that the groundwater concentrations from all the monitoring wells were lower than the SMCLs for chloride, sulfate, and zinc. However, some samples exceeded the SMCLs for

conductivity, TDS, iron, and manganese, and some samples were below the SMCL for pH, as described below:

- Conductivity values were higher than the SMCL of 700 µmhos/cm for groundwater collected from wells BXS-2 and BXS-3 and lower than the SMCL in the background well (BXS-4) and in the most downgradient well (BXS-1). Concentration trends for conductivity have remained relatively stable.

- TDS levels were higher than the SMCL in BXS-3 and BXS-2, but were lower than the SMCL in the background well (BXS-4) and in the most downgradient well (BXS-1). Concentration trends for TDS have remained relatively stable.

- Iron concentrations detected in groundwater samples from wells BXS-2 and BXS-3 were higher than the SMCL of 300 µg/L. However, iron was not detected in the most downgradient well, BXS-1. Concentration trends for iron have remained relatively stable.

- Manganese concentrations detected in all four wells exceeded the 50 µg/L SMCL during the 2004 monitoring period. Concentrations detected in BXS-2 and BXS-3 are statistically higher than those in the downgradient well, but trends have remained stable over the last three years.

- Field pH measurements ranged from 4.73 to 8.87 during 2004 monitoring period. Both, the highest pH, measured in BXS-1, and the lowest pH, measured in BXS-2, occurred during the February sampling event. pH measurements taken in the laboratory ranged from 6.14 to 8.04 and were more stable than values measured in the field. Due to variability in the rental equipment used in the field, the field data may not be representative.

6 Summary

The groundwater samples collected during the 2004 monitoring events did not exceed the MCLs for any of the monitored parameters with the exception of a slight exceedence in the cadmium concentration in July 2004 (BXS-3 at 6 µg/L). There were no exceedences of the SMCLs for chloride, sulfate, and zinc in the groundwater samples collected during the quarterly 2004 groundwater monitoring events.

The parameters that were exceeded the SMCLs in the groundwater samples collected during the 2004 monitoring events include conductivity, TDS, iron, and manganese. However, the groundwater samples from the most downgradient well, BXS-1, were below the SMCLs for conductivity, TDS, and iron. All wells, including the background well, showed concentrations of manganese that were higher than the SMCL of 50 µg/L. Concentration trends for all parameters have remained stable over the last several years.

7 Limitations

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of J. H. Baxter & Co. for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

8 References

Baxter 2002. 2001 Groundwater Monitoring Report, North Woodwaste Landfill, J.H. Baxter & Company, Arlington, Washington. August.

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EPA 1994. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA-540/R-94-013.

WAC-173-304-490, Washington Administrative Code. Ground Water Monitoring Requirements. Olympia, Washington.

WAC 246-290-310, Washington Administrative Code. Maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs). Olympia, Washington.

Figures

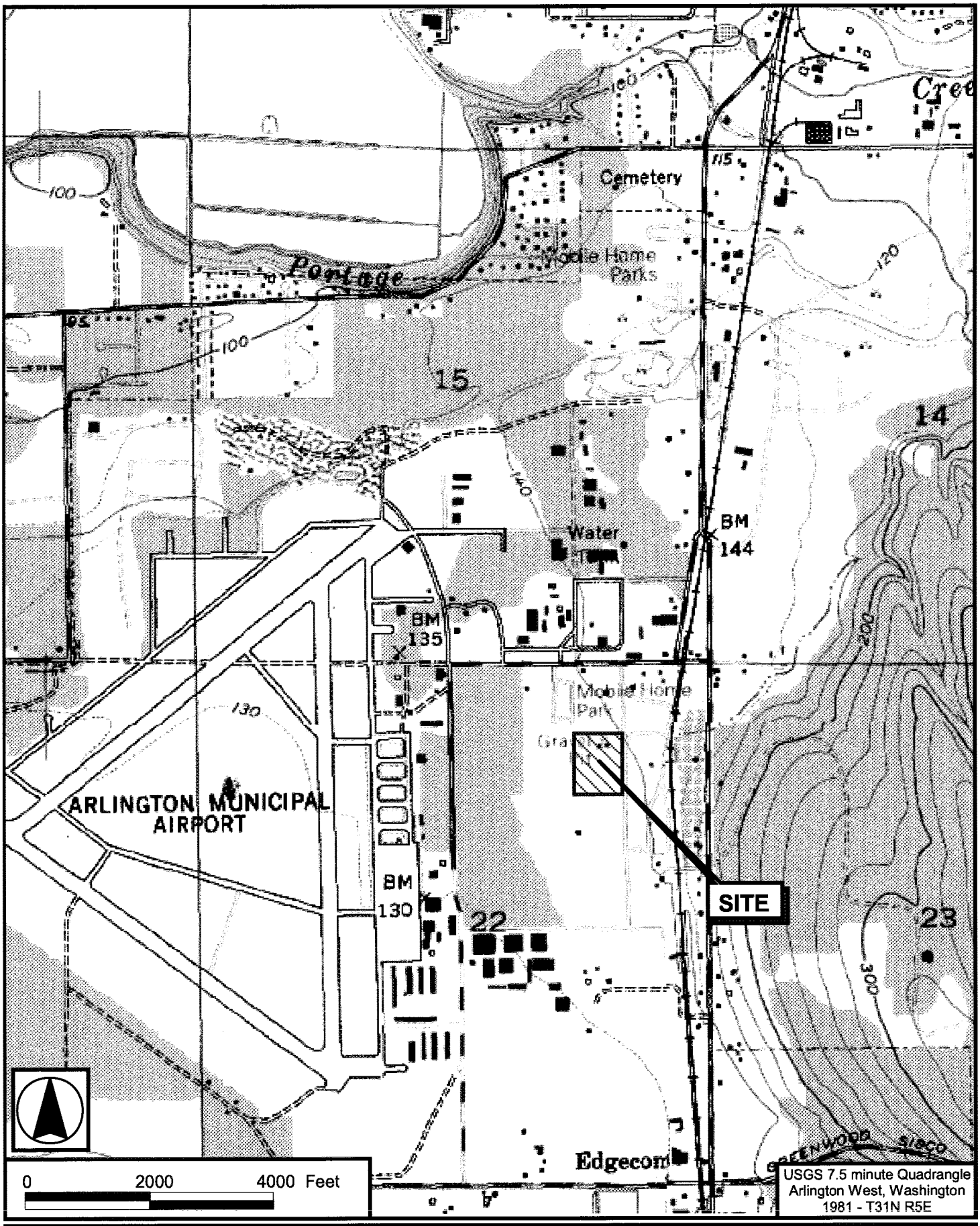
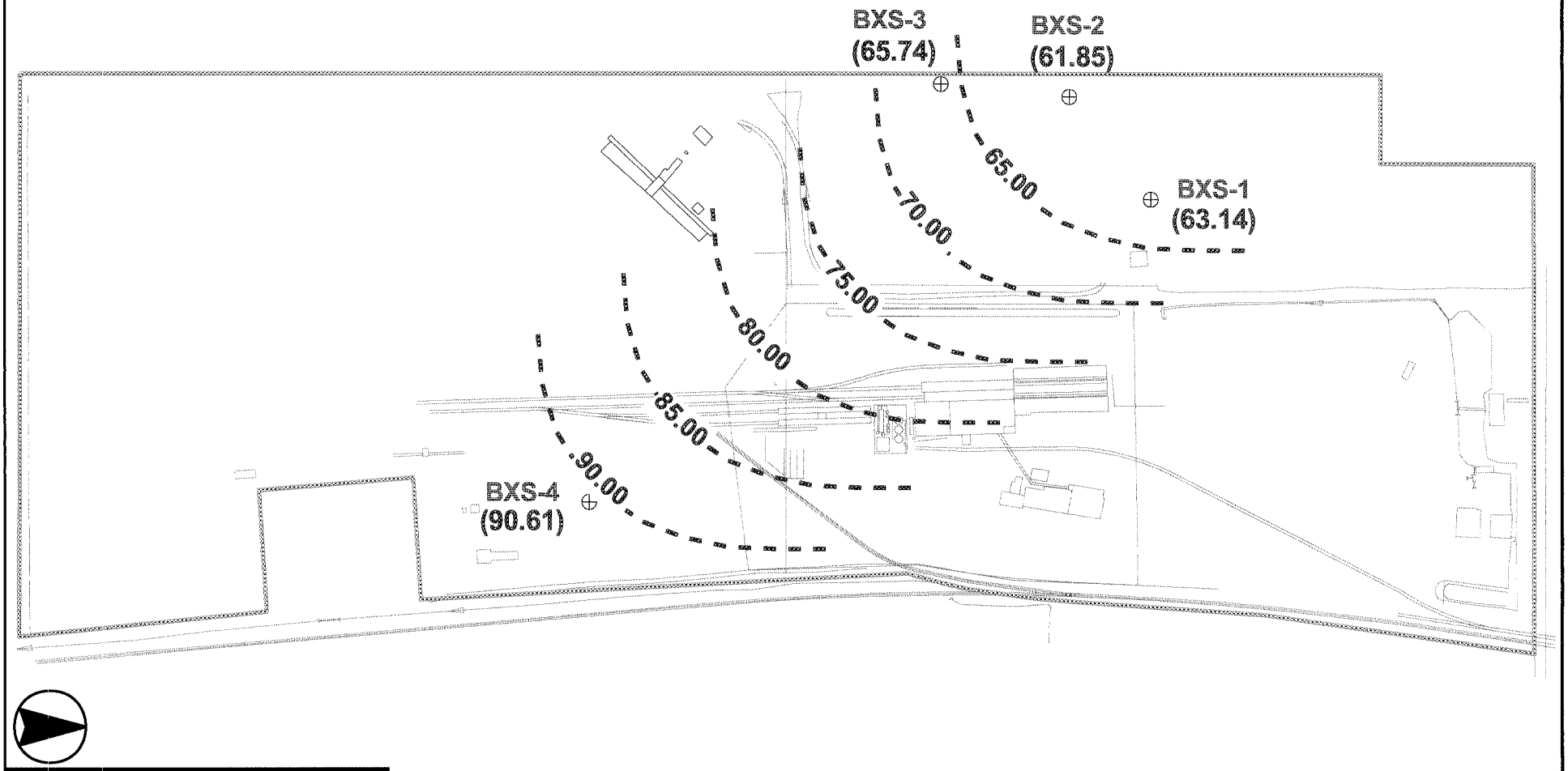


Figure 1. Site Location Map - South Landfill

PREMIER J.Baxter



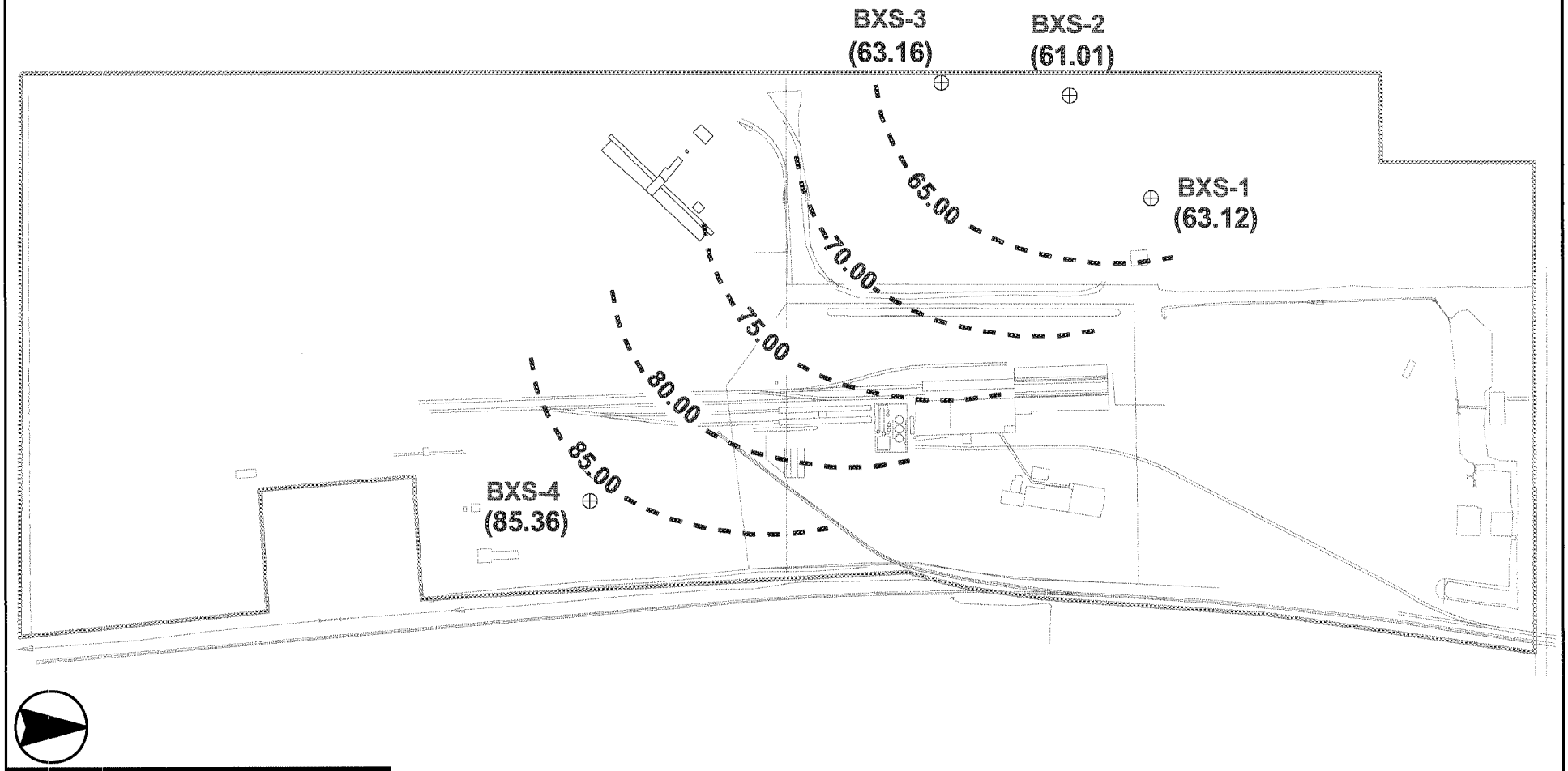
LEGEND

- ⊕ Monitoring Well
- (63.14) Groundwater Elevation (feet above mean sea level)
- – – – Inferred Elevation Contour
- Site Boundary

0 200 400 Feet

Figure 2. Groundwater Elevation Contour Map - February 2004 - South Landfill

PREMIER J. Baxter



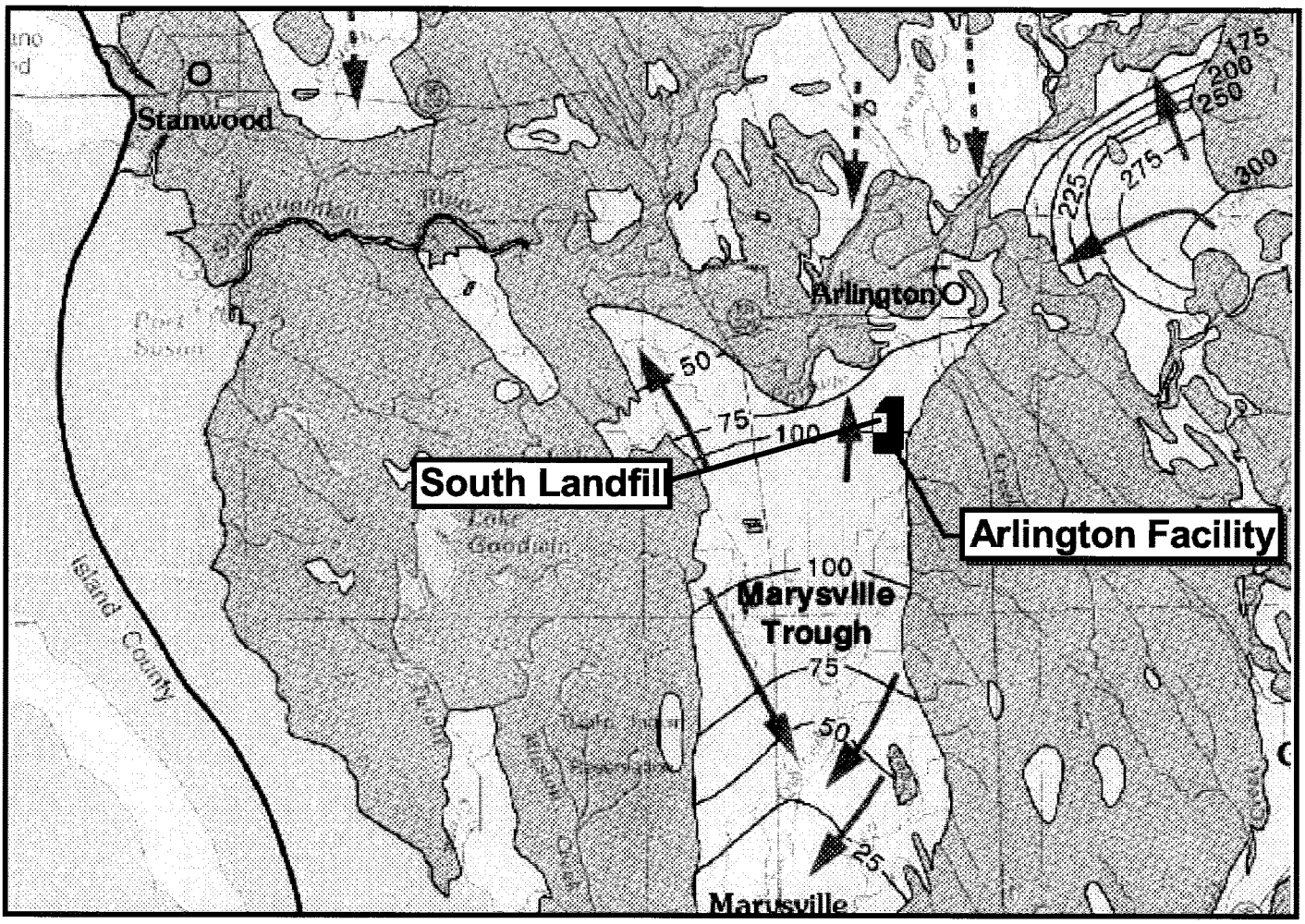
LEGEND

- ⊕ Monitoring Well
- (63.12) Groundwater Elevation (feet above mean sea level)
- – – – Inferred Elevation Contour
- Site Boundary

0 200 400 Feet

Figure 3. Groundwater Elevation Contour Map - October 2004 - South Landfill

PREMIER J.Baxter



Note:
Map created by base map by B.E. Thomas, J.M. Wilkinson, and S.S. Embrey, entitled "Plate 6. Areal Recharge From Precipitation and Potentiometric Surfaces of Prinicpal Auqifers, Western Snohomish County, Washington," dated 1997

0 4 8 Miles

LEGEND

50 Groundwater Elevation

Groundwater Elevation Contour

Inferred Groundwater Flow Direction

Figure 4. Regional Groundwater Flow Directions

PREMIER J.Baxter

Figure 5. Concentration Trends for Ammonia
South Woodwaste Landfill Monitoring Well Data

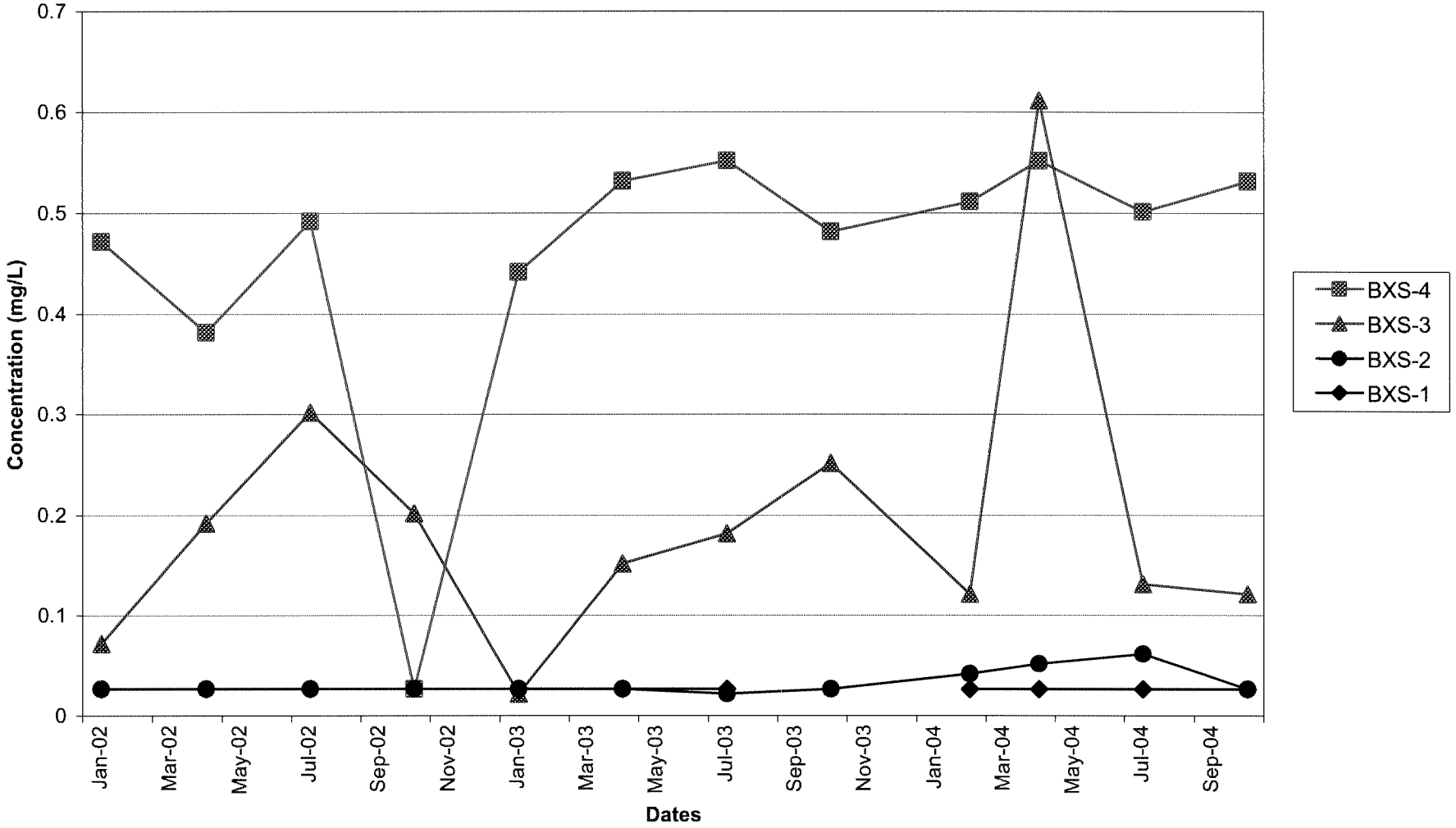


Figure 5. Concentration Trends for Ammonia
South Woodwaste Landfill Monitoring Well Data

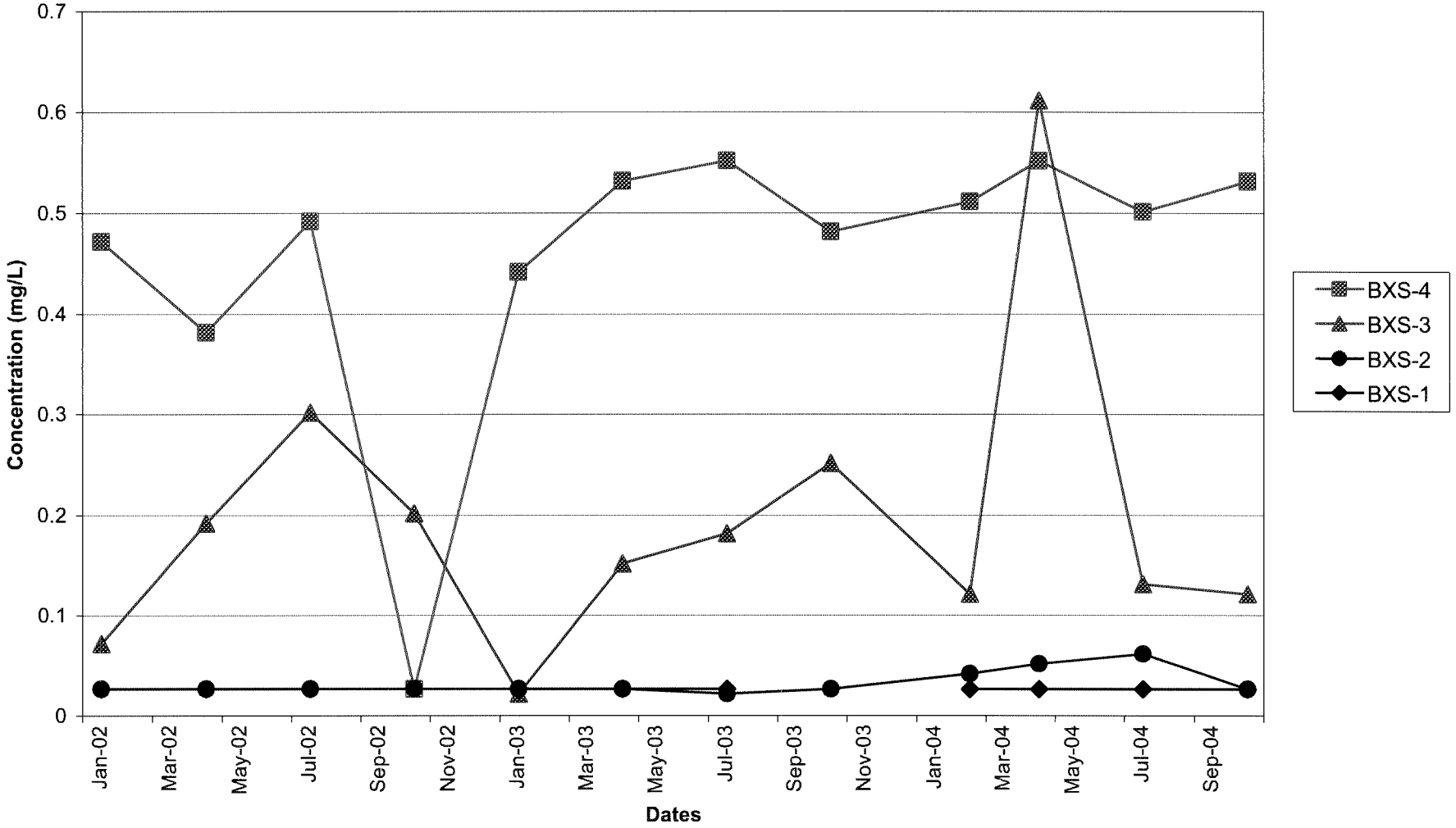


Figure 6. Concentration Trends for Arsenic
South Woodwaste Landfill Monitoring Well Data

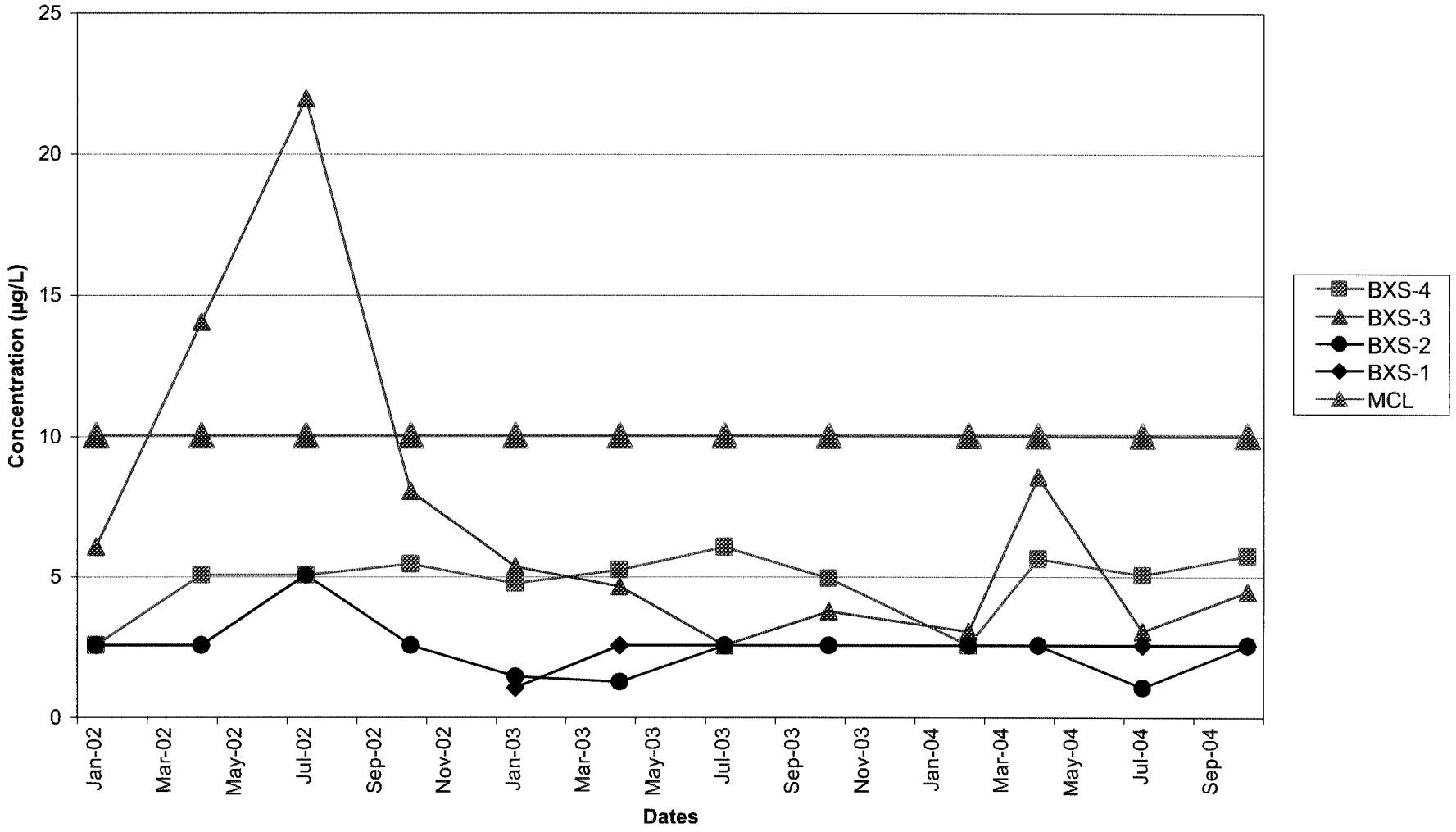


Figure 7. Concentration Trends for Barium
South Woodwaste Landfill Monitoring Well Data

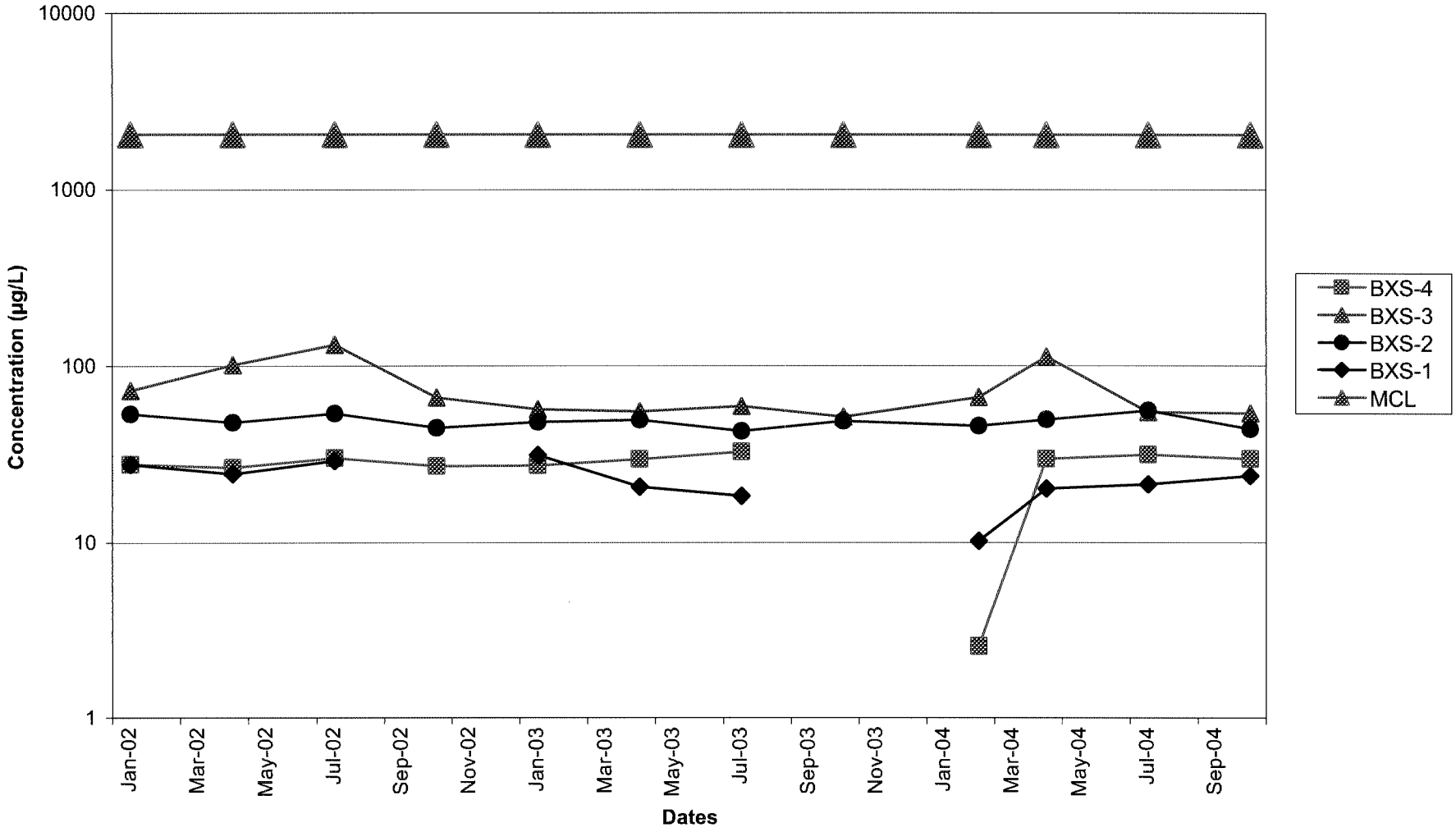


Figure 8. Concentration Trends for Chemical Oxygen Demand
South Woodwaste Landfill Monitoring Well Data

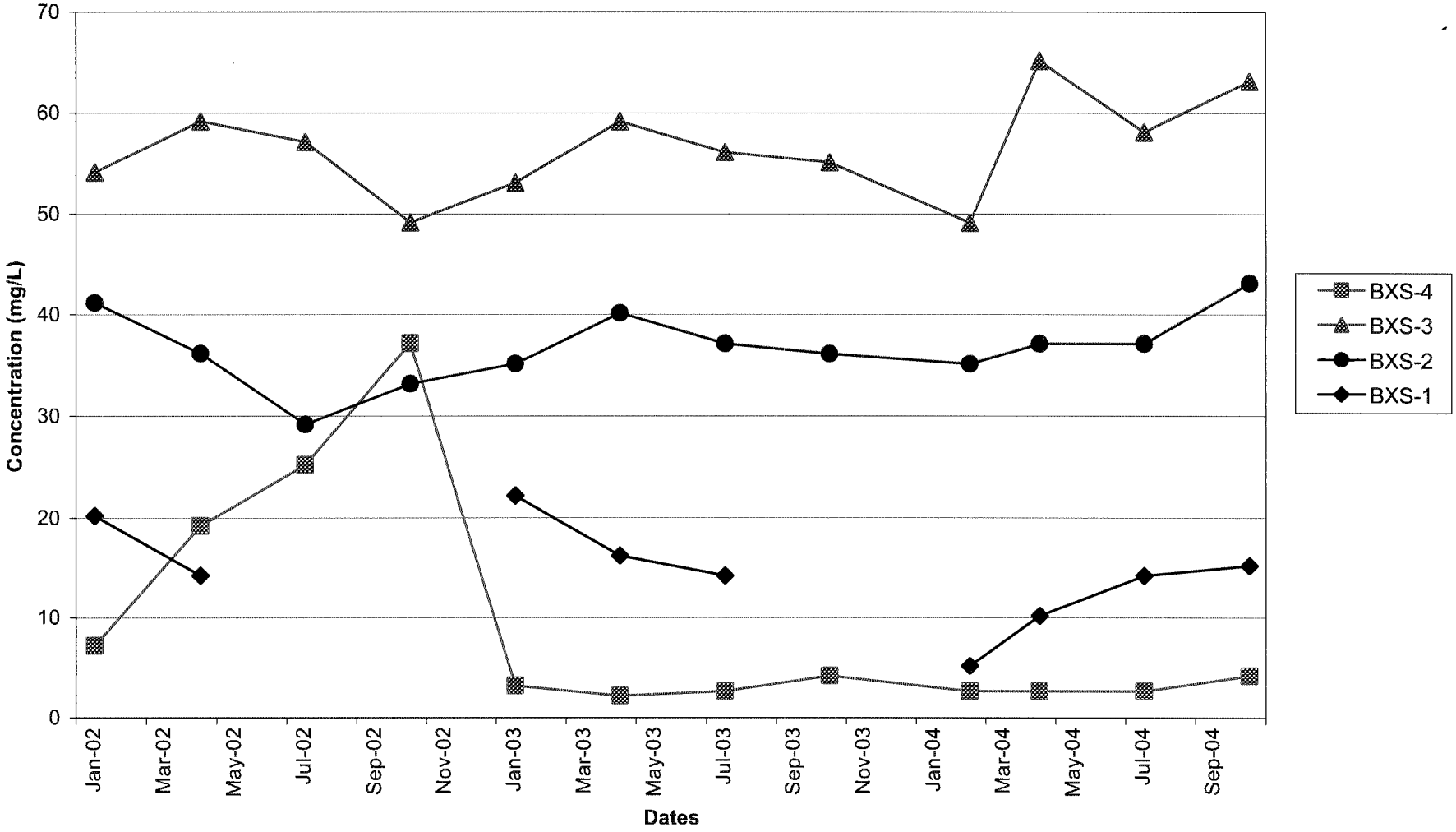


Figure 9. Concentration Trends for Chloride
South Woodwaste Landfill Monitoring Well Data

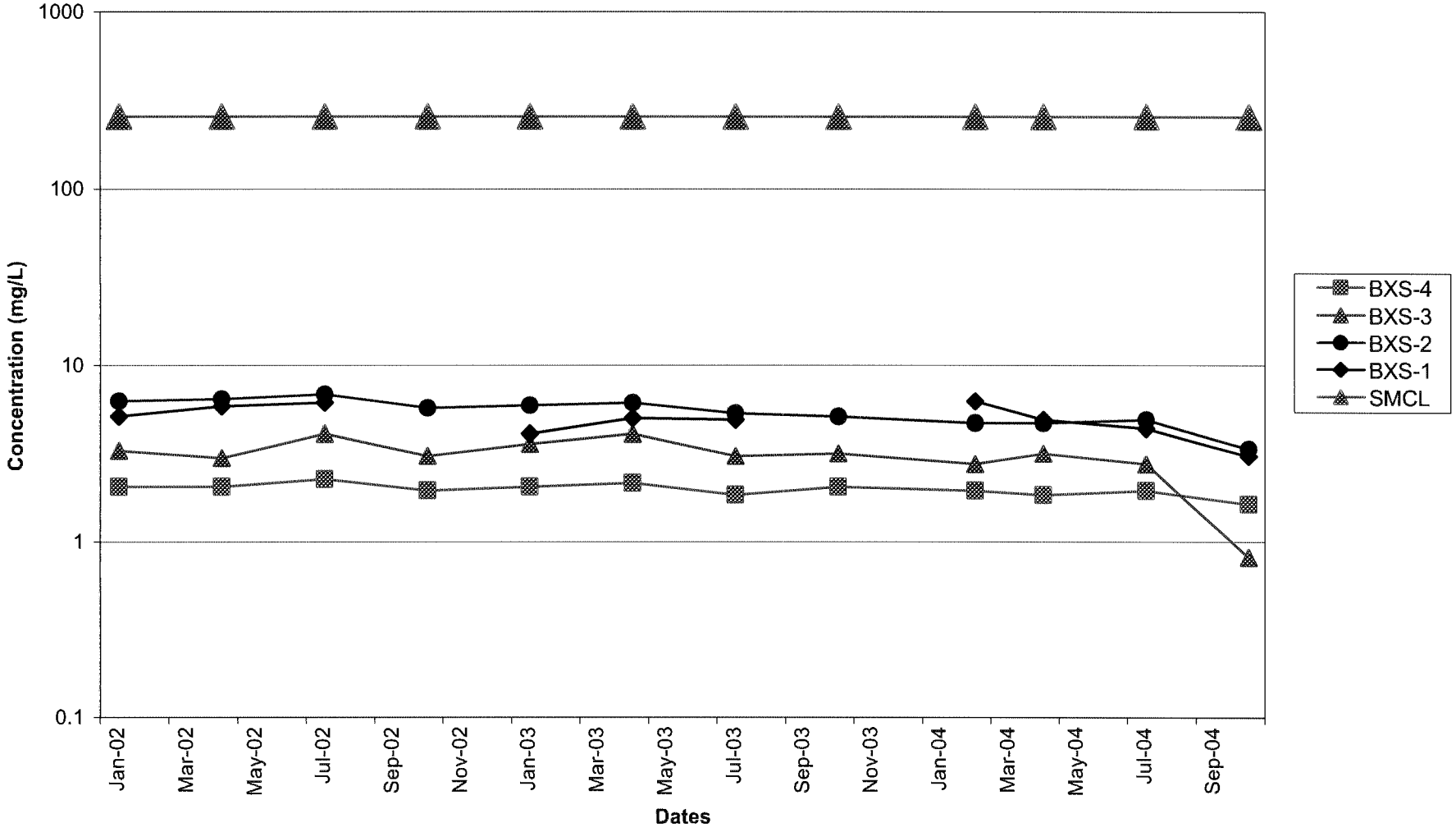


Figure 10. Concentration Trends for Field Conductivity
South Woodwaste Landfill Monitoring Well Data

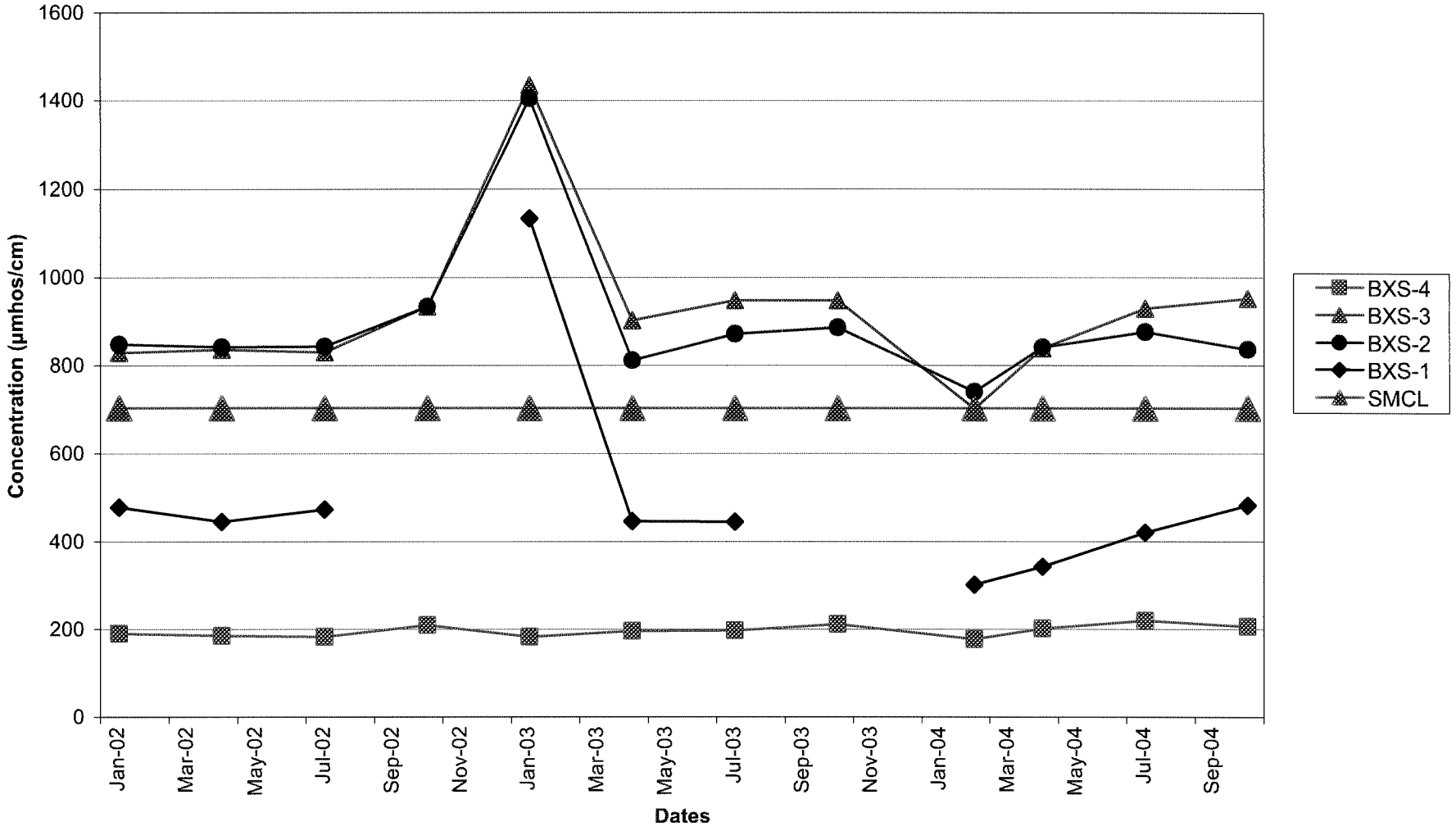


Figure 11. Concentration Trends for Iron
South Woodwaste Landfill Monitoring Well Data

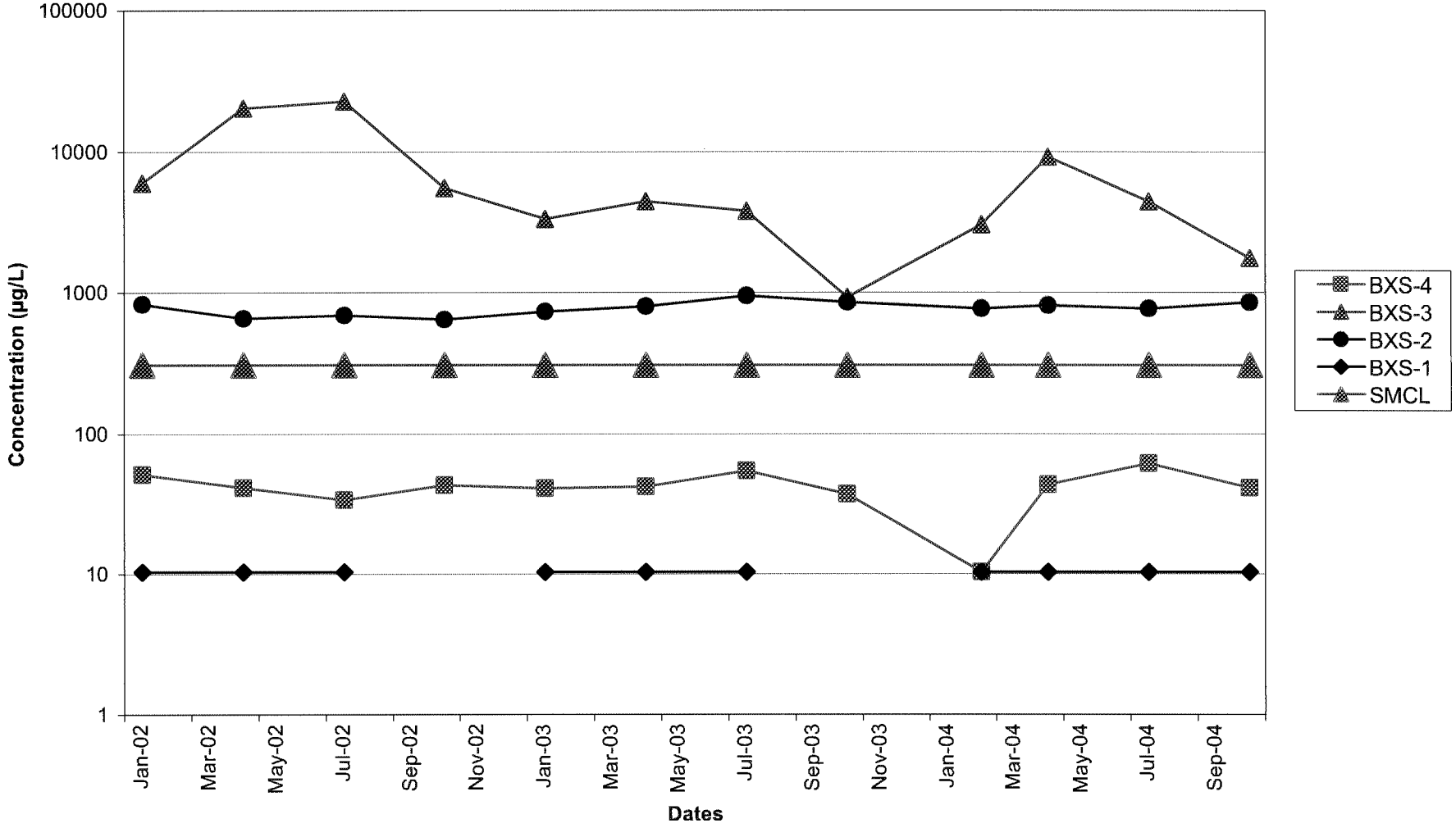


Figure 12. Concentration Trends for Manganese
South Woodwaste Landfill Monitoring Well Data

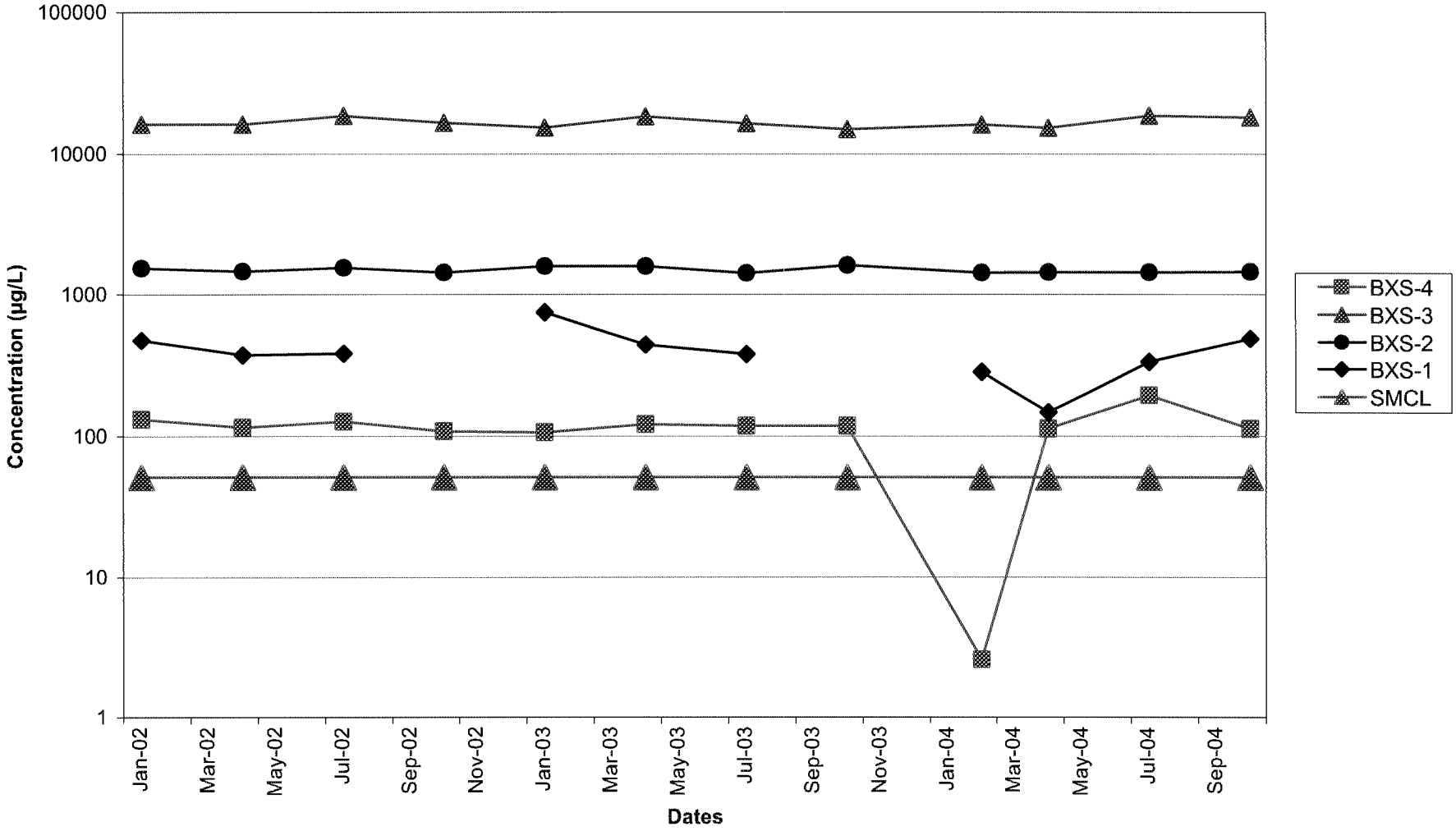


Figure 13. Concentration Trends for Nickel
South Woodwaste Landfill Monitoring Well Data

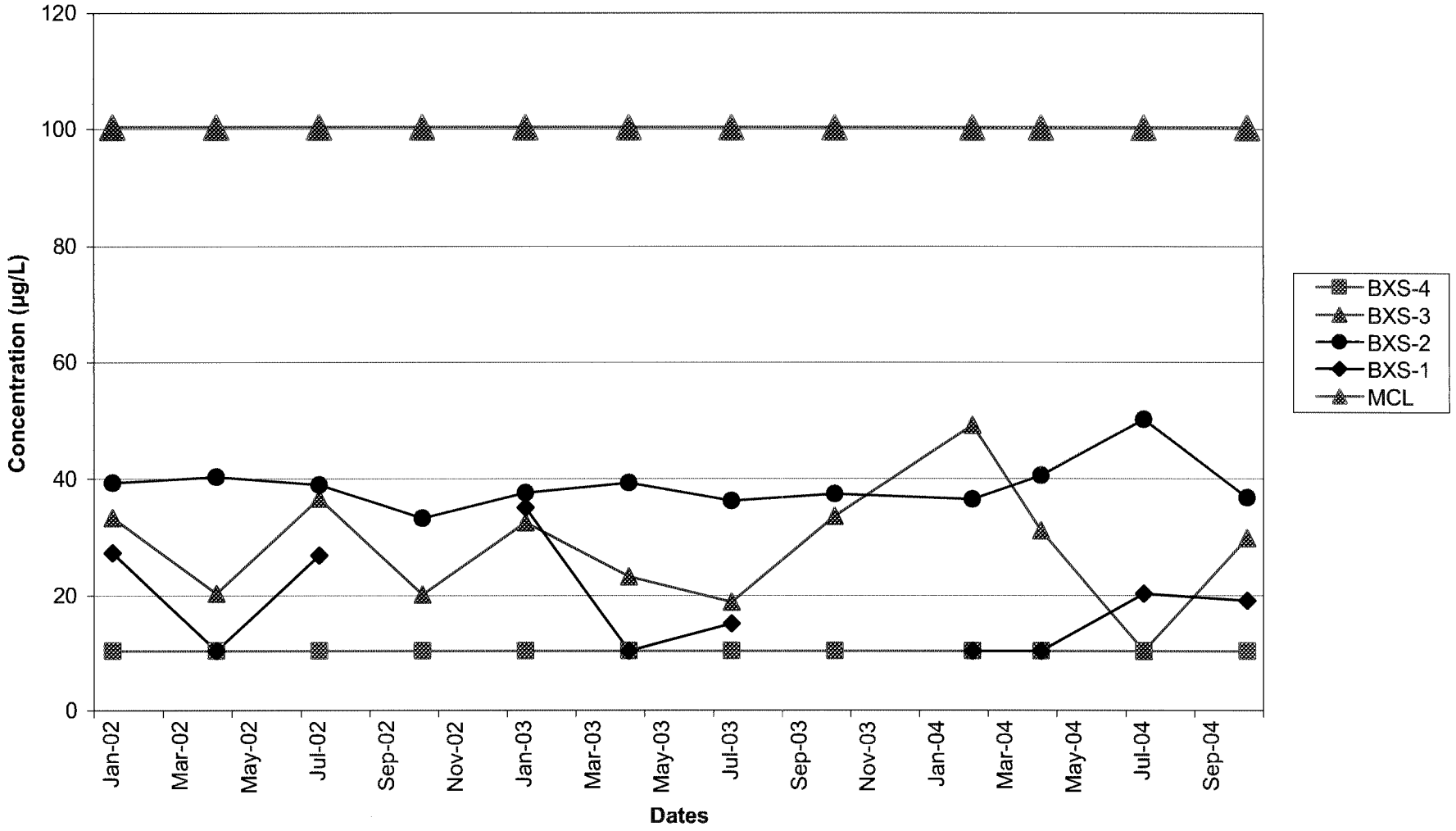


Figure 14. Concentration Trends for Sulfate
South Woodwaste Landfill Monitoring Well Data

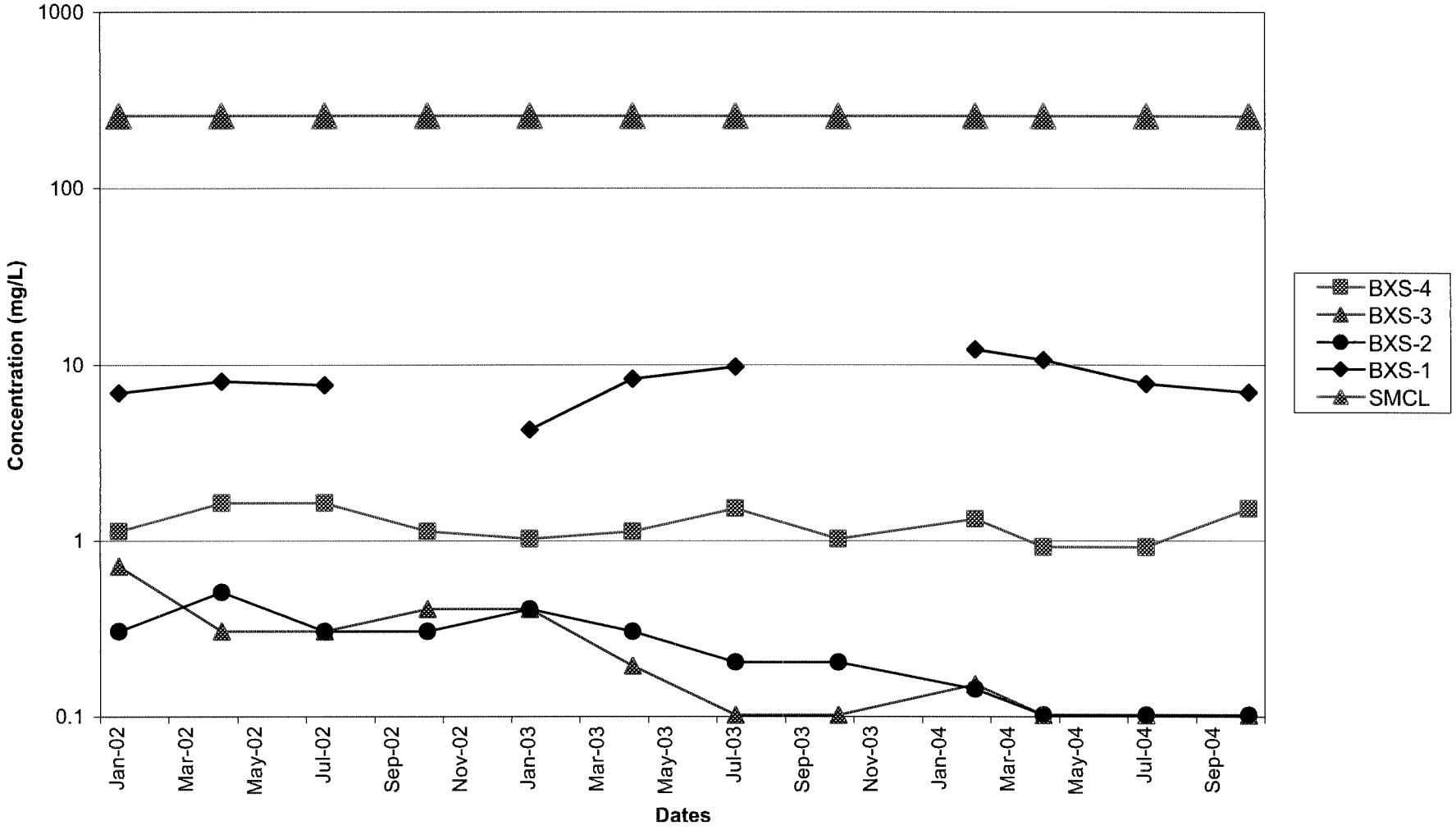


Figure 15. Concentration Trends for Tannin and Lignin
South Woodwaste Landfill Monitoring Well Data

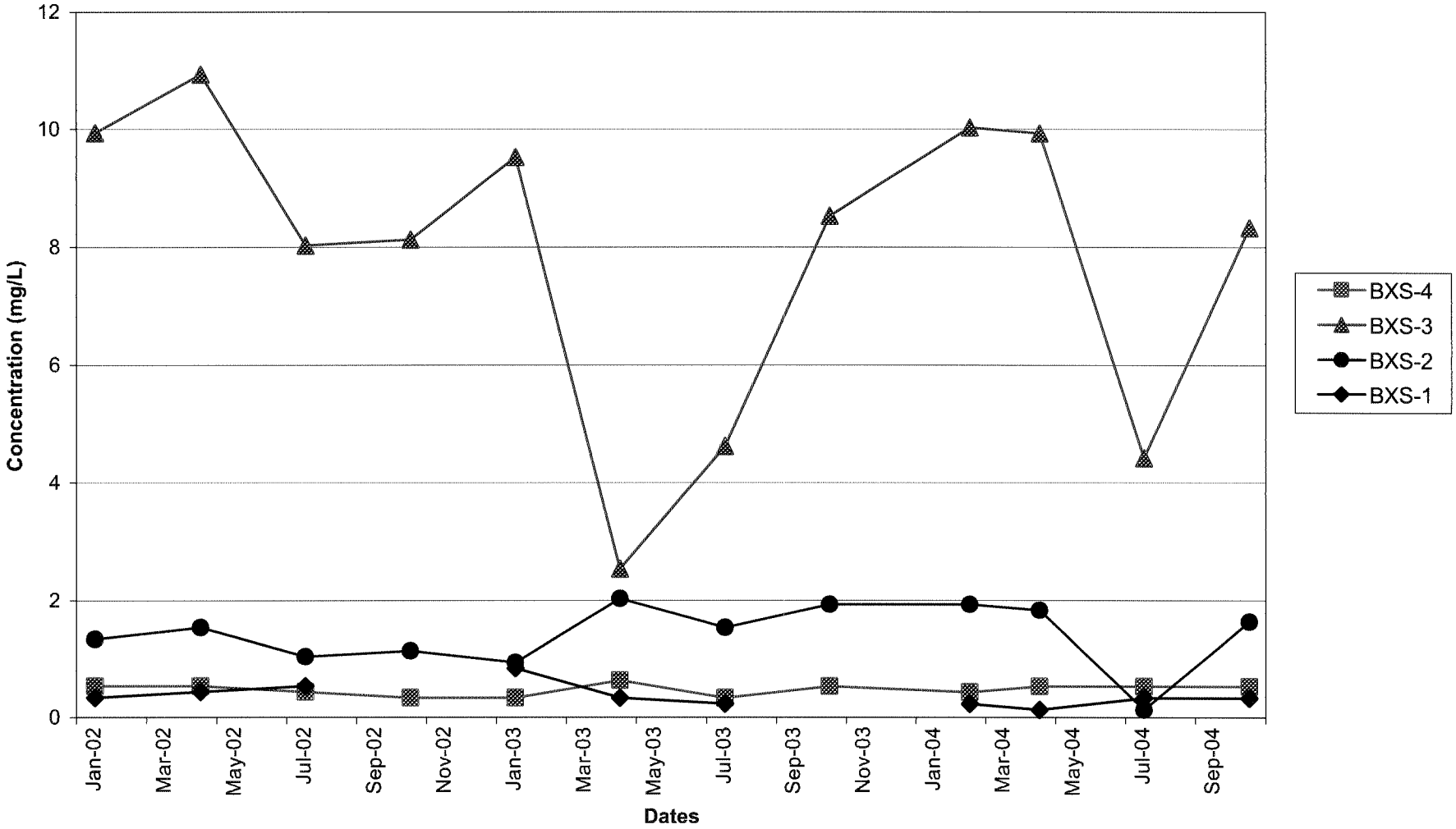


Figure 16. Concentration Trends for Total Organic Carbon
South Woodwaste Landfill Monitoring Well Data

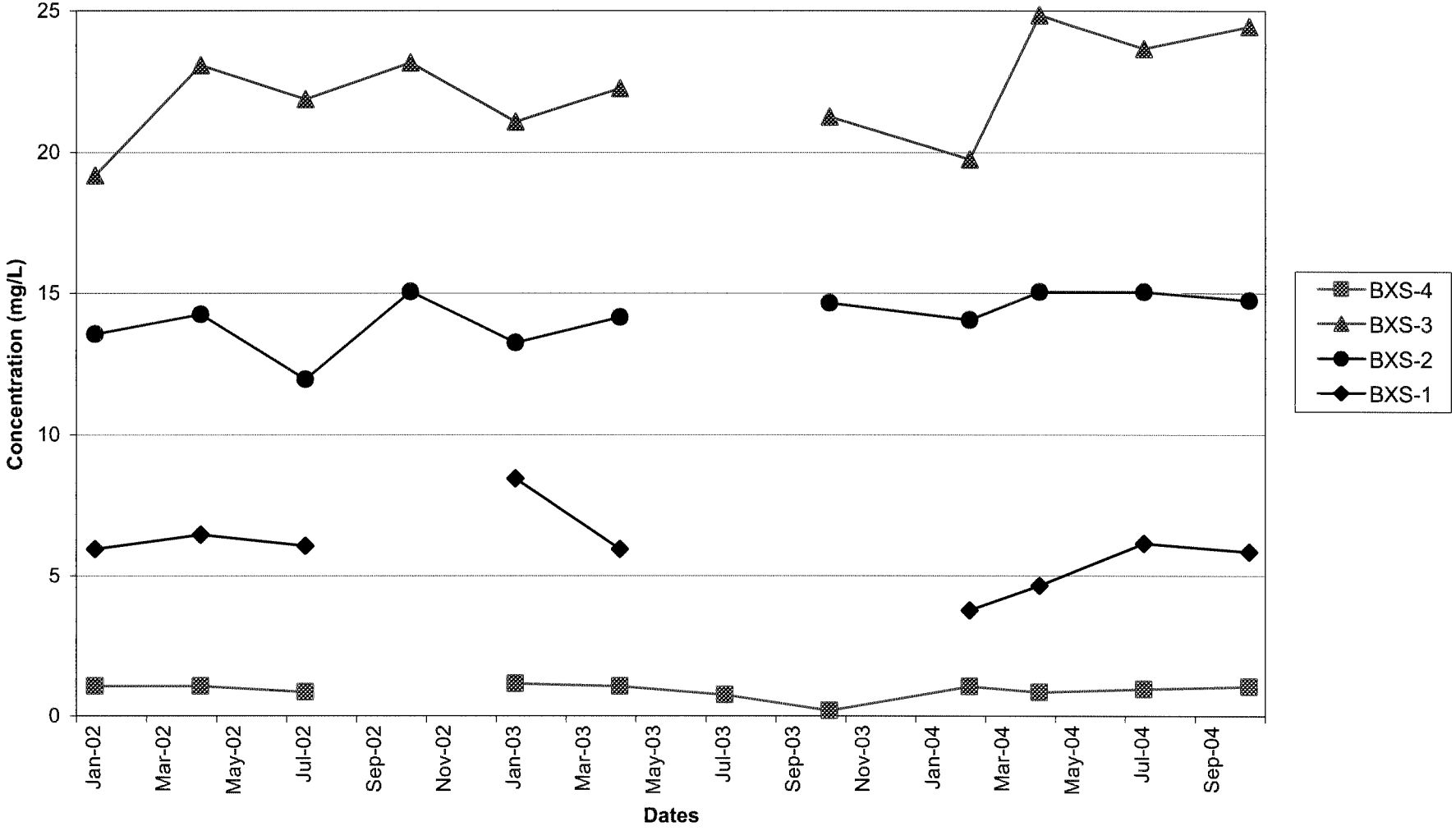


Figure 17. Concentration Trends for Field pH
South Woodwaste Landfill Monitoring Well Data

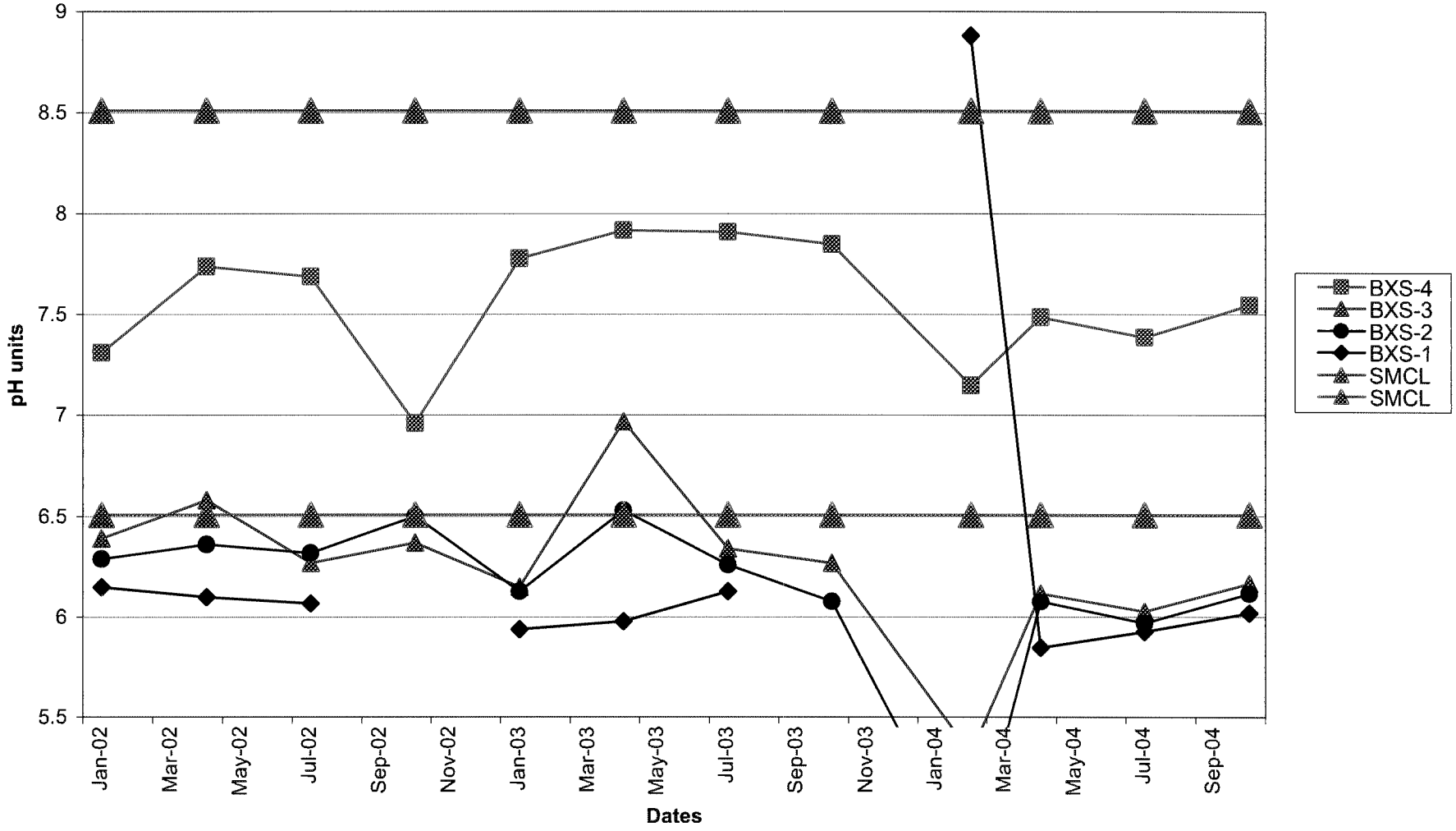
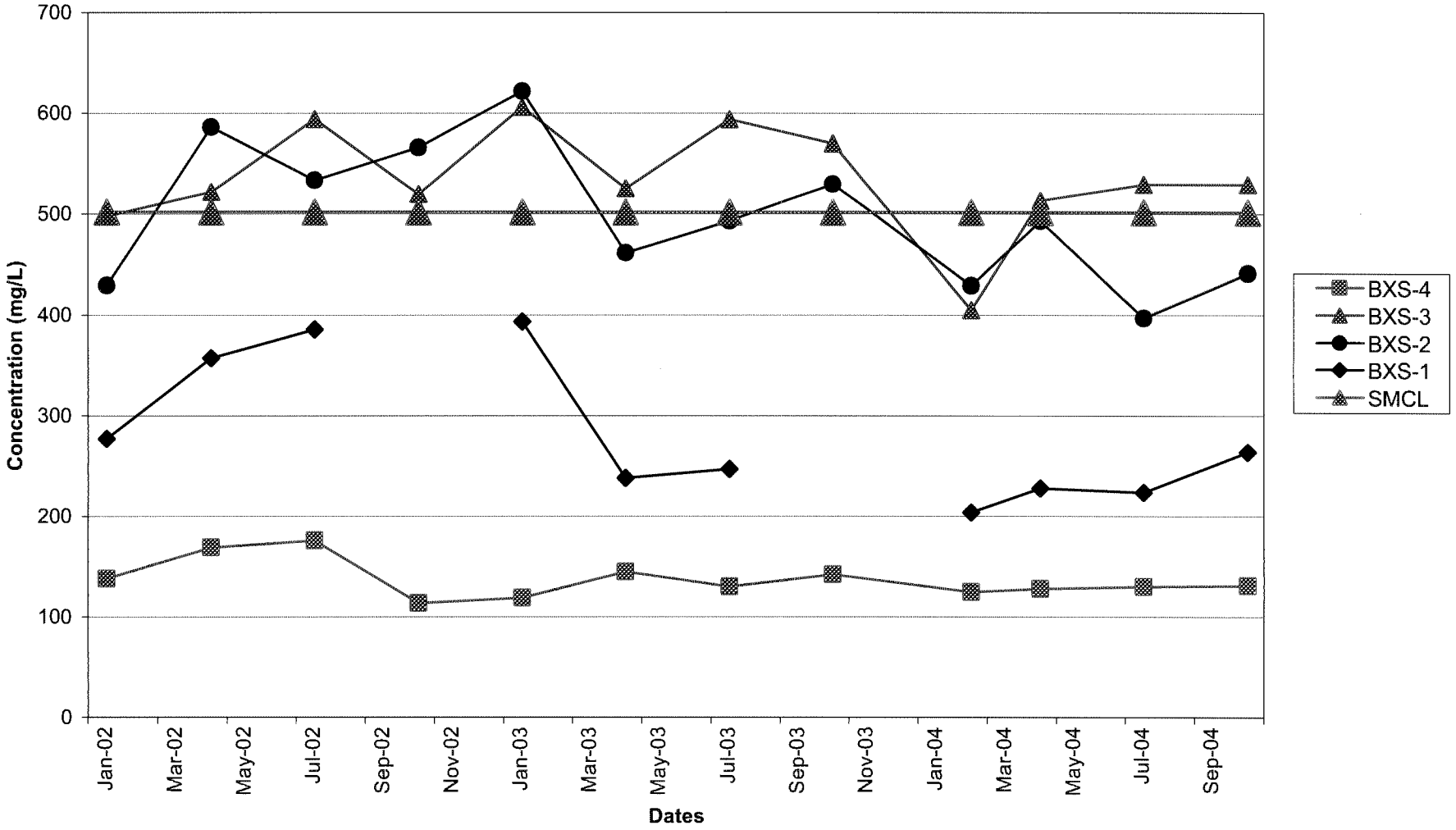


Figure 18. Concentration Trends for Total Dissolved Solids
South Woodwaste Landfill Monitoring Well Data



Tables

Table 1. Summary of Groundwater Elevations (South Landfill)

	Inner Casing (inches)	Depth of Well (ft bgs)	Length of Screen (ft)	TOC Elevation (ft asd)	TOC Elevation 10/2002[a] (ft msl)	Screened Interval (ft bgs)		Date	Depth to GW from TOC (ft)	Groundwater Elevation (ft asd)
BXS-1	2	47.90	10	99.59	142.90	37.90	47.90	2/05/04	36.63	63.14
								4/13/04	36.74	63.03
								7/07/04	36.91	62.86
								10/05/04	36.65	63.12
BXS-2	2	45.40	10	99.77	143.02	35.40	45.40	2/05/04	37.92	61.85
								4/13/04	36.49	63.28
								7/07/04	37.69	62.08
								10/05/04	38.76	61.01
BXS-3	2	44.15	10	98.99	142.07	34.15	44.15	2/05/04	33.25	65.74
								4/13/04	31.64	67.35
								7/07/04	33.71	65.28
								10/05/04	35.83	63.16
BXS-4	2	47.40	10	100.34	143.42	37.40	47.40	2/05/04	9.73	90.61
								4/13/04	13.29	87.05
								7/07/04	13.55	86.79
								10/05/04	14.98	85.36

Notes:

a) Wells were resurveyed in October 2002. Groundwater elevations are based on the earlier survey.

bgs - below ground surface

ft msl - feet above mean sea level.

ft asd - feet above assumed site datum

TOC - top of casing

Table 2. Hydraulic Gradient and Groundwater Velocity Calculations(South Landfill)

Date	Average Gradient (i) (cm/cm)	K (cm/sec)	n_e	v (cm/sec)	v (ft/day)
2/05/04	0.026	3.00E-02 to 6.00E-02	0.300	0.003 to 0.005	7.375 to 14.750
4/13/04	0.022			0.002 to 0.004	6.098 to 12.195
7/07/04	0.022			0.002 to 0.004	6.339 to 12.678
10/05/04	0.022			0.002 to 0.004	6.246 to 12.493

Table 3a. Field Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.353	pH (s.u.)				Conductivity (µS/cm)				Temperature (°C)			
Primary MCL [a] Secondary MCL [a]	6.5 - 8.5				700							
	BXS-4	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-4**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-4**	**BXS-3**	**BXS-2**	**BXS-1**
Apr-00	7.59	7.51	7.53	7.5	187	831	875	431	10.8	15.30	16.10	15.2
Jul-00	7.74	6.58	6.52	6.18	182	822	905	464	13.5	19.90	15.90	14.4
Oct-00	7.92	6.39	6.5	6.22	185	855	833	502	9.9	16.2	19.40	12.6
Jan-01	8.07	7.11	6.73	6.55	182	925	893	522	8	11.4	10.60	9.6
Apr-01	7.52	6.49	6.47	6.07	184	860	860	476	9.4	14.9	15.30	14
Jul-01	6.89	7.87	8.37	7.26	183	833	850	477	8.6	17.3	14.10	13.8
Oct-01	6.91	6.7	6.05	5.71	203	872	847	495	11.5	15.4	15.50	14
Jan-02	7.3	6.38	6.28	6.14	186	825	844	474	7.1	10.6	10.80	9.3
Apr-02	7.73	6.57	6.35	6.09	181	832	838	441	10.4	14.9	13.40	11.9
Jul-02	7.68	6.26	6.31	6.06	178	827	840	469	11.9	16.4	14.40	13.1
Oct-02	6.95	6.36	6.49		205	930	930		9.8	13.2	13.20	
Jan-03	7.77	6.14	6.12	5.93	178	1430	1400	1130	9.8	13.4	13.3	11.6
Apr-03	7.91	6.96	6.52	5.97	191	899	808	442	9.6	13.6	13.4	11.7
Jul-03	7.9	6.33	6.25	6.12	193	945	869	441	10.91	13.58	13.37	16.19
Oct-03	7.84	6.26	6.07		207	945	883		10.16	13.76	13.92	
Feb-04	7.140	5.310	4.730	8.87	174	699	737	297	9.58	13.13	12.79	12.54
Apr-04	7.48	6.11	6.07	5.84	197	836	838	339	9.69	13.42	12.89	13.71
Jul-04	7.38	6.02	5.96	5.92	216	926	874	417	10.27	13.76	13.51	13.66
Oct-04	7.54	6.16	6.11	6.01	203	949	834	478	10.81	13.82	14.48	13.14

Table 3a. Field Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.353	Eh (mV)				DO (mg/L)			
Primary MCL [(a)] Secondary MCL [(a)]								
	BXS-4	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-4**	**BXS-3**	**BXS-2**	**BXS-1**
Apr-00	-80	-70	80	120	0	0.8	0.00	0
Jul-00	-70	-45	120	135	2.22	1.62	2.33	0.76
Oct-00	-1	0	0	130	4.99	5.24	5.22	5.89
Jan-01		-20	90	110	4.3	2.54	1.28	6.98
Apr-01	-65	45	105	100	0.75	1.37	1.11	1.22
Jul-01	-1	1	0	120	1.46	0.99	1.32	0.33
Oct-01	180	20	50	115	0.99	0.83	0.93	0.86
Jan-02	-65	-5	80	160	1.37	1.39	1.01	1.96
Apr-02	-45	0.5	135	180	0.87	2.17	0.79	0.49
Jul-02	-55	-5	90	180	1.24	0.84	1.01	0.4
Oct-02	60	57	166		7.97	1.72	1.37	
Jan-03	-3	183	217	258	3.92	2.04	2.74	3.4
Apr-03	-31	43	126	366	7.8	5.5	3.64	5.56
Jul-03	-253	-57	-9	202	0.82	2.28	0.44	2.79
Oct-03	-162	35	59		1.53	2.82	3.31	
Feb-04	-110	-6	35	143	11.24	4.81	8.84	7.39
Apr-04	-174	-28	51	212	0.35	1.27	1.28	3.18
Jul-04	-92	6	30	182	0.41	0.46	1.52	2.73
Oct-04	-198	-39	11	148	4.57	3.06	10.92	3.36

Notes:

(a) Primary and secondary MCLs (maximum contaminant levels) per WAC 246-290-310.

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic **2.353**	pH (s.u.)							Conductivity (umhos/cm)						
Primary MCL [a] Secondary MCL [a]	6.5 - 8.5							700						
	BXS-4	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**	**BXS-4**	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**
Apr-00	7.97		6.47	6.39	6.15	6.08	6.01	150		568	685	342	344	2 U
Jul-00	7.78		6.34	6.31	5.96	5.93	5.16	165		589	767	401	429	2 U
Oct-00	7.99		6.47	6.37	6.15	6.12	5.72	159		614	719	414	436	2 U
Jan-01	8.03		6.83	6.48	6.06	6.1	5.52	189		872	878	473	494	2
Apr-01	7.87		6.9	6.36	6.33	6.01	5.4	193		901	884	506	474	3
Jul-01	7.96		6.64	6.44	6.09	6.12	5.53	193		885	890	489	490	1
Oct-01	7.58		6.36	6.27	6.07	5.96	5.92	195		887	861	504	500	6
Jan-02	8.03		6.45	6.34	6.17	6.14	5.77	192		806	842	471	474	2 U
Apr-02	8.02 J		6.6 J	6.32 J	6 J	6.06 J	5.9 J	192		804	863	443	445	2
Jul-02	8		6.4	6.51	6.21	6.2	5.9	176		710	794	434	425	2 U
Oct-02			6.51	6.57						817	785			
Jan-03														
Apr-03														
Jul-03							5.86							2 U
Oct-03	8.04	7.99	6.56	6.41			7.05	182	182	851	789			2 U
Feb-04	8	8	6.37	6.39	6.22		5.76	182	179	692	736	286		0.6 J
Apr-04	7.91	7.92	6.41	6.38	6.14		5.65	172	175	696	716	295		2 U
Jul-04	8	8.01	6.52	6.5	6.28		5.78	171	168	739	681	347		2 U
Oct-04	7.96	7.97	6.57	6.67	6.26		6.5	179	178	933	819	395		0.2 J

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.353	Ammonia as N (mg/L)							COD (mg/L)						
Primary MCL [a] Secondary MCL [a]														
	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]
Apr-00	0.51		0.3	0.05 U	0.05 U	0.05 U	0.05 U	16		91	44	24	21	5 U
Jul-00	0.54		0.31	0.05	0.05 U	0.05	0.05 U	5 U		49	49	29	14	5 U
Oct-00	0.46		0.16	0.05 U	0.05 U	0.05 U	0.05 U	29		77	41	26	27	5 U
Jan-01	0.63		0.12	0.05 U	0.1	0.07	0.06	7		68	40	21	23	5 U
Apr-01	0.48		0.14	0.05 U	0.05 U	0.05 U	0.05 U	14		79	47	27	27	5 U
Jul-01	0.53		0.11	0.05 U	0.05 U	0.05 U	0.05 U	38		71	46	23	24	5 U
Oct-01	0.37		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	10		60	37	18	19	5 U
Jan-02	0.47		0.07	0.05 U	0.05 U	0.05 U	0.05 U	7		54	41	20	17	5 U
Apr-02	0.38		0.19	0.05 U	0.05 UJ	0.05 U	0.05 U	19		59	36	14	16	5 U
Jul-02	0.49		0.3	0.05 UJ	0.05 U	0.05 U	0.05 U	25		57	29		14 J	5 U
Oct-02	0.05 U		0.2	0.05 U				37		49	33			
Jan-03	0.44		0.02 J	0.05 U	0.05 UJ	0.46	0.025	3		53	35	22	3	5 U
Apr-03	0.53		0.15	0.05 U	0.05 U	0.05 U	0.025	2 J		59	40	16	16	5 U
Jul-03	0.55		0.18	0.02 J	0.05 U	0.05 U		5 U		56	37	14	14	
Oct-03	0.48	0.53	0.25	0.05 U			0.05 U	4 J	3 J	55	36			5 U
Feb-04	0.51	0.51	0.12	0.04 J	0.05 U		0.05 U	5 U	5 U	49	35	5		5
Apr-04	0.55	0.55	0.61	0.05	0.05 U		0.05 U	5 U	5 U	65	37	10		5 U
Jul-04	0.5	0.47	0.13	0.06	0.05 U		0.05 U	5 U	5 U	58	37	14		5 U
Oct-04	0.53	0.51	0.12	0.05 U	0.05 U		0.05 U	4 J	3 J	63	43	15		5 U

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.4	Chloride (mg/L)							Nitrate + Nitrite as N (mg/L)						
Primary MCL [a] Secondary MCL [b]	250							10						
	BXS-4	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**	**BXS-4**	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**
Apr-00	2		3.9	7.4	8.2	8.2	0.2 U	0.2 U		0.2 U	0.2 U	0.4	0.4	0.2 U
Jul-00	2		5.5	8.8	8.3	8.2	0.2 U	0.1		0.2 U	0.2 U	0.5	0.5	
Oct-00	2		5	8.1	6.7	7	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Jan-01	2.2		5.5	8.7	7.7	7.7	0.2 U	0.2 U		0.2 U	0.2 U	0.3	0.3	0.2 U
Apr-01	2		4.8	7.6	5.9	5.8	0.2 U	0.2 U		0.2 U	0.2 U	0.2	0.4	0.2 U
Jul-01	2		4.4	6.7	5.6	5.5	0.2 U	0.2 U		0.2 U	0.2 U	0.4	0.4	0.2 U
Oct-01	2		4.1	6.7	4.3	4.3	0.2 U							
Jan-02	2		3.2	6.1	5	4.9	0.2 U	0.2 U		0.2 U	0.2 U	0.2	0.3	0.2 U
Apr-02	2		2.9	6.3	5.7	5.9	0.2 U	0.2 U		0.2 U	0.2 U	1.1	1.1	0.2 U
Jul-02	2.2		4	6.7	6	6.4	0.2 U	0.2 U		0.2 U	0.2 U	0.7	0.6	0.2 U
Oct-02	1.9		3	5.6				0.9			0.2 U			
Jan-03	2		3.5	5.8	4	2.2	0.2 U							
Apr-03	2.1		4	6	4.9	4.7	0.2 U	0.2 U		0.2 U	0.2 U	0.9	0.8	0.2 U
Jul-03	1.8		3	5.2	4.8	5	0.2 U	0.2 U		0.2 U	0.2 U	1.5	1.5	0.02 J
Oct-03	2	1.8	3.1	5			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U
Feb-04	1.9	1.9	2.7	4.6	6.1		0.2 U	0.06 J	0.06 J	0.08 J	0.1 J	1.1		0.2 U
Apr-04	1.8	1.8	3.1	4.6	4.8		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.4		0.2 U
Jul-04	1.9	1.8	2.7	4.8	4.3		0.2 U	0.05 J	0.05 J	0.2 U	0.2 U	0.6		0.04 J
Oct-04	1.6	1.6	0.8	3.3	3		0.2 U	0.05 U	0.05 U	0.01 J	0.01 J	0.3		0.2 U

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.4 Primary MCL [a] Secondary MCL [e]	Nitrate as N (mg/L)							Nitrite as N (mg/L)						
	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]
Apr-00														
Jul-00							0.05 U							0.1 U
Oct-00														
Jan-01														
Apr-01														
Jul-01														
Oct-01	0.2 UJ		0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3	0.1 U		0.2	0.1 J	0.1 UJ	0.1 U	0.1 U
Jan-02														
Apr-02														
Jul-02														
Oct-02			0.003							0.004				
Jan-03	0.003		0.1 UJ	0.1 UJ	0.3 J	0.3	0.05	0.007		0.1 UJ	0.1 UJ	0.1 UJ	0.007	0.1 UJ
Apr-03														
Jul-03														
Oct-03														
Feb-04														
Apr-04														
Jul-04														
Oct-04														

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.4	Solids, total dissolved (mg/L)							Sulfate (mg/L)						
Primary MCL [a] Secondary MCL [a]	500							250						
	BXS-4	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**	**BXS-4**	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**
Apr-00	180		561	598	330	318	27	1.6		0.3	0.3	7.7	7.6	0.2 U
Jul-00	156		517	532	323	291	5 U	1.7		0.2	0.2	7.8	7.2	0.2 U
Oct-00	94		503	501	281	275	5 U	1.6		0.2 U	0.3	6.1	6.1	0.2 U
Jan-01	131				286	272	5 U	1.2		0.2	0.4	7.7	7.8	0.2 U
Apr-01	134		556	456	284	258	5 U	1.6		0.4	0.4	8.3	8	0.3
Jul-01	134		420	320	212	262	5 U	1.6		0.2	0.3	7.2	7.1	0.2 U
Oct-01	140		408	420	262	274	8	1.2		0.2	0.3	6.7	6.5	0.2 U
Jan-02	136		496	428	275	246	5 U	1.1		0.7	0.3	6.8	7	0.2 U
Apr-02	167		520	584	356	302	5 U	1.6		0.3	0.5	7.9	8.1	0.2 U
Jul-02	174		592	532	384	352	10	1.6		0.3	0.3	7.5	7.6	0.2 U
Oct-02	112		518	564				1.1		0.4	0.3			
Jan-03	117		604	620	392	168	5 U	1		0.4	0.4	4.2	1.1	0.2 U
Apr-03	143		524	460	236	252	5 U	1.1		0.19 J	0.3	8.2	7.6	0.2 U
Jul-03	128		592	492	245	250	5 U	1.5		0.2 U	0.2	9.6	9.7	0.2 U
Oct-03	140	137	568	528			5	1	0.7	0.2 U	0.2			0.2 U
Feb-04	123	113	404	428	202		5 U	1.3	1.3	0.15 J	0.14 J	12.1		0.2 U
Apr-04	126	138	512	492	226		5 U	0.9	1	0.2 U	0.2 U	10.5		0.2 U
Jul-04	128	123	528	396	222		5 U	0.9	0.9	0.2 U	0.2 U	7.7		0.2 U
Oct-04	129	132	528	440	262		5 U	1.5	1.4	0.2 U	0.2 U	6.9		0.2 U

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.4	Tannin & Lignin (mg/L)							Total Organic Carbon (mg/L)						
Primary MCL [a] Secondary MCL [a]														
	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]	BXS-4	BXS-4 Dup [c]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [c]	Field blk [d]
Apr-00	0.3		9.1	1.1	0.3	0.3	0.2 U	0.7		28.8	13.5	6.6	6.6	0.5 U
Jul-00	0.3		7.1	1.1	0.3	0.4	0.2 U	1.1		29.2	16.8	7.7	7.1	0.5 U
Oct-00	0.4		8.2	1	0.5	0.5	0.2 U	1.3		0.5 U	15.5	9.7	9.7	0.5 U
Jan-01	0.6		12.2	1.7	0.6	0.7	0.2 U	1		27.1	14.8	8.6	8.6	0.5 U
Apr-01	0.2		3.2	0.9	0.4	0.4	0.2 U	1.2		26.1	14.6	7.5	7.5	0.5 U
Jul-01	0.4		6.4	1.4	0.5	0.5	0.2 U	9.3		25.9	15.1	6.8	7.3	0.5 U
Oct-01	0.5		21.6	2.8	0.6	0.8	0.2 U	0.9		21.6	13.7	7.1	7.1	0.5 U
Jan-02	0.5		9.9	1.3	0.3	0.4	0.2 U	1		19.1	13.5	5.9	5.8	0.5 U
Apr-02	0.5		10.9	1.5	0.4	0.6	0.2 U	1		23	14.2	6.4	6.4	0.5 U
Jul-02	0.4		8	1	0.5	0.3	0.2 U	0.8		21.8	11.9	6	5.7	0.5 U
Oct-02	0.3		8.1	1.1						23.1	15			
Jan-03	0.3		9.5	0.9	0.8	0.3	0.2 U	1.1		21	13.2	8.4	0.9	0.4 J
Apr-03	0.6		2.5	2	0.3	0.3	0.2 U	1		22.2	14.1	5.9	6	0.5 U
Jul-03	0.3		4.6	1.5	0.2	0.2	0.2 U	0.7						
Oct-03	0.5	0.5	8.5	1.9			0.2 U	0.25 U	10.4	21.2	14.6			0.4 J
Feb-04	0.4	0.5	10	1.9	0.2		0.08 J	1	0.9	19.7	14	3.7		1
Apr-04	0.5	0.5	9.9	1.8	0.2 U		0.2 U	0.8	0.9	24.8	15	4.6		0.5 U
Jul-04	0.5	0.5	4.4	0.2 U	0.3		0.14 J	0.9	1	23.6	15	6.1		0.17 J
Oct-04	0.5	0.4	8.3	1.6	0.3		0.08 J	1	0.9	24.4	14.7	5.8		0.5 U

Table 3b. Conventional Parameters from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

Number of Samples 4 Critical Statistic 2.4	Total Coliforms (MPN/100 ml)						
Primary MCL [a] Secondary MCL [a]	<5%[b]						
	BXS-4	**BXS-4 Dup [c]**	**BXS-3**	**BXS-2**	**BXS-1**	**BXS-1 Dup [c]**	**Field blk [d]**
Apr-00	2 U		2 U	2 U	11	7	
Jul-00	2 U		110	6	2 U	2 U	2 U
Oct-00	4 J		80 J	11 J	2 UJ	2 J	2 UJ
Jan-01	2 UJ		14 J	4 J	2 UJ	2 UJ	2 UJ
Apr-01	2 UJ		2 UJ	17 J	2 UJ	2 UJ	2 UJ
Jul-01	2 UJ		2 UJ	500 J	2 UJ	2 UJ	2 UJ
Oct-01	2 UJ		900 J	2 UJ	2 U	2 UJ	2 UJ
Jan-02	2 U		2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Apr-02	2 UJ			2 UJ	2 UJ	2 UJ	2 UJ
Jul-02	2 UX		1600 E	8	2 U	2 UX	2 UX
Oct-02	2 U		2				
Jan-03	2		2 U	2 U	2 U	2	2 U
Apr-03	2 U		2 U	2 U	2 UJ	2 UJ	2 UJ
Jul-03	23 J		2 UJ	1600 J	30 J	300 J	
Oct-03	900 J	300 J	2 UJ	2 UJ			2 UJ
Feb-04	1	1 U	2 UX	2 UX	25 X		1 U
Apr-04	2 UX	2 UX	2 UX	2 UX	2 UX		2 UX
Jul-04	23	23	14	4	2 U		2 U
Oct-04	2 U	2	12	2 U	4		2 U

Notes:

(a) Primary and secondary MCLs (maximum contaminant levels) per WAC 246-290-310.

(b) <5% criteria indicates less than 5 percent of total coliform samples can be positive in a month.

(c) Samples collected as BXS-6

(d) Samples collected as BXS-5

J Estimated Value

U Not detected. Reporting limit shown.

X Analysis performed past method holding time

Table 3c. Metals from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

	Arsenic, dissolved (µg/L)							Barium, dissolved (µg/L)						
Primary MCL [a] Secondary MCL [a]	10							2000						
	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]
Apr-00	5		46	5 U	5 U	5 U	5 U	26		83	56	29	27	5 U
Jul-00	6		49	5 U	5 U	5 U	5 U	26		105	51	28	27	5 U
Oct-00	5		6 U	5 U	5 U	5 U	5 U	29		103	56	34	33	5 U
Jan-01	5 U		8	5 U	5 U	5 U	5 U	25		60	51	30	30	5 U
Apr-01	5		16	5 U	5 U	5 U	5 U	26		67	50	25	25	5 U
Jul-01	5		9	5 U	5 U	5 U	5 U	32		64	53	27	27	5 U
Oct-01	5		5	5 U	5 U	5 U	5 U	26		49	50	31	28	5 U
Jan-02	5 U		6	5 U	5 U	5 U	5 U	27.1		71.2	52.3	27.1	27.2	5 U
Apr-02	5		14	5 U	5 U	5 U	5 U	26		99	47	24	23	5 U
Jul-02	10 U		21.9	10 U	10 U	10 U	10 U	29.6		129	52.8	28.4	28.1	5 U
Oct-02	5.4		8	5 U				26.6		64.9	43.8			
Jan-03	4.7 B		5.3	1.4 B	1 B	4.9 B	5 U	26.8		55.7	47.2	30.8	28	5 U
Apr-03	5.2		4.6 B	1.2 B	5 U	5 U	5 U	29.1		54.4	48.7	20.3	20.1	5 U
Jul-03	6		5 U	5 U	5 U	5 U	5 U	32		58.1	42.1	18	18.9	5 U
Oct-03	4.9 B	5.3	3.7 B	5 U			5 U		28.8	50.7	47.8			5 U
Feb-04	5 U	5 B	3 B	5 U	5 U		4.9 B	5 U	28.3	65.3	45	10		29.1
Apr-04	5.6	5.5	8.5	5 U	5 U		5 U	29.3	29.1	111	48.8	19.9		5 U
Jul-04	5	5	3 B	1 B	5 U		5 U	31	29	54	55	21		5 U
Oct-04	5.7	5.3	4.4 B	5 U	5 U		5 U	29.4	28.3	53.3	43.3	23.4		5 U

Table 3c. Metals from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

	Cadmium, dissolved (µg/L)							Copper, dissolved (µg/L)						
Primary MCL [a] / Secondary MCL [a]	5							1300						
	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]
Apr-00	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Jul-00	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Oct-00	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Jan-01	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Apr-01	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Jul-01	4 U		4 U	4 U	4 U	4 U	4 U	10 U		10 U	10 U	10 U	10 U	10 U
Oct-01	5 U		5 U	5 U	5 U	5 U	5 U	10 U		10 U	10 U	10 U	10 U	10 U
Jan-02	5 U		5 U	5 U	5 U	5 U	5 U	10 U		10 U	10 U	10 U	10 U	10 U
Apr-02	5 U		5 U	5 U	5 U	5 U	5 U	10 U		10 U	10 U	10 U	10	10 U
Jul-02	5 U		5 U	5 U	5 U	5 U	5 U	10 U		10 U	10 U	10 U	10 U	10 U
Oct-02	5 U		1.1 B	1.1 B				10 U		10 U	10 U			
Jan-03	0.5 B		3.6 B	5 U	5 U	5 U	5 U	10 U		10 U	10 U	5.1 B	10 U	10 U
Apr-03	2 R		2 R	2 R	2 R	2 R	2 R	10 U		10 U	10 U	16.8 J	9.2 J	5.4 B
Jul-03	5 UJ		5 U	5 U	5 U	5 U	5 U	10 U		10 U	10 U	10 U	10 U	10 U
Oct-03	5 U	5 U	5 B	5 U			5 U	10 U	10 U	10 U	10 U			10 U
Feb-04	5 U	5 U	5 U	5 U	5 U		5 U	10 U	10 U	10 U	10 U	10 U		10 U
Apr-04	5 U	5 U	5 U	5 U	5 U		5 U	10 U	10 U	10 U	10 U	10 U		10 U
Jul-04	5 U	5 U	6	5 U	5 U		5 U	5 B	6 B	5 B	10 U	11		10 U
Oct-04	5 U	5 U	5 U	5 U	5 U		5 U	10 U	10 U	10 U	10 U	10 U		10 U

Table 3c. Metals from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

	Iron, dissolved (µg/L)							Manganese, dissolved (µg/L)						
Primary MCL [a] Secondary MCL [a]	300							50						
	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]
Apr-00	40		56600	690	20 U	20 U	20 U	123		15900	1450	264	272	5 U
Jul-00	40		52600	720	20 U	20 U	20 U	120		13900	1500	307	308	5 U
Oct-00	60		34200	630	20 U	20 U	20 U	129		15800	1390	346	348	5 U
Jan-01	50		7560	620	20 U	30	20 U	123		14500	1460	409	397	5 U
Apr-01	50		5530	780	20 U	20 U	20 U	116		16200	1470	341	345	5 U
Jul-01	43.8		8530	736	20 U	20 U	20 U	123		17100	1540	396	400	5 U
Oct-01	35		4740	789	20 U	20 U	20 U	114		13600	1580	556	534	5 U
Jan-02	50		5760	806	20 U	20 U	20 U	127		15600	1500	464	470	5 U
Apr-02	40		19600	640	20 U	20 U	20 U	112		15600	1430	362	353	5 U
Jul-02	32.9		21900	670	20 U	20 U	20 U	123		17900	1520	373	384	5 U
Oct-02	41.8		5340	628				105		16000	1410			
Jan-03	39.9 J		3220	714	20 U	126	20 U	103		14800	1560	733	107	5 U
Apr-03	40.8		4280	780	20 U	20 U	20 U	118		17800	1560	431	451	5 U
Jul-03	53		3680	926	20 U	20 U	20 U	115		15900	1390	370	377	5 U
Oct-03	36.1	36.9	903	836			20 U	115	110	14500	1580			5 U
Feb-04	20 U	41.4	2950	753	20 U		48.1	5 U	113	15700	1410	277		115
Apr-04	42.4	90.6	8890	796	20 U		20 U	110	111	14900	1420	144		5 U
Jul-04	60	50	4290	750	20 U		20 U	189	114	18200	1420	326		5 U
Oct-04	40.3	39.3	1710	836	20 U		20 U	110	107	17700	1430	478		5 U

Table 3c. Metals from Groundwater Sampling, April 2000 to October 2004 (South Landfill)

	Nickel, dissolved (µg/L)							Zinc, dissolved (µg/L)						
Primary MCL [a] Secondary MCL [a]	100							5000						
	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]	BXS-4	BXS-4 Dup [b]	BXS-3	BXS-2	BXS-1	BXS-1 Dup [b]	Field blk [c]
Apr-00	20 U		20 U	40	20 U	20 U	20 U	10 U		10 U	10 U	10 U	10 U	10 U
Jul-00	20 U		20 U	38	20	20	20 U	10 U		15	10 U	10 U	10 U	10 U
Oct-00	20 U		20 U	30	20 U	20 U	20 U	10 U		10 U	10 U	10	10 U	10 U
Jan-01	20 U		20 U	40	20 U	20	20 U	10 U		10 U	10 U	10 U	10	10 U
Apr-01	20 U		20 U	30	20 U	20 U	20 U	10 U		20	10	10 U	10	10 U
Jul-01	20 U		38	41	27	26	20 U	10 U		10 U	10 U	10 U	10 U	10 U
Oct-01	20 U		20 U	39	24	21	20 U	10 U		10 U	11	13	12	10 U
Jan-02	20 U		33	39	27	22	20 U	10 U		10 U	11	14	10 U	10 U
Apr-02	20 U		20	40	20 U	20 U	20 U	10 U		10 U	10 U	10 U	10 U	10 U
Jul-02	20 U		36.3	38.7	26.5	26.6	20 U	10 U		10.2	10 U	10 U	10 U	10 U
Oct-02	20 U		19.8 B	32.9				10 U		8.8 B	6.5 B			
Jan-03	20 U		32.2	37.3	34.7	20 U	20 U	10 U		10 U	14.7	16.8	10 U	10 U
Apr-03	20 U		22.9	39	20 U	20 U	20 U	10 U		14.5	10 U	36.1	32.2	10 U
Jul-03	20 U		18.5 B	35.9	14.8 B	15.3 B	20 U	6 B		5.8 B	9.9 B	26.2	29.4	10 U
Oct-03	20 U	20 U	33.3	37.1			20 U	10 U	10 U	10 U	12.7			10 U
Feb-04	20 U	20 U	49	36.2	20 U		20 U	10 U	10 U	10.6	6.1 B	10 U		10 U
Apr-04	20 U	20 U	30.8	40.3	20 U		20 U	10 U	10 U	10 U	10 U	33		10 U
Jul-04	20 U	20 U	20 U	50	20		20 U	4 B	7 B	21	8 B	24		9 B
Oct-04	20 U	20 U	29.5	36.5	18.8 B		20 U	10 U	10 U	8 B	12.8	9.9 B		10 U

Notes:

(a) Primary and secondary MCLs (maximum contaminant levels) per WAC 246-290-310.
(b) Samples collected as BXS-6
(c) Samples collected as BXS-5
B Estimated. Result is below reporting limit
J Estimated Value
R Rejected Sample
U Not detected. Reporting limit shown.

Table 4. Parameters Statistically Higher than Background (1988-2003), South Landfill

			Mean Value Downgradient			Mean Value Upgradient
Test Type	Parameter	Monitoring Period	BXS-1	BXS-2	BXS-3	BXS-4
Conventionals	Ammonia as Nitrogen	2001			0.10	0.50
Conventionals	Carbon, Total Organic	1992	3.6	5.0	18.7	1.5
Conventionals	Carbon, Total Organic	1993		7.3	20.0	2.0
Conventionals	Carbon, Total Organic	1994		8.6	21.9	2.3
Conventionals	Carbon, Total Organic	1995		10.7	30.6	3.4
Conventionals	Carbon, Total Organic	1996	4.9	12.7	38.5	2.3
Conventionals	Carbon, Total Organic	1997		15.0		3.8
Conventionals	Carbon, Total Organic	1998			32.1	10.8
Conventionals	Carbon, Total Organic	1999		15.8	31.8	6.6
Conventionals	Carbon, Total Organic	2000	8.1	15.2		1.0
Conventionals	Carbon, Total Organic	2001	7.5	14.6	25.2	3.1
Conventionals	Carbon, Total Organic	2002	6.4	13.8	22.2	2.0
Conventionals	Carbon, Total Organic	2003		14.0	21.5	0.7
Conventionals	Carbon, Total Organic	2004	5.1	14.7	23.1	0.9
Conventionals	Chemical Oxygen Demand	1990	27.9	41.2	97.8	2.2
Conventionals	Chemical Oxygen Demand	1993			106.0	30.5
Conventionals	Chemical Oxygen Demand	1994		30.0	83.0	22.0
Conventionals	Chemical Oxygen Demand	1995			90.0	32.0
Conventionals	Chemical Oxygen Demand	1996		41.0	98.0	16.0
Conventionals	Chemical Oxygen Demand	1997		43.0	87.0	19.0
Conventionals	Chemical Oxygen Demand	1998		51.0	98.0	20.1
Conventionals	Chemical Oxygen Demand	1999			92.0	40.5
Conventionals	Chemical Oxygen Demand	2000		43.5	71.3	13.6
Conventionals	Chemical Oxygen Demand	2001	22.3	42.5	69.5	17.3
Conventionals	Chemical Oxygen Demand	2002	19	38	60	18
Conventionals	Chemical Oxygen Demand	2003		37	56	3
Conventionals	Chemical Oxygen Demand	2004		38	59	3
Conventionals	Chloride	1989	45.0	61.0	17.0	6.6
Conventionals	Chloride	1990	22.5	14.5	6.8	2.2
Conventionals	Chloride	1992	16.7	6.7	7.7	2.2
Conventionals	Chloride	1993	12.1	6.6	12.8	2.3
Conventionals	Chloride	1994	13.0	7.4	7.4	2.1
Conventionals	Chloride	1995	14.0	10.0	9.6	1.9
Conventionals	Chloride	1996	14.6	17.3	9.1	2.0
Conventionals	Chloride	1997	12.6	14.8	35.0	2.0
Conventionals	Chloride	1998	11.6	11.0	6.3	2.1
Conventionals	Chloride	1999	10.0		6.1	2.2
Conventionals	Chloride	2000	7.8	8.3	5.0	2.1
Conventionals	Chloride	2001	5.9	7.4	4.7	2.1

Table 4. Parameters Statistically Higher than Background (1988-2003), South Landfill

			Mean Value Downgradient			Mean Value Upgradient
Test Type	Parameter	Monitoring Period	BXS-1	BXS-2	BXS-3	BXS-4
Conventionals	Chloride	2002	5.3	6.5	3.8	2.0
Conventionals	Chloride	2003	4.6	5.5		2.0
Conventionals	Chloride	2004		4.3	2.3	1.8
Conventionals	Conductivity (umhos/cm)	1989	351	607	514	180
Conventionals	Conductivity (umhos/cm)	1990	366	624	500	214
Conventionals	Conductivity (umhos/cm)	1992	292	586	533	189
Conventionals	Conductivity (umhos/cm)	1993		487	526	173
Conventionals	Conductivity (umhos/cm)	1994	214	479	602	169
Conventionals	Conductivity (umhos/cm)	1995	333	623		149
Conventionals	Conductivity (umhos/cm)	1996	290	602	787	161
Conventionals	Conductivity (umhos/cm)	1997	326		765	169
Conventionals	Conductivity (umhos/cm)	1998	393	678	738	177
Conventionals	Conductivity (umhos/cm)	1999	406	786	748	177
Conventionals	Conductivity (umhos/cm)	2000	417	762	651	166
Conventionals	Conductivity (umhos/cm)	2001	493	878	886	193
Conventionals	Conductivity (umhos/cm)	2002	470	849	825	187
Conventionals	Conductivity (umhos/cm)	2004		821	853	198
Conventionals	Nitrate + Nitrite as Nitrogen	1990	0.7			0.1
Conventionals	Nitrate + Nitrite as Nitrogen	1993	0.8			0.2
Conventionals	Nitrate + Nitrite as Nitrogen	1994	0.5			ND
Conventionals	Nitrate + Nitrite as Nitrogen	1996	1.7			ND
Conventionals	Nitrate + Nitrite as Nitrogen	1997	0.8			ND
Conventionals	Nitrate + Nitrite as Nitrogen	1999	0.4			ND
Conventionals	Nitrate + Nitrite as Nitrogen	2000	0.3			0.1
Conventionals	Nitrate + Nitrite as Nitrogen	2001				
Conventionals	Nitrate + Nitrite as Nitrogen	2002	0.5			0.2
Conventionals	Nitrate + Nitrite as Nitrogen	2004	0.9			0.1
Conventionals	pH	1992	6.1	6.3	6.4	7.9
Conventionals	pH	2000	6.1	6.4	6.5	7.9
Conventionals	pH	2001	6.1	6.4	6.7	7.9
Conventionals	Solids, Total Dissolved	1990		397	436	228
Conventionals	Solids, Total Dissolved	1992		352	351	147
Conventionals	Solids, Total Dissolved	1993		330		141
Conventionals	Solids, Total Dissolved	1994	161	330	418	134
Conventionals	Solids, Total Dissolved	1995	188	361	492	141
Conventionals	Solids, Total Dissolved	1996	224	423	604	153
Conventionals	Solids, Total Dissolved	1997	236	456	613	150
Conventionals	Solids, Total Dissolved	1998	273	473	562	137
Conventionals	Solids, Total Dissolved	1999	256	524	517	156
Conventionals	Solids, Total Dissolved	2000	297	544	527	140
Conventionals	Solids, Total Dissolved	2001	261	299	346	135

Table 4. Parameters Statistically Higher than Background (1988-2003), South Landfill

			Mean Value Downgradient			Mean Value Upgradient
Test Type	Parameter	Monitoring Period	BXS-1	BXS-2	BXS-3	BXS-4
Conventionals	Solids, Total Dissolved	2002	298	466	518	145
Conventionals	Solids, Total Dissolved	2003	291	525	572	132
Conventionals	Solids, Total Dissolved	2004	228	439	493	127
Conventionals	Sulfate	1989	5.9			2.3
Conventionals	Sulfate	1990	6.6			1.9
Conventionals	Sulfate	1992	9.1			2.0
Conventionals	Sulfate	1993	10.0			2.0
Conventionals	Sulfate	1994	11.8			1.9
Conventionals	Sulfate	1995	12.0			1.8
Conventionals	Sulfate	1996	10.70			1.7
Conventionals	Sulfate	1997	11.8			1.6
Conventionals	Sulfate	1998	9.5			1.3
Conventionals	Sulfate	1999	7.8			1.4
Conventionals	Sulfate	2001	7.5			1.4
Conventionals	Sulfate	2002	7.3			1.4
Conventionals	Tannin and Lignin	1990			3.1	1.4
Conventionals	Tannin and Lignin	1993		0.5		0.3
Conventionals	Tannin and Lignin	1994		0.5	1.0	0.2
Conventionals	Tannin and Lignin	1995			3.1	0.6
Conventionals	Tannin and Lignin	1996		0.7	5.6	0.3
Conventionals	Tannin and Lignin	1998			8.1	0.7
Conventionals	Tannin and Lignin	1999			12.2	0.5
Conventionals	Tannin and Lignin	2000		9.1	9.2	0.4
Conventionals	Tannin and Lignin	2001				
Conventionals	Tannin and Lignin	2002		1.6	11.1	0.4
Conventionals	Tannin and Lignin	2003			6.3	0.4
Conventionals	Tannin and Lignin	2004		1.4		0.5
Metals	Arsenic	1996			9	4
Metals	Arsenic	1997			15	5
Metals	Arsenic	1998			20	4.6
Metals	Arsenic	1999			34	5.8
Metals	Arsenic	2002			10.4	3.8
Metals	Barium	1993		36	38	28
Metals	Barium	1994		38	51	25
Metals	Barium	1995		45	58	27
Metals	Barium	1996		48	74	26
Metals	Barium	1997		50	58	21
Metals	Barium	1998		51	65	26
Metals	Barium	1999		51	58	27
Metals	Barium	2000			87.8	26.5
Metals	Barium	2001	28.3	51.0	60.0	27.3
Metals	Barium	2002		50	78	28

Table 4. Parameters Statistically Higher than Background (1988-2003), South Landfill

			Mean Value Downgradient			Mean Value Upgradient
Test Type	Parameter	Monitoring Period	BXS-1	BXS-2	BXS-3	BXS-4
Metals	Barium	2003		46	55	29
Metals	Barium	2004		48	71	23
Metals	Cadmium	2002		1.1	1.1	<1.1
Metals	Copper	1993			8	5
Metals	Copper	2001				
Metals	Copper	2002		<2.5		<1.1
Metals	Iron	1990		140	1950	48
Metals	Iron	1994		748	1950	45
Metals	Iron	1995		1120	341	50
Metals	Iron	1996		1520	9490	46
Metals	Iron	1997		1220	17800	50
Metals	Iron	1998		1130	20700	56
Metals	Iron	1999		950	34500	30
Metals	Iron	2000		665	37740	47.5
Metals	Iron	2001	10	714.75	6537.5	42.5
Metals	Iron	2002		729	10474	42
Metals	Iron	2003		814		42.45
Metals	Iron	2004		784		38.18
Metals	Lead	1993			2	1
Metals	Manganese	1989	210	580	1100	120
Metals	Manganese	1990		650	1820	99
Metals	Manganese	1993		570		110
Metals	Manganese	1994		670	1110	120
Metals	Manganese	1995		834	3780	122
Metals	Manganese	1996		1120	10800	121
Metals	Manganese	1997		1510	13000	90
Metals	Manganese	1998	175	1650	13800	126
Metals	Manganese	1999	200	1420	14800	116
Metals	Manganese	2000	331	1450	15025	124
Metals	Manganese	2001	425.5	1512.5	15350.0	119.0
Metals	Manganese	2002	430	1502	15763	119
Metals	Manganese	2003		1523	15750	113
Metals	Manganese	2004		1420	16625	103
Metals	Nickel	1993		18		1
Metals	Nickel	1994		18		ND
Metals	Nickel	1995		21	30	ND
Metals	Nickel	1996			25	ND
Metals	Nickel	1997		34	20	ND
Metals	Nickel	1998		43	29	ND
Metals	Nickel	1999		36	22	ND
Metals	Nickel	2000		37		ND
Metals	Nickel	2001	20.25	37.5	17.5	10.0
Metals	Nickel	2002	21	39	24	5
Metals	Nickel	2003		37		10
Metals	Nickel	2004		41		10
Metals	Zinc	2002	8	6.8		<2.4

Appendix A

Field Groundwater Sampling Records

	Case	Well Number	Water Level	Bottom	Comments	Pump
	2"	BXN-1	51.00'	58.18'		
	2"	BXN-2	47.35'	57.24'		
	2"	BXN-3	48.65'	58.66'		
	2"	BXN-4	46.33'	51.74'		
		BXN-5		Dup BXN-2	Landfill Reqiuirements	
		BXN-6		Blank		
	2"	BXS-1	36.63'	47.90'	Top of Pump	X
2-12-04	2"	BXS-2	37.92'	45.40'	Pump raised out of ground 1 1/2'	X
2-12-04	2"	BXS-3	33.25'	44.15'		X
2-10-04	2"	BXS-4	9.73'	47.40'		
2-10-04		BXS-5		Blank		
2-10-04		BXS-6		Dup BXS-4	Landfill Requirements	
2-11-04	4"	MW-1	22.00'	41.02'		
2-13-04	4"	MW-2	43.85'	51.23'		X
	4"	MW-3	40.77'	51.96'		X
	2"	MW-4	7.80'	41.92'		
2-12-04	2"	HCMW-5	21.73'	35.43'		X
2-12-04	2"	HCMW-6	41.15'	51.10'		X
2-13-04	2"	HCMW-7	43.69'	55.08'		
		MW-A		Dup MW-15	Permit Requirements	
2-12-04		MW-B		Blank		
	2"	MW-10	37.78'	45.58'		
	2"	MW-11	18.85'	38'		
	4"	MW-12		39.85'	NAPL	
	4"	MW-13		37.19'	NAPL	
	2"	MW-14	23.85'	38'		
	2"	MW-15	39.28'	50.30'		
	2"	MW-16	42.19'	52.65'		
	2"	MW-17	40.79'	55.00'		
	2"	MW-18	42.25'	53.83'		

Depths Taken - 02/05/04

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Groundwater Sampling Field Form

Well No. BXS-1	Location Arlington	Date 2-18-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400,hours) 840	Instrument Calibration Date 2-18-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 47° cloudy

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.90
Depth to Water (feet): 36.63
Water Column (feet): 11.27
Casing Volume (gallons): 1.83
Calculated Purge Volume (gallons): 5.51
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
0726	0							Purge Start
0735	1/2	12.58	4.02	0.350	6.50	126	-3	Clear
0743	1	12.60	3.94	0.316	6.11	134	-4	
0755	2	12.55	3.89	0.305	6.52	136	-2	
0805	3	12.48	3.89	0.301	6.62	139	-1	
0815	4	12.49	3.89	0.300	6.54	141	1	
0829	5	12.57	3.85	0.298	7.46	142	-3	
0836	5 1/2	12.54	3.87	0.297	7.39	143	-2	

Purging Equipment: Port. (Ded. Bladder Pump) Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks:

Revised 02/06/03

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Groundwater Sampling Field Form

Well No. BXS-2	Location **Arlington**	Date 2-12-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 0720	Instrument Calibration Date	
Well Condition Poor (Satisfactory) New (If poor, explain)	2-12-04	
Field Conditions/Weather 28° clear cold		
Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**		

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 45.40	Sheen / LNAPL / DNAPL present:
Depth to Water (feet): 37.92	Other remarks:
Water Column (feet): 7.48	
Casing Volume (gallons): 1.21	
Calculated Purge Volume (gallons): 3.6	
Actual Purge Volume (gallons):	

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
0656	0							Purge Start
0701	1/2	12.80	5.47	0.722	9.76	-5	12	clear/no odor
0706	1	12.82	4.88	0.736	11.11	26	-9	
0710	1 1/2	12.82	4.70	0.738	11.41	33	-9	
0713	2	12.82	4.78	0.737	11.32	34	-9	
0714	3	12.80	4.77	0.737	11.68	36	-9	
0716	3 1/2	12.79	4.73	0.737	8.84	35	-6	

Purging Equipment: Port. (Ded. Bladder Pump) Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-3	Location Arlington	Date 2-12-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 0830	Instrument Calibration Date 2-12-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 30° clear cold

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 44.15
Depth to Water (feet): 33.25
Water Column (feet): 10.90
Casing Volume (gallons): 1.77
Calculated Purge Volume (gallons): 5.33
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
0745	0							Purge Start
0752	1/2	13.01	5.48	0.533	9.55	-20	-8	clear/slight odor
0755	1	13.16	5.48	0.555	5.38	-19	-7	
0758	1 1/2	13.09	5.41	0.580	5.05	-17	-7	
0802	2	13.11	5.39	0.597	9.91	-14	-6	
0805	2 1/2	13.13	5.40	0.637	4.69	-15	-4	
0808	3	13.15	5.42	0.665	5.97	-15	-3	
0812	3 1/2	13.21	5.40	0.678	4.96	-13	5	
0815	4	13.22	5.37	0.685	4.75	-12	-4	
0818	4 1/2	13.19	5.34	0.688	4.80	-9	-3	
0822	5	13.16	5.32	0.695	4.88	-8	-3	
0826	5 1/2	13.13	5.31	0.699	4.81	-6	-3	

Purging Equipment: Port. (Ded. Bladder Pump) Sampling Equipment (Horiba U22) Sample Intake Depth:____

Remarks:

Revised 02/06/03

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Groundwater Sampling Field Form

Well No. BXS-4 ⊗	Location **Arlington**	Date 2-10-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 1210	Instrument Calibration Date 2-10-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 30° foggy

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet):	47.40'
Depth to Water (feet):	9.73
Water Column (feet):	37.67
Casing Volume (gallons):	6.14
Calculated Purge Volume (gallons):	18.42
Actual Purge Volume (gallons):	

Sheen / LNAPL / DNAPL present:

Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
0942	0							Purge Start
0946	1/2	8.03	7.44	0.178	14.78	-112	17	Clear & Odor
0954	2	8.77	7.83	0.176	13.14	-128	13	
1002	3	8.79	7.64	0.176	14.80	-128	24	
1007	4	8.81	7.58	0.175	14.20	-132	18	
1026	6	9.00	7.60	0.176	12.32	-133	44	
1040	8	9.10	7.61	0.175	11.45	-131	48	
1059	10	9.48	7.44	0.174	10.78	-131	80	
1113	12	9.55	7.44	0.174	11.64	-130	110	
1133	14	9.68	7.39	0.175	10.87	-124	280	
1147	16	9.63	7.27	0.174	10.76	-128	330	
1204	18	9.66	7.46	0.174	10.14	-119	670	
1207	18 1/2	9.58	7.14	0.174	11.24	-110	700	

Purging Equipment: Port. / Ded. Bladder Pump Sampling Equipment: Horiba U22 Sample Intake Depth:____

Remarks: ⊗ BXS-6 Dup. 1207

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Groundwater Sampling Field Form

Well No. BX5-5	Location **Arlington**	Date 2-10-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 1330	Instrument Calibration Date Field Blank	

Well Condition Poor Satisfactory New (If poor, explain) _____

Field Conditions/Weather 48° Sunny

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter:
(Circle One)
2" 4"
6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): _____
Depth to Water (feet): _____
Water Column (feet): _____
Casing Volume (gallons): _____
Calculated Purge Volume (gallons): _____
Actual Purge Volume (gallons): _____

Sheen / LNAPL / DNAPL present: _____
Other remarks: _____

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
	0							Purge Start

Purging Equipment: **Port. / Ded. Bladder Pump** Sampling Equipment **Horiba U22** Sample Intake Depth: _____

Remarks: _____

Case	Well Number	Water Level	Bottom	Comments	Pump
2"	BXN-1	**50.19'**	58.18'		
2"	BXN-2	**46.56'**	57.24'		
2"	BXN-3	**47.69'**	58.66'		
2"	BXN-4	**45.29'**	51.74'		
	BXN-5		Dup BXN-1	Landfill Reqiuirements	
	BXN-6		Blank		
2"	BXS-1	**36.74'**	47.90'		X
2"	BXS-2	**36.49'**	45.40'	Pump raised out of ground 1 1/2'	X
2"	BXS-3	**31.64'**	44.15'		X
2"	BXS-4	**13.29'**	47.40'		
	BXS-5		Blank		
	BXS-6		Dup BXS-4	Landfill Requirements	
4"	MW-1	**25.25'**	41.02'		
4"	MW-2	**42.72'**	51.23'		X
4"	MW-3	**39.91'**	51.96'		X
2"	MW-4	**12.49'**	41.92'		
2"	HCMW-5	**26.00'**	35.43'		X
2"	HCMW-6	**40.16'**	51.10'		X
2"	HCMW-7	**42.53'**	55.08'		
	MW-A		Dup MW-15	Permit Requirements	
	MW-B		Blank		
2"	MW-10	**32.75'**	45.58'		
2"	MW-11	**22.25'**	38'		
4"	MW-12		39.85'	NAPL	
4"	MW-13		37.19'	NAPL	
2"	MW-14	**25.12'**	38'		
2"	MW-15	**38.00'**	50.30'		
2"	MW-16	**40.89'**	52.65'		
2"	MW-17	**39.53'**	55.00'		
2"	MW-18	**40.92'**	53.83'		

Depths Taken - 4-13-04

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Groundwater Sampling Field Form

Well No. BXS-1	Location Arlington	Date 4-22-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 11:10	Instrument Calibration Date 4-22-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 42° clear

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.90
Depth to Water (feet): 36.74
Water Column (feet): 11.18
Casing Volume (gallons): 1.81
Calculated Purge Volume (gallons): 5.45
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
8:55	0							Purge Start
9:22	1	13.46	5.86	0.372	4.07	203	16	Clear
9:43	2	13.58	5.82	0.346	3.55	208	16	
10:02	3	13.55	5.85	0.338	3.38	212	14	
10:28	4	13.72	5.83	0.341	2.74	213	16	
10:47	5	13.69	5.82	0.338	3.24	212	15	
11:00	5½	13.71	5.84	0.339	3.18	212	16	
			5.93	pH Meter				

Purging Equipment: Port. (Ded. Bladder Pump) Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks: Air bubbles in line.

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Groundwater Sampling Field Form

Well No. BXS-2	Location **Arlington**	Date 4-20-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 10:45	Instrument Calibration Date 4-20-04	

Well Condition Poor (Satisfactory) New (if poor, explain)

Field Conditions/Weather 45° Windy, clear

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 45.40
Depth to Water (feet): 36.40
Water Column (feet): 9.0
Casing Volume (gallons): 1.46
Calculated Purge Volume (gallons): 4.40
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
10:23	0							Purge Start
10:26	1	12.92	6.01	0.830	1.46	26	31	clear
10:29	2	12.90	6.04	0.840	1.31	46	39	
10:32	3	12.89	6.04	0.841	1.35	50	62	
10:36	4	12.89	6.07	0.841	1.02	48	41	
10:43	4½	12.89	6.07	0.838	1.28	51	29	
			6.02	pH meter				

Purging Equipment: Port. (Ded. Bladder Pump) Sampling Equipment: Horiba U22 Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-3	Location **Arlington**	Date 4-20-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 12:00	Instrument Calibration Date 4-20-04	

Well Condition Poor (Satisfactory) New (If poor, explain) _____

Field Conditions/Weather 45° Clear, Windy.

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 44.15
Depth to Water (feet): 31.64
Water Column (feet): 12.51
Casing Volume (gallons): 2.03
Calculated Purge Volume (gallons): 6.11
Actual Purge Volume (gallons): _____

Sheen / LNAPL / DNAPL present: _____
Other remarks: _____

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
11:12	0							Purge Start
11:14	1	13.56	5.87	0.728	0.70	-26	30	Clear
11:16	2	13.56	5.93	0.783	0.77	-30	18	
11:18	3	13.52	5.99	0.819	0.73	-28	21	
11:22	4	13.45	6.06	0.850	0.65	-31	27	
11:26	5	13.42	6.04	0.837	0.78	-32	30	
11:36	6	13.42	6.09	0.839	1.27	-29	32	
11:42	6.4	13.42	6.11	0.836	1.27	-28	32	
			6.06	pH Meter				

Purging Equipment: Port. / (Ded. Bladder Pump) Sampling Equipment Horiba U22 Sample Intake Depth: _____

Remarks: _____

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Groundwater Sampling Field Form

Well No. BXS-4	Location **Arlington**	Date 4-21-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 11:11	Instrument Calibration Date 4-21-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 47° clear

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.40
Depth to Water (feet): 13.29
Water Column (feet): 34.11
Casing Volume (gallons): 5.56
Calculated Purge Volume (gallons): 16.70
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
8:55	0							Purge Start
9:00	1	8.70	7.00	0.196	0.68	-113	37	clear
9:19	4	9.57	7.32	0.196	0.40	-154	28	odor
9:40	7	9.76	7.57	0.197	0.37	-150	27	
10:06	10	9.60	7.60	0.197	0.34	-164	27	
10:25	13	9.78	7.51	0.197	0.34	-162	27	
11:00	17	9.69	7.48	0.197	0.35	-174	24	
			7.50	pH Meter.				

Purging Equipment: Port. / Ded. (Bladder Pump) Sampling Equipment **Horiba U22** Sample Intake Depth:____

Remarks: Dup - BXS-16 10:00

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Groundwater Sampling Field Form

Well No. BX5-5	Location **Arlington**	Date 4-22-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 8:00 AM	Instrument Calibration Date	

Well Condition Poor Satisfactory New (If poor, explain) _____

Field Conditions/Weather _____

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter:
(Circle One)
2" 4"
6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): _____
Depth to Water (feet): _____
Water Column (feet): _____
Casing Volume (gallons): _____
Calculated Purge Volume (gallons): _____
Actual Purge Volume (gallons): _____

Sheen / LNAPL / DNAPL present: _____
Other remarks: _____

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
	0							Purge Start

Purging Equipment: **Port. / Ded. Bladder Pump** Sampling Equipment **Horiba U22** Sample Intake Depth: _____

Remarks: Field Blanks

Revised 02/06/03

Case	Well Number	Water Level	Bottom	Comments	Pump
2"	BXN-1	**50.61'**	58.18'		
2"	BXN-2	**46.92'**	57.24'		
2"	BXN-3	**48.18'**	58.66'		
2"	BXN-4	**45.75'**	51.74'		
	BXN-5		Dup BXN-1	Landfill Reqiuirements	
	BXN-6		Blank		
2"	BXS-1	**36.91'**	47.90'		X
2"	BXS-2	**37.69'**	45.40'	Pump raised out of ground 1 1/2'	X
2"	BXS-3	**33.71'**	44.15'		X
2"	BXS-4	**13.55'**	47.40'		
	BXS-5		Blank		
	BXS-6		Dup BXS-4	Landfill Requirements	
4"	MW-1	**27.44'**	41.02'		
4"	MW-2	**43.72'**	51.23'		X
4"	MW-3	**41.22'**	51.96'		X
2"	MW-4	**13.55'**	41.92'		
2"	HCMW-5	**28.26'**	35.43'		X
2"	HCMW-6	**41.62'**	51.10'		X
2"	HCMW-7	**43.41'**	55.08'		
	MW-A		Dup MW-15	Permit Requirements	
	MW-B		Blank		
2"	MW-10	**35.04'**	45.58'		
2"	MW-11	**23.37'**	38'		
4"	MW-12		39.85'	NAPL	
4"	MW-13		37.19'	NAPL	
2"	MW-14	**27.58'**	38'		
2"	MW-15	**39.04'**	50.30'		
2"	MW-16	**41.89'**	52.65'		
2"	MW-17	**40.49'**	55.00'		
2"	MW-18	**41.74'**	53.83'		

Depths Taken 7 - 7- 04

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Groundwater Sampling Field Form

Well No. BXS-1	Location **Arlington**	Date 7-13-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 10:15	Instrument Calibration Date 7-13-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather Overcast 65°

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet):	47.90	Sheen / LNAPL / DNAPL present:	
Depth to Water (feet):	36.91	Other remarks:	
Water Column (feet):	10.99	To Top of Pump	
Casing Volume (gallons):	1.79		
Calculated Purge Volume (gallons):	5.37	Methane 0.0% 7-7-04	
Actual Purge Volume (gallons):			

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
8:26	0							Purge Start
8:48	1	13.64	5.80	0.461	2.83	194	10.3	Clear
9:07	2	13.30	5.93	0.440	2.77	189	10.3	
9:20	3	13.50	5.92	0.429	2.82	187	10.7	
9:38	4	13.33	5.93	0.458	2.69	188	10.7	
10:13	5 1/2	13.66	5.92	0.417	2.73	182	10.8	

Purging Equipment: Port. / Ded. Bladder Pump Sampling Equipment **Horiba U22** Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-2	Location Arlington	Date 7-12-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 11:40	Instrument Calibration Date 7-12-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 75° Pt. Cloudy

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 45.40	Sheen / LNAPL / DNAPL present:
Depth to Water (feet): 37.69	Other remarks:
Water Column (feet): 7.71	
Casing Volume (gallons): 1.25	Methane 0.0% 7-7-04
Calculated Purge Volume (gallons): 3.77	
Actual Purge Volume (gallons):	

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
11:03	0							Purge Start
11:11	1	13.40	5.92	.868	1.44	52	5.8	clear
11:20	2	13.43	5.92	.862	1.31	46	8.1	
11:30	3	13.48	5.98	.861	1.20	42	6.3	
11:40	4	13.51	5.96	.874	1.52	30	5.3	

Purging Equipment: Port. (Ded.) Bladder Pump Sampling Equipment (Horiba U22) Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-3	Location Arlington	Date 7-12-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 13:15	Instrument Calibration Date 7-12-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 80° Pt. cloudy with Sun

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 44.15	Sheen / LNAPL / DNAPL present:
Depth to Water (feet): 33.71	Other remarks:
Water Column (feet): 10.41	Methane 0.0% 7-7-04
Casing Volume (gallons): 1.70	
Calculated Purge Volume (gallons): 5.10	
Actual Purge Volume (gallons):	

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
12:20	0							Purge Start
12:29	1	13.85	5.88	.898	0.49	316	6.0	Clear
12:38	2	13.81	6.00	.901	0.53	24	6.14	partly
12:46	3	13.79	6.00	.921	0.46	16	7.1	Sandy.
12:56	4	13.73	5.97	.927	0.44	10	7.7	
13:15	5.1	13.76	6.02	.926	0.46	6	7.0	

Purging Equipment: Port. / Ded. Bladder Pump Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-4 ⊗	Location **Arlington**	Date 7-12-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 10:15	Instrument Calibration Date 7-12-04	
Well Condition Poor (Satisfactory) New (If poor, explain)		
Field Conditions/Weather 75° clear		
Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**		

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.40
Depth to Water (feet): 15.27
Water Column (feet): 32.18
Casing Volume (gallons): 5.24
Calculated Purge Volume (gallons): 15.73
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks: Methane 0.0% @ 7-7-04

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
8:28	0							Purge Start
8:35	1	10.23	6.20	0.222	0.52	45	9.7	Slight
8:51	4	10.86	6.74	.218	0.41	4	8.9	odor
9:11	7	10.17	6.91	.217	0.40	-52	8.1	Clear
9:34	10	10.17	7.15	.216	0.42	-65	8.6	
9:52	13	10.22	7.30	.216	0.40	-93	8.8	
10:15	16	10.27	7.38	.216	0.41	-92	8.7	

Purging Equipment: Port. / Ded. / Bladder Pump Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks: ⊗ Dup BXS-6 10:30

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Groundwater Sampling Field Form

Well No. BXS-5	Location **Arlington**	Date 7-13-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 11:30	Instrument Calibration Date	

Well Condition Poor Satisfactory New (If poor, explain) _____

Field Conditions/Weather _____

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter:
(Circle One)
2" 4"
6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): _____
Depth to Water (feet): _____
Water Column (feet): _____
Casing Volume (gallons): _____
Calculated Purge Volume (gallons): _____
Actual Purge Volume (gallons): _____

Sheen / LNAPL / DNAPL present: _____
Other remarks: Field Blank

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
	0							Purge Start

Purging Equipment: **Port. / Ded. Bladder Pump** Sampling Equipment **Horiba U22** Sample Intake Depth: _____

Remarks: _____

Revised 02/06/03

Case	Well Number	Water Level	Bottom	Comments	Pump
2"	BXN-1	51.31	58.18'		
2"	BXN-2	47.68	57.24'		
2"	BXN-3	49.18	58.66'		
2"	BXN-4	46.82	51.74'		
	BXN-5		Dup BXN-1	Landfill Reqiuirements	
	BXN-6		Blank		
2"	BXS-1	* 36.65	47.90'	*Top of Pump	X
2"	BXS-2	* 38.76	45.40'	*Top of Pump Pump raised out of ground 1 1/2'	X
2"	BXS-3	35.83	44.15'		X
2"	BXS-4	14.98	47.40'		
	BXS-5		Blank		
	BXS-6		Dup BXS-4	Landfill Requirements	
4"	MW-1	26.41	41.02'		
4"	MW-2	45.34	51.23'		X
4"	MW-3	42.85	51.96'		X
2"	MW-4	13.56	41.92'		
2"	HCMW-5	28.75	35.43'		X
2"	HCMW-6	43.43	51.10'		X
2"	HCMW-7	44.87	55.08'		
	MW-A		Dup MW-15	Permit Requirements	
	MW-B		Blank		
2"	MW-10	36.86	45.58'		
2"	MW-11	22.75	38'		
4"	MW-12		39.85'	NAPL	
4"	MW-13		37.19'	NAPL	
2"	MW-14	30.60	38'		
2"	MW-15	40.62	50.30'		
2"	MW-16	43.40	52.65'		
2"	MW-17	42.00	55.00'		
2"	MW-18	43.18	53.83'		

Depths Taken 10-5-04

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Groundwater Sampling Field Form

Well No. BXS-1	Location Arlington	Date 10-12-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 10:15	Instrument Calibration Date 10-12-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 61° cloudy.

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.90
Depth to Water (feet): 36.65
Water Column (feet): 11.25
Casing Volume (gallons): 1.83
Calculated Purge Volume (gallons): 5.50
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
9:33	0							Purge Start
9:41	1	12.76	6.27	0.552	9.63	141	54.4	Clear
9:45	2	12.73	6.16	0.509	8.45	145	109.0	
9:50	3	12.69	6.00	0.496	4.71	145	11.1	
10:00	4	13.68	5.99	0.482	3.32	148	11.2	
10:04	5	13:66	5.98	0.479	3.75	148	12.4	
10:10	5.50	13:14	6.01	0.478	3.36	148	13.8	

Purging Equipment: Port. (Ded.) Bladder Pump Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BX5-2	Location **Arlington**	Date 10-11-04
Sample No.	Field Personnel/Company **Jim Clawson / Mary Larson J.H. Baxter**	
Sample Time (2400 hours) 14:00	Instrument Calibration Date 10-11-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 65° clear

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 45.40
Depth to Water (feet): 39.76
Water Column (feet): 6.64
Casing Volume (gallons): 1.08
Calculated Purge Volume (gallons): 3.25
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
12:55	0							Purge Start
13:14	1	14.83	6.10	0.837	3.63	-7	14.3	
13:33	2	14.42	6.23	0.832	8.29	6	210.0	
13:50	3	14.48	6.11	0.834	10.99	11	999.0	
13:56	3.25	14.48	6.11	0.830	10.92	11	727.0	

Purging Equipment: Port. (Ded.) **Bladder Pump** Sampling Equipment **Horiba U22** Sample Intake Depth:

Remarks:

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Groundwater Sampling Field Form

Well No. RXS-3	Location Arlington	Date 10-11-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 1205	Instrument Calibration Date 10-11-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 64° cloudy

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 44.16
Depth to Water (feet): 35.83
Water Column (feet): 8.33
Casing Volume (gallons): 1.316
Calculated Purge Volume (gallons): 4.07
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
1133	0							Purge Start
1138	1	13.68	6.30	.948	6.65	-47	93.4	CLEAR
1141	2	13.63	6.18	.914	4.23	-48	0.1	
1147	3	13.72	6.14	.950	3.44	-42	996.0	
1159	4	13.82	6.16	.949	3.06	-39	997.0	

Purging Equipment: Port. / Ded. Bladder Pump Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks:

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Groundwater Sampling Field Form

Well No. BXS-4	Location Arlington	Date 10-11-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 10:30	Instrument Calibration Date 10-11-04	

Well Condition Poor (Satisfactory) New (If poor, explain)

Field Conditions/Weather 60° cloudy

Equipment Decontamination Liquinox, Hexane, Methanol, and D.I. Water Rinse.

Casing Diameter: (Circle One) (2") 4" 6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): 47.40
Depth to Water (feet): 14.98
Water Column (feet): 32.42
Casing Volume (gallons): 5.28
Calculated Purge Volume (gallons): 15.85
Actual Purge Volume (gallons):

Sheen / LNAPL / DNAPL present:
Other remarks:

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
8:40	0							Purge Start
8:46	1	11.40	7.25	0.265	2.94	-141	37.8	Clear with odor
9:02	4	10.84	7.20	0.204	4.83	-185	20.9	
9:21	7	10.82	7.28	0.204	4.85	-196	12.2	
9:43	10	10.81	7.32	0.204	5.10	-197	5.5	
10:04	13	10.81	7.34	0.203	4.69	-198	13.2	
10:27	16	10.81	7.54	0.203	4.57	-198	3.5	

Purging Equipment: (Port.) / Ded. Bladder Pump Sampling Equipment Horiba U22 Sample Intake Depth:____

Remarks: Dup. BXS-1e 11:00

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Groundwater Sampling Field Form

Well No. BXS-5	Location Arlington	Date 10-12-04
Sample No.	Field Personnel/Company Jim Clawson / Mary Larson J.H. Baxter	
Sample Time (2400 hours) 11:00	Instrument Calibration Date	

Well Condition Poor Satisfactory New (If poor, explain) _____

Field Conditions/Weather _____

Equipment Decontamination **Liquinox, Hexane, Methanol, and D.I. Water Rinse.**

Casing Diameter:
(Circle One)
2" 4"
6" Other____

Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47
Multiply Water Column Height by appropriate number above to get proper purge volume.

Depth of Well (feet): _____
Depth to Water (feet): _____
Water Column (feet): _____
Casing Volume (gallons): _____
Calculated Purge Volume (gallons): _____
Actual Purge Volume (gallons): _____

Sheen / LNAPL / DNAPL present: _____
Other remarks: _____

Field Blanks

Time 2400 hrs	Cumulative Volume (gal)	TEMP (°C)	pH	Conductivity ms/cm 25°C	Dissolved Oxygen (mg/L)	EH MV	Turbidity (NTU)	Odor/Color/ Remarks
	0							Purge Start

Purging Equipment: **Port. / Ded. Bladder Pump** Sampling Equipment **Horiba U22** Sample Intake Depth: _____

Remarks: _____

Revised 02/06/03

Appendix B

Chain of Custody Records
and Laboratory Reports

Columbia Analytical Services INC.
An Employee - Owned Company

K:tsc.l: Rec'd 3.4.04

CHAIN OF CUSTODY

SR#: K2400474

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 2 COC #

PROJECT NAME: JH Baxter & co - Arlington
PROJECT NUMBER: Landfill wells - BXS
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 10520 188th St NE, PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS: mlarson@jhbaxter.com
PHONE #: 360 435-2146 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: [signature]

Analysis columns: NUMBER OF CONTAINERS; Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐; Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐; Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐; Fuel Fingerprint (FIQ) ☐ NW-HCID Screen ☐; Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐; PCB's Aroclors☐ Congeners☐; Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐; Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐; PAHS 8310☐ SIM☐; Metals Total or Dissolved (See list below); Cyanide☐ Hex-Chrom☐; pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle); NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3; TOX 9020☐ AOX 1650☐ 506☐; Tannin/Lignin; Total Coliforms; REMARKS

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Metals (Dissolved)	pH, Cond, Cl, SO4 ... (NO3, TDS)	NH3-N, COD ... (TOC)	Tannin/Lignin	Total Coliforms	REMARKS
BXS 4	2-10-04	12:10		Water	4	X	X	X	X	X	
BXS 5	2-10-04	13:30		|	4	X	X	X	X	X	
BXS 6	2-10-04	12:07		|	4	X	X	X	X	X	

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals): Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RoeAnn Thomas, Marylee Larson

Not Validated

E 2/12/04

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 2-10-04 14:00	Signature: [signature] Date/Time: 2/11/04	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS 1330	Printed Name Firm	Printed Name Firm

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

March 1, 2004

Service Request No: K2400974

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on February 11, 2004. For your reference, these analyses have been assigned our service request number K2400974.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2400974
Project:	Arlington Landfill Wells	**Date Received:**	2/11/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 2/11/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by EMW **Date** 3/2/04

Columbia Analytical Services INC.
An Employee - Owned Company

CHAIN OF CUSTODY

SR#: K2400974

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 2 COC #

PROJECT NAME: JH Baxter & Co - Arlington
PROJECT NUMBER: Landfill wells - BXS
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 16520 188th St N.E. PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS: mlarson@jhbaxter.com
PHONE #: 360 435-2146 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: [signature]

Analysis columns: NUMBER OF CONTAINERS; Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐; Volatile Organics 624☐ 8260☐; Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ 8021☐ BTEX☐; Fuel Fingerprint (FIQ) ☐; NW-HCID Screen ☐; Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐; PCB's Aroclors☐ Congeners☐; Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐; Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐; PAHS 8310☐ SIM☐; Metals, Total or (Dissolved) (See list below); Cyanide☐ Hex-Chrom☐; pH, Cond, (Cl, SO4), PO4, F, (NO2), (NO3), BOD, TSS, (TDS) (circle); NH3-N, (COD), Total-P, TKN, (TOC); DOC (circle) NO2+NO3; TOX 9020☐ AOX 1650☐ 506☐; Tannin/Lignin; Total Coliforms; REMARKS

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Metals (Dissolved)	pH, Cond, Cl, SO4...	NH3-N, COD, TOC	Tannin/Lignin	Total Coliforms	REMARKS
BXS 4	2-10-04	12:10		Water	4	X	X	X	X	X	
BXS 5	2-10-04	13:30		|	4	X	X	X	X	X	
BXS 6	2-10-04	12:07		|	4	X	X	X	X	X	

82

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # ______
Bill To: JH Baxter PO Box 10797 Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

______ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals): Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: ______ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RueAnn Thomas
Marylee Larson

E[illegible] 2/12/04

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 2-10-04 14:00	Signature: [signature] Date/Time: 2/11/04 1300	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name Firm	Printed Name Firm

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client: BAXTER Work Order K240: 974

Cooler received on 2/11/04 and opened on 2/11/04 by [illegible]

1. Were custody seals on outside of coolers? GM Y (N)
   If yes, how many and where? —
2. Were seals intact and signature & date correct? ~~Y N~~
3. Is the shipper's airbill available and filed? If no, record airbill number: N/P ~~Y N~~
4. COC#
   Temperature of cooler(s) upon receipt: 3.2
   Temperature Blank: 4.8
5. Were custody papers properly filled out (ink, signed, etc.)? (Y) N
6. Type of packing material present: MBM
7. Did all bottles arrive in good condition (unbroken)? (Y) N
8. Were all bottle labels complete (i.e analysis, preservation, etc.)? (Y) N
9. Did all bottle labels and tags agree with custody papers? (Y) N
10. Were the correct types of bottles used for the tests indicated? (Y) N
11. Were all of the preserved bottles received at the lab with the appropriate pH? (Y) N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~Y N~~
13. Did the bottles originate from CAS/K or a branch laboratory? (Y) N
14. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? Y (N)
15. Was C12/Res negative? ~~Y N~~

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2400974
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/10/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/11/04
Sample Matrix :	WATER		

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	5	3	1	02/14/04	ND	
BXS 5	K2400974-002	5	3	1	02/14/04	5	
BXS 6	K2400974-003	5	3	1	02/14/04	ND	
Method Blank	K2400974-MB	5	3	1	02/14/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS-Landfill
Sample Matrix :	WATER

Service Request :	K2400974
Date Collected :	02/10/04
Date Received :	02/11/04

Total Coliform

Analysis Method : SM 9223 B
Test Notes :

Units : MPN/100ml
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	1	1	1	02/11/04	1	
BXS 5	K2400974-002	1	1	1	02/11/04	ND	
BXS 6	K2400974-003	1	1	1	02/11/04	ND	

Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2400974
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/10/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/11/04
Sample Matrix :	WATER		

Tannin and Lignin

Analysis Method : SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.2	0.07	1	02/19/04	0.4	
BXS 5	K2400974-002	0.2	0.07	1	02/19/04	0.08	J
BXS 6	K2400974-003	0.2	0.07	1	02/19/04	0.5	
Method Blank	K2400974-MB	0.2	0.07	1	02/19/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Carbon, Total Organic

Analysis Method : 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.5	0.07	1	02/13/04	1.0	
BXS 5	K2400974-002	0.5	0.07	1	02/13/04	1.0	
BXS 6	K2400974-003	0.5	0.07	1	02/13/04	0.9	
Method Blank	K2400974-MB	0.5	0.07	1	02/13/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Ammonia as Nitrogen

Analysis Method : 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.05	0.02	1	02/13/04	0.51	
BXS 5	K2400974-002	0.05	0.02	1	02/13/04	ND	
BXS 6	K2400974-003	0.05	0.02	1	02/13/04	0.51	
Method Blank	K2400974-MB	0.05	0.02	1	02/13/04	0.02	J

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

pH

Analysis Method : 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	-	-	1	02/11/04	8.00	
BXS 5	K2400974-002	-	-	1	02/11/04	5.76	
BXS 6	K2400974-003	-	-	1	02/11/04	8.00	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Conductivity

Analysis Method : 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	2	0.2	1	02/12/04	182	
BXS 5	K2400974-002	2	0.2	1	02/12/04	0.6	J
BXS 6	K2400974-003	2	0.2	1	02/12/04	179	
Method Blank	K2400974-MB	2	0.2	1	02/12/04	ND	

:port By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company		
Project Name :	Arlington Landfill Wells	Service Request :	K2400974
Project Number :	BXS-WELLS-Landfill	Date Collected :	02/10/04
Sample Matrix :	Water	Date Received :	02/11/04

Solids, Total Dissolved (TDS)

Analysis Method : 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	5	5	1	02/12/04	123	
BXS 5	K2400974-002	5	5	1	02/12/04	ND	
BXS 6	K2400974-003	5	5	1	02/12/04	113	
Method Blank	K2400974-MB	5	5	1	02/12/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.2	0.04	1	02/11/04	1.9	
BXS 5	K2400974-002	0.2	0.04	1	02/11/04	ND	
BXS 6	K2400974-003	0.2	0.04	1	02/11/04	1.9	
Method Blank	K2400974-MB	0.2	0.04	1	02/11/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS-Landfill
Sample Matrix :	WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Sulfate

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.2	0.04	1	02/11/04	1.3	
BXS 5	K2400974-002	0.2	0.04	1	02/11/04	ND	
BXS 6	K2400974-003	0.2	0.04	1	02/11/04	1.3	
Method Blank	K2400974-MB	0.2	0.04	1	02/11/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2400974
Date Collected : 02/10/04
Date Received : 02/11/04

Nitrate+Nitrite as Nitrogen

Analysis Method : 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.2	0.02	1	02/19/04	0.06	J
BXS 5	K2400974-002	0.2	0.02	1	02/19/04	ND	
BXS 6	K2400974-003	0.2	0.02	1	02/19/04	0.06	J
Method Blank	K2400974-MB	0.2	0.02	1	02/19/04	0.06	J

Report By:PWiest

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

March 4, 2004

Service Request No: K2400974

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells BXS-WELLS-Landfill

Dear Mary:

Enclosed are the revised pages for the sample(s) submitted to our laboratory on February 11, 2004. For your reference, these analyses have been assigned our service request number K2400974.

The report units have been changed to be consistent with the QAPP.

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/cb

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2400974
Date Collected: 02/10/04
Date Received: 02/11/04
Units: µG/L
Basis: NA

Sample Name: BXS 4

Lab Code: K2400974-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	1.0	U	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	4.0	U	
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	0.6	U	
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	U	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	U	

% Solids: 0.0

Comments:

00057

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2400974
Date Collected: 02/10/04
Date Received: 02/11/04
Units: µG/L
Basis: NA

Sample Name: BXS 5

Lab Code: K2400974-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	4.9	B	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	29.1		
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	48.1		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	115		
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	U	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	U	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2400974
Date Collected: 02/10/04
Date Received: 02/11/04
Units: µG/L
Basis: NA

Sample Name: BXS 6

Lab Code: K2400974-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	5.0	B	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	28.3		
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	41.4		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	113		
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	U	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	U	

Solids: 0.0

mments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2400974
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2400974-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	1.0	U	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	4.0	U	
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	0.6	U	
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	U	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	U	

...ids: 0.0

...ents:

Columbia Analytical Services INC.
An Employee - Owned Company

EDD here

CHAIN OF CUSTODY

Recd 3.8.04

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: K2401057

PAGE 1 OF 3 COC #

PROJECT NAME: JH Baxter & Co

PROJECT NUMBER: Landfill Wells

PROJECT MANAGER: Marylee Larson

COMPANY/ADDRESS: 16520 185th St NE, PO Box 305

CITY/STATE/ZIP: Arlington, WA 98223

E-MAIL ADDRESS:

PHONE #: 360-435-2146

FAX#: 360-435-3035

SAMPLER'S SIGNATURE: Marylee Larson

Analysis columns: NUMBER OF CONTAINERS; Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐; Volatile Organics 624 ☐ 8260 ☐; Hydrocarbons (*see below) Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ Oil ☐; ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen; Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐; PCB's Aroclors ☐ Congeners ☐; Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐; Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐; PAHS 8310 ☐ SIM ☐; Metals Total or Dissolved (See list below); Cyanide ☐ Hex-Chrom ☐; pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle); NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3; TOX 9020 ☐ AOX 1650 ☐ 506 ☐; Tannin/Lignin; Total coliforms; REMARKS

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Metals (Dissolved)	pH, Cond, Cl, SO4...	NH3-N, COD... TOC	Tannin/Lignin	Total coliforms	REMARKS
BXS-2	2-12-04	7:20		Water	4	X	X	X	X	X	
BXS-3	2-12-04	8:30		Water	4	X	X	X	X	X	

00008

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter & Co, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not Validated

Attn: RoeAnn Thomas
Marylee Larson

Samples in 3 coolers

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Marylee Larson	Signature: [illegible]	Signature	Signature
Date/Time: 2-12-04 13:00	Date/Time: 2/13/04 1000	Date/Time	Date/Time
Printed Name: Marylee Larson	Printed Name: [illegible]	Printed Name	Printed Name
Firm: JH Baxter	Firm: CAS	Firm	Firm

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

March 3, 2004

Service Request No: K2401057

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on February 13, 2004. For your reference, these analyses have been assigned our service request number K2401057.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/jeb

cc: Kathy Gunderson, Premier Corp.

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company		
Project:	Arlington Landfill Wells	**Service Request No.:**	K2401057
Sample Matrix:	Water	**Date Received:**	2/13/04

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Five water samples were received for analysis at Columbia Analytical Services on 2/13/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

The samples for Total Coliform were analyzed 3 hours past the 30 hour holding time due to a delay in starting the analysis in the laboratory.

No other anomalies associated with the analysis of these samples were observed.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by EMW Date 3/4/04

Employee-Owned Company

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CHAIN OF CUSTODY

SR#: K2401057

PAGE 1 OF 3 COC #

PROJECT NAME: JH Baxter Co

PROJECT NUMBER: Landfill Wells

PROJECT MANAGER: Marylee Larson

COMPANY/ADDRESS: 6520 188th St NE, PO Box 305

CITY/STATE/ZIP: Arlington, WA 98223

E-MAIL ADDRESS:

PHONE #: 360 435-2146

FAX#: 360 435-3035

SAMPLER'S SIGNATURE: [signature]

00008

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen ☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin	Total coliforms			REMARKS
BXS-2	2-12-04	7:20		Water	4										X		X	X		X	X			
BXS-3	2-12-04	8:30		Water	4										X		X	X		X	X			

(Circled on form: Metals, Dissolved, Cl, SO4, NO2, NO3, TDS, NH3-N, COD, TOC)

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

__ II. Report Dup., MS, MSD as required

__ III. Data Validation Report (includes all raw data)

__ IV. CLP Deliverable Report

__ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter Co, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

__ 24 hr. __ 48 hr.

__ 5 Day

X Standard (10-15 working days)

__ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RoeAnn Thomas
Marylee Larson

Samples in 3 coolers

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 2-12-04 13:00	Signature: [signature] Date/Time: 2/13/04 1000	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name Firm	Printed Name Firm

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client BARGE Work Order K240 1057

Cooler received on 2/13/07 and opened on 2/13/07 by JO

1. Were custody seals on outside of coolers? Y N
   If yes, how many and where? 3F 6H
2. Were seals intact and signature & date correct? Y N
3. Is the shipper's airbill available and filed? If no, record airbill number: Y N
4. COC# Y N

Temperature of cooler(s) upon receipt:	4.5	1.9	2.0	
Temperature Blank:	2.1	2.4	2.6	

5. Were custody papers properly filled out (ink, signed, etc.)? Y N
6. Type of packing material present MESH, STYRO Y N
7. Did all bottles arrive in good condition (unbroken)? Y N
8. Were all bottle labels complete (i.e analysis, preservation, etc.)? Y N
9. Did all bottle labels and tags agree with custody papers? Y N
10. Were the correct types of bottles used for the tests indicated? Y N
11. Were all of the preserved bottles received at the lab with the appropriate pH? Y N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? Y N
13. Did the bottles originate from CAS/K or a branch laboratory? Y N
14. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? Y N
15. Was C12/Res negative? Y N

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

00008A

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Total Coliform

Analysis Method : SM 9221 B
Test Notes :

Units : MPN/100ml
Basis : NA

Sample Name	Lab Code	MRL	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	2	02/13/04	ND	X
BXS-3	K2401057-002	2	02/13/04	ND	X

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401057
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/12/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/13/04
Sample Matrix :	WATER		

pH

Analysis Method : 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	-	-	1	02/13/04	6.39	
BXS-3	K2401057-002	-	-	1	02/13/04	6.37	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Conductivity

Analysis Method : 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	2	0.2	1	02/19/04	736	
BXS-3	K2401057-002	2	0.2	1	02/19/04	692	
Method Blank	K2401057-MB	2	0.2	1	02/19/04	0.4	J

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	5	3	1	02/20/04	35	
BXS-3	K2401057-002	5	3	1	02/20/04	49	
Method Blank	K2401057-MB	5	3	1	02/20/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : Water

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Solids, Total Dissolved (TDS)

Analysis Method : 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	5	5	1	02/19/04	428	
BXS-3	K2401057-002	5	5	1	02/19/04	404	
Method Blank	K2401057-MB	5	5	1	02/19/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Tannin and Lignin

Analysis Method : SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.2	0.07	1	02/21/04	1.9	
BXS-3	K2401057-002	0.4	0.2	2	02/21/04	10.0	
Method Blank	K2401057-MB	0.2	0.07	1	02/21/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

00024

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Sulfate

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.2	0.04	1	02/17/04	0.14	J
BXS-3	K2401057-002	0.2	0.04	1	02/17/04	0.15	J
Method Blank	K2401057-MB	0.2	0.04	1	02/17/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.4	0.08	2	02/17/04	4.6	
BXS-3	K2401057-002	0.2	0.04	1	02/17/04	2.7	
Method Blank	K2401057-MB	0.2	0.04	1	02/17/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Carbon, Total Organic

Analysis Method : 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.5	0.07	1	02/21/04	14.0	
BXS-3	K2401057-002	0.5	0.07	1	02/21/04	19.7	
Method Blank	K2401057-MB	0.5	0.07	1	02/21/04	0.09	J

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Nitrate+Nitrite as Nitrogen

Analysis Method : 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.2	0.02	1	02/19/04	0.10	J
BXS-3	K2401057-002	0.2	0.02	1	02/19/04	0.08	J
Method Blank	K2401057-MB	0.2	0.02	1	02/19/04	0.06	J

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401057
Date Collected : 02/12/04
Date Received : 02/13/04

Ammonia as Nitrogen

Analysis Method : 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	0.05	0.02	1	02/18/04	0.04	J
BXS-3	K2401057-002	0.05	0.02	1	02/18/04	0.12	
Method Blank	K2401057-MB	0.05	0.02	1	02/18/04	0.04	J

...port By:PWiest

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2401057
Date Collected: 02/12/04
Date Received: 02/13/04
Units: µG/L
Basis: NA

Sample Name: BXS-2

Lab Code: K2401057-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	1.0	U	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	45.0		
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	753		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	1410		
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	36.2		
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	6.1	B	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2401057
Date Collected: 02/12/04
Date Received: 02/13/04
Units: µG/L
Basis: NA

Sample Name: BXS-3

Lab Code: K2401057-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	3.0	B	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	65.3		
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	2950		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	15700		
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	49.0		
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	10.6		

% Solids: 0.0

Comments:

00057

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2401057
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2401057-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	1.0	U	
Barium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1	2/19/04	2/23/04	8.0	U	
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	4.0	U	
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	0.6	U	
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	U	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	U	

% Solids: 0.0

Comments:

Columbia Analytical Services INC.
An Employee - Owned Company

EDD here

CHAIN OF CUSTODY

Rec'd 3-12-04

SR#: K2401218

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 3 COC #

PROJECT NAME: JH Baxter & Co
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Mary Lee Larson
COMPANY/ADDRESS: 6520 188th St NE, PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2146
FAX#: 360 435-3035
SAMPLER'S SIGNATURE: [signature]

Analysis columns: NUMBER OF CONTAINERS; Semivolatile Organics by GC/MS 625 8270 8270LL; Volatile Organics 624 8260 8021 BTEX; Hydrocarbons (*see below) Gas Diesel Oil; Fuel Fingerprint (FIQ) NW-HCID Screen; Oil & Grease/TRPH 1664 HEM 1664 SGT; PCB's Aroclors Congeners; Pesticides/Herbicides 608 8081A 8141A 8151A; Chlorophenolics - 8151M Tri Tetra PCP; PAHS 8310 SIM; Metals, Total or Dissolved (See list below); Cyanide Hex-Chrom; pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle); NH3-N, COD, Total-P, TKN, TOC; DOC (circle) NO2+NO3; TOX 9020 AOX 1650 506; Tannin/Lignin; Total Coliforms; REMARKS

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Metals (Dissolved)	pH, Cond, Cl, SO4...	NH3-N, COD, TOC...	Tannin/Lignin	Total Coliforms	REMARKS
BxS-1	2-18-04	8:40	1	Water	4	X	X	X	X	X	

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
__ II. Report Dup., MS, MSD as required
__ III. Data Validation Report (includes all raw data)
__ IV. CLP Deliverable Report
__ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter & Co, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

__ 24 hr. __ 48 hr.
__ 5 Day
X Standard (10-15 working days)
__ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals (circled): Al **As** Sb **Ba** Be B Ca **Cd** Co Cr **Cu** **Fe** Pb Mg **Mn** Mo **Ni** K Ag Na Se Sr Tl Sn V **Zn** Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not Validated

Attn: RueAnn Thomas
Mary Lee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 2-18-04 14:00	Signature: [signature] Date/Time: 2/19/04 1600	Signature Date/Time	Signature Date/Time
Printed Name: Mary Lee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name Firm	Printed Name Firm

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Compa

March 10, 2004

Service Request No: K2401212

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / XS-WELLS

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on February 19, 2004. For your reference, these analyses have been assigned our service request number K2401212.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/JEB

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2401212
Project:	Arlington Landfill Wells	**Date Received:**	2/19/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 10/04/03. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Coliform, Total by SM 9223B

Sample BXS-1 was received past the recommended 30 hour holding time at 31 hours. The analysis was performed as soon as possible after receipt by the laboratory. The data is flagged to indicate the holding time violation.

No other anomalies associated with the analysis of these samples were observed.

Dissolved Metals

Method Blank Exceptions:
The Method Blank contained low levels of Zinc above the Method Reporting Limit (MRL). Since Zinc was not detected in the related samples no corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by EMW Date 3/10/04

Analytical Services INC.
An Employee - Owned Company

CHAIN OF CUSTODY

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SR#: K2401217

PAGE 1 OF 3 COC #

PROJECT NAME: JH Baxter & Co

PROJECT NUMBER: Landfill Wells

PROJECT MANAGER: Marylee Larson

COMPANY/ADDRESS: 6220 188th St NE, PO Box 305

CITY/STATE/ZIP: Arlington, WA 98223

E-MAIL ADDRESS:

PHONE #: 360 435-2146

FAX#: 360 435-3035

SAMPLER'S SIGNATURE: Mary Lee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals: Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin Lignin	Total Coliforms			REMARKS
BXS-1	2-18-04	8:40	1	Water	4										X		X	X		X	X			

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter & Co, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RueAnn Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Mary Lee Larson Date/Time: 2-18-04 14:00	Signature: [signature] Date/Time: 2/19/04 1600	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name Firm	Printed Name Firm

greyhound

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

SHORT HOLD TIME

Project/Client JH Baxter Work Order K2[illegible]

Cooler received on 2-19-04 and opened on 2-19-04 by [illegible]

1.	Were custody seals on outside of coolers?					(Y)	N
	If yes, how many and where? 1 Front						
2.	Were seals intact and signature & date correct?					(Y)	N
3.	Is the shipper's airbill available and filed? If no, record airbill number:					(Y)	N
4.	COC#					~~Y~~	~~N~~
	Temperature of cooler(s) upon receipt:	2.6					
	Temperature Blank:	2.1					
5.	Were custody papers properly filled out (ink, signed, etc.)?					(Y)	N
6.	Type of packing material present ICE, mesh sleeves					(Y)	N
7.	Did all bottles arrive in good condition (unbroken)?					(Y)	N
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?					(Y)	N
9.	Did all bottle labels and tags agree with custody papers?					(Y)	N
10.	Were the correct types of bottles used for the tests indicated?					(Y)	N
11.	Were all of the preserved bottles received at the lab with the appropriate pH?					(Y)	N
12.	Were VOA vials checked for absence of air bubbles, and if present, noted below?					(Y)	N
13.	Did the bottles originate from CAS/K or a branch laboratory?					~~Y~~	~~N~~
14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?					(Y)	N
15.	Was C12/Res negative?					Y	(N)
						Y	N

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	5	1	02/24/04	5	
Method Blank	K2401212-MB	5	1	02/24/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : Water

Service Request : K2401212
Date Collected : 02/18/04
Date Received : 02/19/04

Solids, Total Dissolved (TDS)

Analysis Method : 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	5	1	02/25/04	202	
Method Blank	K2401212-MB	5	1	02/25/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

Conductivity

Analysis Method : 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	2	1	02/25/04	286	
Method Blank	K2401212-MB	2	1	02/25/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401212
Date Collected : 02/18/04
Date Received : 02/19/04

Carbon, Total Organic

Analysis Method : 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	0.5	1	02/27/04	3.7	
Method Blank	K2401212-MB	0.5	1	02/27/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	0.4	2	03/03/04	6.1	
Method Blank	K2401212-MB	0.2	1	03/03/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

Sulfate

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	0.4	2	03/03/04	12.1	
Method Blank	K2401212-MB	0.2	1	03/03/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401212
Date Collected : 02/18/04
Date Received : 02/19/04

Nitrate+Nitrite as Nitrogen

Analysis Method : 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	0.2	1	02/24/04	1.1	
Method Blank	K2401212-MB	0.2	1	02/24/04	ND	

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

Total Coliform

Analysis Method : SM 9223 B
Test Notes :

Units : MPN/100ml
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	1	1	02/19/04	25	X

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2401212
Date Collected : 02/18/04
Date Received : 02/19/04

Ammonia as Nitrogen

Analysis Method : 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	0.05	1	02/23/04	ND	
Method Blank	K2401212-MB	0.05	1	02/23/04	ND	

port By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2401212
Project Name :	Arlington Landfill Wells	**Date Collected :**	02/18/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	02/19/04
Sample Matrix :	WATER		

pH

Analysis Method : 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2401212-001	-	1	02/19/04	6.22	

Report By:PWiest

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2401212
Date Collected: 02/18/04
Date Received: 02/19/04
Units: MG/L
Basis: NA

Sample Name: BXS-1

Lab Code: K2401212-001 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	1	2/25/04	2/25/04	0.005	U	
Barium	6010B	0.01	1	2/25/04	2/26/04	0.01		
Cadmium	6010B	0.005	1	2/25/04	2/26/04	0.005	U	
Copper	6010B	0.01	1	2/25/04	2/26/04	0.01	U	
Iron	6010B	0.02	1	2/25/04	2/26/04	0.02	U	
Manganese	6010B	0.005	1	2/25/04	2/26/04	0.277		
Nickel	6010B	0.02	1	2/25/04	2/26/04	0.02	U	
Zinc	6010B	0.01	1	2/25/04	2/26/04	0.01	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2401212
Date Collected:
Date Received:
Units: MG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2401212-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	1	2/25/04	2/25/04	0.005	U	
Barium	6010B	0.01	1	2/25/04	2/26/04	0.01	U	
Cadmium	6010B	0.005	1	2/25/04	2/26/04	0.005	U	
Copper	6010B	0.01	1	2/25/04	2/26/04	0.01	U	
Iron	6010B	0.02	1	2/25/04	2/26/04	0.02	U	
Manganese	6010B	0.005	1	2/25/04	2/26/04	0.005	U	
Nickel	6010B	0.02	1	2/25/04	2/26/04	0.02	U	
Zinc	6010B	0.01	1	2/25/04	2/26/04	0.01		

% Solids: 0.0

Comments:

CHAIN OF CUSTODY

Columbia Analytical Services INC.
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SR#: K2401980 PAGE 1 OF 1 COC #

PROJECT NAME: JH Baxter & CO
PROJECT NUMBER: Land Fill Wells
PROJECT MANAGER: Maryleelarson
COMPANY/ADDRESS: 6620 188th St NE PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE#: 360 435-2140 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Maryleelarson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ Oil ☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle) NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	Total Coliforms	REMARKS
BxW-2	3-17-04	9:30	1	Water	1												X		
BxW-5	3-17-04	9:45	2		1												X		
BxS-1	3-17-04	10:20	3		1												X		
BxS-2	3-17-04	10:40	4		1												X		
BxS-3	3-17-04	10:50	5		1												X		

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter & Co
PO Box 10777
Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RoeAnn Thomas
Maryleelarson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Maryleelarson	Signature:	Signature:	Signature:
Date/Time: 3-17-04 12:00	Date/Time: 3/18/04 1445	Date/Time:	Date/Time:
Printed Name: Maryleelarson	Printed Name:	Printed Name:	Printed Name:
Firm:	Firm: CAS	Firm:	Firm:

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Columbia Analytical Services INC.
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April 1, 2004 Service Request No: K2401980

MaryLee Larsen
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells/BXN-WELLS-Landfill

Dear MaryLee:

Enclosed are the results of the sample(s) submitted to our laboratory on March 18, 2004. For your reference, these analyses have been assigned our service request number K2401980.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/cb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2401980
Project:	Arlington Plant Landfill Wells	**Date Received:**	3/18/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Five water samples were received for analysis at Columbia Analytical Services on 3/18/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Coliform, Total by SM 9223B:
Samples were received past the 8 hour holding time. The analysis was performed within 30 hours of collection, so the data is not flagged per client request.

No other anomalies associated with the analysis of these samples were observed.

Approved by Emw Date 4/1/04

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client PH Baxter Work Order K240 1980

Cooler received on 3/18/04 and opened on 3/18/04 by FA

1.	Were custody seals on outside of coolers?					(Y) N
	If yes, how many and where?	Front / Side				
2.	Were seals intact and signature & date correct?					Y N
3.	Is the shipper's airbill available and filed? If no, record airbill number:	Shepherd				(Y) N
4.	COC#					
	Temperature of cooler(s) upon receipt:	5.2	1.3			
	Temperature Blank:	4.7				
5.	Were custody papers properly filled out (ink, signed, etc.)?					(Y) N
6.	Type of packing material present					
7.	Did all bottles arrive in good condition (unbroken)?					(Y) N
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?					(Y) N
9.	Did all bottle labels and tags agree with custody papers?					(Y) N
10.	Were the correct types of bottles used for the tests indicated?					(Y) N
11.	Were all of the preserved bottles received at the lab with the appropriate pH?					~~Y~~ ~~N~~
12.	Were VOA vials checked for absence of air bubbles, and if present, noted below?					~~Y~~ ~~N~~
13.	Did the bottles originate from CAS/K or a branch laboratory?					(Y) N
14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?					Y (N)
15.	Was C12/Res negative?					Y ~~N~~

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: J.H. Baxter & Company
Project: Arlington Landfill Wells/BXN-WELLS-Landfill
Sample Matrix: Water

Service Request: K2401980
Date Collected: 3/17/04
Date Received: 3/18/04

Coliform, Total

Prep Method: NONE
Analysis Method: SM 9223B
Test Notes:

Units: MPN/100ml
Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Time Test Started		Result	Result Notes
BXN-2	K2401980-001	1	1	NA	3/18/04	1515	hrs	687	
BXN-5	K2401980-002	1	1	NA	3/18/04	1515	hrs	1200	
BXS-1	K2401980-003	1	1	NA	3/18/04	1515	hrs	ND	
BXS-2	K2401980-004	1	1	NA	3/18/04	1515	hrs	ND	
BXS-3	K2401980-005	1	1	NA	3/18/04	1515	hrs	ND	

SM *Standard Methods for the Examination of Water and Wastewater*, 18th Ed., 1992.

Approved By: _____ Date: 3/31/04

1A/052595

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Batch
KA0324660

Service Request #: 1980

Analysis: Total Coliform by Quanti-tray Colilert

Method: SM 9223B (18th Ed.)

Date	Time set-up	Date/Time Read	S.R. #	T.coli Positive Wells (Yellow) Large	Small	E.coli Positive Wells (Fluor.) Large	Small	T. Coli (MPN/100mls)	E. Coli (MPN/100mls)	Cl2 --- (MPN/100mls)
3/18/04	1515	3/19/04 1615	1980-1	49	32	0	0	687	<1	
			-2	49	41	0	0	1200	<1	
			-3	0	0	0	0	<1	<1	
			-4	0	0	0	0	<1	<1	
			-5	0	0	0	0	<1	<1	

Comments:

Analyst: [signature] Date: 3/18/04

Reviewed By: [signature] Date: 3/22/04

Analytical Services INC. EDD here

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SR#: K2402880

PAGE 1 OF 1 COC #

PROJECT NAME: JH Baxter c/o
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 6620 188th St NE
PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE: 360 435-2146 FAX: 360 435 3305
SAMPLER'S SIGNATURE: Marylee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS
BxW-3	4-20-04	9:10	1	Water	4
BxW-6	4-20-04	10:00	2		4
BxS-2	4-20-04	10:45	3		4
BxS-3	4-20-04	12:00	4		4

Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐
Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐
Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐
☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen
Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐
PCB's Aroclors ☐ Congeners ☐
Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐
Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐
PAHS 8310 ☐ SIM ☐
(Metals) Total or Dissolved (See list below)
Cyanide ☐ Hex-Chrom ☐
pH Cond Cl SO4 PO4 F (NO2) (circle)
(NO3 BOD, TSS, TDS) (circle)
NH3-N COD Total-P TKN (circle) NO2+NO3
TOC ☐ DOC (circle) TOX 9020 ☐ AOX 1650 ☐ 506 ☐
Turbidity
Total Coliforms
REMARKS

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter Co
PO Box 10777
Eugene OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS: Not validated

Attn: RoeAnn Thomas
Marylee Larson

RECEIVED 5-11-04

RELINQUISHED BY:
Signature: Marylee Larson Date/Time: 4-20-04 8:00
Printed Name: Marylee Larson Firm: Baxter

RECEIVED BY:
Signature: Tracy Black Date/Time: 4/21/04 1545
Printed Name: Black Firm: CH

RELINQUISHED BY:
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time:

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

May 7, 2004

Service Request No: K2402880

Mary Larsen
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells /BXN-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on April 21, 2004. For your reference, these analyses have been assigned our service request number K2402880.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/jeb

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

May 13, 2004

Service Request No: K2402880

Mary Larsen
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells /BXN-WELLS-Landfill

Dear Mary:

Enclosed are the revised pages for the sample(s) submitted to our laboratory on April 21, 2004. For your reference, these analyses have been assigned our service request number K2402880.

The sample name for K2402880-003 was corrected to BXS-2. Please replace the original pages with these corrected copies.

We apologize for any inconvenience this may have created.

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/cb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2402880
Project:	Landfill Wells	**Date Received:**	4/21/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 4/21/04. No discrepancies were noted upon initial sample inspection. All samples were received in good condition and consistent with the accompanying chain of custody forms. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Holding Time Exceptions:
All samples were received past the recommended holding time for Total Coliform by Standard Methods 9221B. The analysis was performed as soon as possible after receipt by the laboratory. The data is flagged to indicate the holding time violation.

No other anomalies associated with the analysis of these samples were observed.

Metals

No anomalies associated with the analysis of these samples were observed.

Approved by _____ Date 5/7/04

Columbia Analytical Services INC.
An Employee - Owned Company

CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: K2402880

PAGE 1 OF 1 COC #

PROJECT NAME: JH Baxter & Co.
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 16520 188th St NE
PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE: 360 435-2146 FAX: 360 435 3035
SAMPLER'S SIGNATURE: [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen ☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin	Total Coliforms			REMARKS
BXW-3	4-20-04	9:10	1	Water	4										X		X	X		X	X			
BXW-6	4-20-04	10:00	2	|	4										X		X	X		X	X			
BXS-2	4-20-04	10:45	3	|	4										X		X	X		X	X			
BXS-3	4-20-04	12:00	4	|	4										X		X	X		X	X			

Circled: Metals, Dissolved; Cl, SO4, NO3, TDS, NO2; COD, TOC; pH, Cond.

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
__ II. Report Dup., MS, MSD as required
__ III. Data Validation Report (includes all raw data)
__ IV. CLP Deliverable Report
__ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter Co
PO Box 10797
Eugene, OR 97440

TURNAROUND REQUIREMENTS

__ 24 hr. __ 48 hr.
__ 5 Day
X Standard (10-15 working days)
__ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RaeAnn Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 4-20-04 13:00	Signature: Tracy Black Date/Time: 4/21/04 1548	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: Black Firm: CAS	Printed Name Firm	Printed Name Firm

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client J.H. Baxter Work Order K240 2860

Cooler received on 4/2/04 and opened on 4/2/04 by JBlack

1.	Were custody seals on outside of coolers? If yes, how many and where? 1-front, 1-side				(Y)	N
2.	Were seals intact and signature & date correct?				(Y)	N
3.	Is the shipper's airbill available and filed? If no, record airbill number: greyhound				Y	(N)
4.	COC#					
	Temperature of cooler(s) upon receipt:	5.1				
	Temperature Blank:	4.0				
5.	Were custody papers properly filled out (ink, signed, etc.)?				(Y)	N
6.	Type of packing material present ice in bags					
7.	Did all bottles arrive in good condition (unbroken)?				(Y)	N
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?				(Y)	N
9.	Did all bottle labels and tags agree with custody papers?				(Y)	N
10.	Were the correct types of bottles used for the tests indicated?				(Y)	N
11.	Were all of the preserved bottles received at the lab with the appropriate pH?				(Y)	N
12.	Were VOA vials checked for absence of air bubbles, and if present, noted below?				Y	N
13.	Did the bottles originate from CAS/K or a branch laboratory?				(Y)	N
14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?				Y	(N)
15.	Was C12/Res negative?				Y	N

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXN-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

Conductivity

Analysis Method 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	2	1	04/24/04	511	
BXN-6	K2402880-002	2	1	04/24/04	ND	
BXN-2	K2402880-003	2	1	04/24/04	716	
BXS-3	K2402880-004	2	1	04/24/04	696	
Method Blank	K2402880-MB	2	1	04/24/04	ND	

Report By: AYaple

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402880
Project Name :	Arlington Landfill Wells	**Date Collected :**	04/20/04
Project Number :	BXN-WELLS/-Landfill	**Date Received :**	04/21/04
Sample Matrix :	WATER		

Nitrate+Nitrite as Nitrogen

Analysis Method 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	0.2	1	04/30/04	ND	
BXN-6	K2402880-002	0.2	1	04/30/04	ND	
BXN-2	K2402880-003	0.2	1	04/30/04	ND	
BXS-3	K2402880-004	0.2	1	04/30/04	ND	
Method Blank	K2402880-MB	0.2	1	04/30/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXN-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

Sulfate

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	1.0	5	04/22/04	8.8	
BXN-6	K2402880-002	0.2	1	04/22/04	ND	
BXN-2	K2402880-003	0.2	1	04/22/04	ND	
BXS-3	K2402880-004	0.2	2	04/22/04	ND	
Method Blank	K2402880-MB	0.2	1	04/22/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402880
Project Name :	Arlington Landfill W	**Date Collected :**	04/20/04
Project Number :	BXN-WELLS-Landfill	**Date Received :**	04/21/04
Sample Matrix :	WATER		

Chloride

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	1.0	5	04/22/04	7.8	
BXN-6	K2402880-002	0.2	1	04/22/04	ND	
BXN-2	K2402880-003	1.0	5	04/22/04	4.6	
BXS-3	K2402880-004	0.2	2	04/22/04	3.1	
Method Blank	K2402880-MB	0.2	1	04/22/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402880
Project Name :	Arlington Landfill Wells	**Date Collected :**	04/20/04
Project Number :	BXN-WELLS/-Landfill	**Date Received :**	04/21/04
Sample Matrix :	WATER		

Tannin and Lignin

Analysis Method SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	1.0	5	04/23/04	9.6	
BXN-6	K2402880-002	0.2	1	04/23/04	ND	
BXN-2	K2402880-003	0.2	1	04/23/04	1.8	
BXS-3	K2402880-004	1.0	5	04/23/04	9.9	
Method Blank	K2402880-MB	0.2	1	04/23/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402880
Project Name :	Arlington Landfill W	**Date Collected :**	04/20/04
Project Number :	BXN-WELLS-Landfill	**Date Received :**	04/21/04
Sample Matrix :	Water		

Solids, Total Dissolved (TDS)

Analysis Method 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	5	1	04/23/04	364	
BXN-6	K2402880-002	5	1	04/23/04	ND	
BXN-2	K2402880-003	5	1	04/23/04	492	
BXS-3	K2402880-004	5	1	04/23/04	512	
Method Blank	K2402880-MB	5	1	04/23/04	ND	

Report By: AYaple

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXN-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

Ammonia as Nitrogen

Analysis Method 350.3
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	0.05	1	04/26/04	0.19	
BXN-6	K2402880-002	0.05	1	04/26/04	ND	
BXN-2	K2402880-003	0.05	1	04/26/04	0.05	
BXS-3	K2402880-004	0.05	1	04/26/04	0.61	
Method Blank	K2402880-MB	0.05	1	04/26/04	ND	

? nt By: AYanle

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXN-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

Carbon, Total Organic

Analysis Method 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	0.5	1	04/27/04	10.5	
BXN-6	K2402880-002	0.5	1	04/27/04	ND	
BXN-2	K2402880-003	0.5	1	04/27/04	15.0	
BXS-3	K2402880-004	0.5	1	04/27/04	24.8	
Method Blank	K2402880-MB	0.5	1	04/27/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXN-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

Chemical Oxygen Demand

Units : mg/L (ppm)
Basis : NA

Analysis Method 410.2
Test Notes :

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	5	1	04/28/04	33	
BXN-6	K2402880-002	5	1	04/28/04	ND	
BXN-2	K2402880-003	5	1	04/28/04	37	
BXS-3	K2402880-004	5	1	04/28/04	65	
Method Blank	K2402880-MB	5	1	04/28/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXN-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402880
Date Collected : 04/20/04
Date Received : 04/21/04

pH

Analysis Method 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	-	1	04/21/04	6.46	
BXN-6	K2402880-002	-	1	04/21/04	5.51	
BXN-2	K2402880-003	-	1	04/21/04	6.38	
BXS-3	K2402880-004	-	1	04/21/04	6.41	

Report By: AYaple

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: J.H. Baxter & Company
Project: Arlington Landfill Wells/BXN-WELLS-Landfill
Sample Matrix: Water

Service Request: K2402880
Date Collected: 4/20/2004
Date Received: 4/21/2004

Coliform, Total

Prep Method: NONE
Analysis Method: SM 9221B
Test Notes:

Units: MPN/100ml
Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Time Test Started		Result	Result Notes
BXN-3	K2402880-001	2	1	NA	4/21/2004	1645	hrs	ND	X
BXN-6	K2402880-002	2	1	NA	4/21/2004	1645	hrs	ND	X
BXN-2	K2402880-003	2	1	NA	4/21/2004	1645	hrs	ND	X
BXS-3	K2402880-004	2	1	NA	4/21/2004	1645	hrs	ND	X

SM *Standard Methods for the Examination of Water and Wastewater*, 18th Ed., 1992.

Approved By: _____ Date: 5/6/04

052595

02880WET.ay1 - Sample 5/6/2004

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXN-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402880
Date Collected: 04/20/04
Date Received: 04/21/04
Units: µG/L
Basis: NA

Sample Name: BXN-3

Lab Code: K2402880-001 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	15.5		
Barium	6010B	5.0	1	5/3/04	5/4/04	60.3		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	23200		
Manganese	6010B	5.0	1	5/3/04	5/4/04	3640		
Nickel	6010B	20	1	5/3/04	5/4/04	31.4		
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXN-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402880
Date Collected: 04/20/04
Date Received: 04/21/04
Units: µG/L
Basis: NA

Sample Name: BXN-6

Lab Code: K2402880-002 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXN-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402880
Date Collected: 04/20/04
Date Received: 04/21/04
Units: µG/L
Basis: NA

Sample Name: BXN-2
Lab Code: K2402880-003 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	48.8		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	796		
Manganese	6010B	5.0	1	5/3/04	5/4/04	1420		
Nickel	6010B	20	1	5/3/04	5/4/04	40.3		
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXN-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402880
Date Collected: 04/20/04
Date Received: 04/21/04
Units: µG/L
Basis: NA

Sample Name: BXS-3

Lab Code: K2402880-004 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	8.5		
Barium	6010B	5.0	1	5/3/04	5/4/04	111		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	8890		
Manganese	6010B	50.0	10	5/3/04	5/4/04	14900		
Nickel	6010B	20	1	5/3/04	5/4/04	30.8		
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXN-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402880
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2402880-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

Columbia Analytical Services INC.
An Employee - Owned Company

EDD here

CHAIN OF CUSTODY

SR#: 1240744

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 1 COC #

PROJECT NAME	J.H. Baxter+Co.
PROJECT NUMBER	BXS-Wells-Landfill
PROJECT MANAGER	Mary Lee Larson
COMPANY/ADDRESS	6520 188th St N.E. P.O. Box 305
CITY/STATE/ZIP	Arlington, WA. 98223
E-MAIL ADDRESS	
PHONE #	360-435-2146
FAX #	360-435-3035
SAMPLER'S SIGNATURE	Jim Clawson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ Fuel Fingerprint (FIQ)☐ NW-HCID Screen☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	(Metals) Total or Dissolved (See list below)	Cyanide☐	pH Cond. (Cl, SO4) PO4, F (NO2) (NO3) BOD, TSS, (TDS) (circle) (NH3-N COD) Total-P, TKN, (NO2+NO3) DOC (circle)	Hex-Chrom☐	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin	Total Coliforms	REMARKS
BXS-4	4/21/04	11:11		Water	4								X	X		X		X	X		
BXS-6	4/21/04	10:00		↓	4								X	X		X		X	X		

REPORT REQUIREMENTS

- X I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. Data Validation Report (includes all raw data)
- ___ IV. CLP Deliverable Report
- ___ V. EDD

INVOICE INFORMATION

P.O. # ____

Bill To: J.H. Baxter+Co.
P.O. Box 10797
Eugene, OR. 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RECEIVED 5-13-04

ATTN: RoeAnn Thomas
: Mary Larson

Not Validated

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Jim Clawson	Tracy Black		
Signature	Signature	Signature	Signature
4/21/04 1:00pm	4/22/04 1600	Date/Time	Date/Time
Date/Time	Date/Time		
Jim Clawson	Black		
Printed Name	Printed Name	Printed Name	Printed Name
J.H. Baxter+Co.	CAS	Firm	Firm
Firm	Firm		

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

May 10, 2004 Service Request No: K2402941

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS- Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on April 22, 2004. For your reference, these analyses have been assigned our service request number K2402941.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2402941
Project:	Arlington Landfill Wells	**Date Received:**	4/22/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 4/22/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Organic Carbon by EPA Method 415.1:
The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Organic Chloride in sample BXS-4 is not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Total Coliforms by Standard Methods Method 9221B:
Samples BXS-4 and BXS-6 were received past the eight hour holding time. The analysis was performed as soon as possible after receipt by the laboratory. Only sample BXS-6 was started past the 30 hour holding time. The data is flagged to indicate the holding time violation.

No other anomalies associated with the analysis of these samples were observed.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by EMW **Date** 5/12/04

CHAIN OF CUSTODY

Columbia Analytical Services INC.
An Employee - Owned Company

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: 1240794

PAGE 1 OF 1 COC #

PROJECT NAME: J.H. Baxter + Co.
PROJECT NUMBER: BXS - Wells - Landfill
PROJECT MANAGER: Mary Lee Larson
COMPANY/ADDRESS: 6520 188th ST N.E.
P.O. BOX 305
CITY/STATE/ZIP: Arlington, WA. 98223
E-MAIL ADDRESS:
PHONE #: 360-435-2146 FAX: 360-435-3035
SAMPLER'S SIGNATURE: Jim Dawson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	REMARKS
BXS-4	4/21/04	11:11		Water	4	
BXS-6	4/21/04	10:00		"	4	

Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐
Volatile Organics 624 ☐ 8260 ☐
Hydrocarbons Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ (*see below) Oil ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID ☐
Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐
PCB's Aroclors ☐ Congeners ☐
Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐
Chlorophenolics Tri ☐ Tetra ☐ - 8151M PCP ☐
PAHs 8310 ☐ SIM ☐
(Metals) Total & Dissolved (See list below)
Cyanide ☐
pH, Cond., Cl, SO_4, P, F, NO_2, NO_3, NH_3-N, BOD, TSS, TDS, COD
Hex-Chrom ☐
DOC (circle) Total-P, TKN, NO_2+NO_3
TOX 9020 ☐ AOX 1650 ☐ 506 ☐
TOC
TANNIN/LIGNIN
Total Coliforms

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: J.H. Baxter Co.
P.O. Box 10797
Eugene, OR. 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

ATTN: RoeAnn Thomas
: Mary Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Jim Dawson	Signature: Tracy Black	Signature	Signature
Date/Time: 4/21/04 1:00pm	Date/Time: 4/22/04 1600	Date/Time	Date/Time
Printed Name: Jim Dawson	Printed Name: Black	Printed Name	Printed Name
Firm: J.H. Baxter Co.	Firm: CAS	Firm	Firm

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client J H Baxter Work Order K240 2941

Cooler received on 4-22-04 and opened on 4-22-04 by BW

1. Were custody seals on outside of coolers? (Y) N
   If yes, how many and where? _____
2. Were seals intact and signature & date correct? (Y) N
3. Is the shipper's airbill available and filed? If no, record airbill number: _____ (Y) N
4. COC#

Temperature of cooler(s) upon receipt:	3.1			
Temperature Blank:	2.1			

5. Were custody papers properly filled out (ink, signed, etc.)? (Y) N
6. Type of packing material present ICE (Y) N
7. Did all bottles arrive in good condition (unbroken)? (Y) N
8. Were all bottle labels complete (i.e analysis, preservation, etc.)? (Y) N
9. Did all bottle labels and tags agree with custody papers? (Y) N
10. Were the correct types of bottles used for the tests indicated? (Y) N
11. Were all of the preserved bottles received at the lab with the appropriate pH? (Y) N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? (Y) N
13. Did the bottles originate from CAS/K or a branch laboratory? (Y) N
14. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? (Y) N
15. Was C12/Res negative? (Y) N

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS/-Landfill
Sample Matrix :	WATER

Service Request :	K2402941
Date Collected :	04/21/04
Date Received :	04/22/04

Tannin and Lignin

Analysis Method : SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.2	0.07	1	04/23/04	0.5	
BXS-6	K2402941-002	0.2	0.07	1	04/23/04	0.5	
Method Blank	K2402941-MB	0.2	0.07	1	04/23/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

port By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Nitrate+Nitrite as Nitrogen

Units : mg/L (ppm)
Basis : NA

Analysis Method : 353.2
Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.2	0.02	1	04/30/04	ND	
BXS-6	K2402941-002	0.2	0.02	1	04/30/04	ND	
Method Blank	K2402941-MB	0.2	0.02	1	04/30/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Carbon, Total Organic

Analysis Method : 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.5	0.07	1	04/27/04	0.8	
BXS-6	K2402941-002	0.5	0.07	1	04/27/04	0.9	
Method Blank	K2402941-MB	0.5	0.07	1	04/27/04	ND	

ort By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	5	3	1	04/29/04	ND	
BXS-6	K2402941-002	5	3	1	04/29/04	ND	
Method Blank	K2402941-MB	5	3	1	04/29/04	ND	
Method Blank	K2402941-MB	5	3	1	04/29/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Conductivity

Analysis Method : 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	2	0.2	1	04/24/04	172	
BXS-6	K2402941-002	2	0.2	1	04/24/04	175	
Method Blank	K2402941-MB	2	0.2	1	04/24/04	0.2	J

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Alkalinity as CaCO3, Total

Analysis Method : 310.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	2	0.7	1	04/29/04	96	
BXS-6	K2402941-002	2	0.7	1	04/29/04	94	
Method Blank	K2402941-MB	2	0.7	1	04/29/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402941
Project Name :	Arlington Landfill Wells	**Date Collected :**	04/21/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	04/22/04
Sample Matrix :	WATER		

Bicarbonate as CaCO3

Analysis Method : SM 2320B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	2	0.7	1	04/29/04	96	
BXS-6	K2402941-002	2	0.7	1	04/29/04	94	
Method Blank	K2402941-MB	2	0.7	1	04/29/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.2	0.03	2	04/23/04	1.8	
BXS-6	K2402941-002	0.2	0.03	2	04/23/04	1.8	
Method Blank	K2402941-MB	0.2	0.03	1	04/23/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Sulfate

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.2	0.09	2	04/23/04	0.9	
BXS-6	K2402941-002	0.2	0.09	2	04/23/04	1.0	
Method Blank	K2402941-MB	0.2	0.09	1	04/23/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : Water

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Solids, Total Dissolved (TDS)

Analysis Method : 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	5	5	1	04/27/04	126	
BXS-6	K2402941-002	5	5	1	04/27/04	138	
Method Blank	K2402941-MB	5	5	1	04/27/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

pH

Units : pH UNITS
Analysis Method : 150.1
Basis : NA
Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	-	-	1	04/22/04	7.91	
BXS-6	K2402941-002	-	-	1	04/22/04	7.92	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402941
Date Collected : 04/21/04
Date Received : 04/22/04

Ammonia as Nitrogen

Analysis Method : 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4	K2402941-001	0.05	0.03	1	04/26/04	0.55	
BXS-6	K2402941-002	0.05	0.03	1	04/26/04	0.55	
Method Blank	K2402941-MB	0.05	0.03	1	04/26/04	ND	

Report By:MFirth

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	J.H. Baxter & Company	**Service Request:**	K2402941
Project:	Arlington Landfill Wells/BXS-WELLS-Landfill	**Date Collected:**	04/21/04
Sample Matrix:	Water	**Date Received:**	04/22/04

Coliform, Total

Prep Method:	NONE	Units:	MPN/100ml
Analysis Method:	SM 9221B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Time Test Started		Result	Result Notes
BXS-4	K2402941-001	2	1	NA	04/22/04	1645	hrs	ND	X
BXS-6	K2402941-002	2	1	NA	04/22/04	1645	hrs	ND	X

SM *Standard Methods for the Examination of Water and Wastewater*, 18th Ed., 1992.

Approved By: _____ Date: 5/7/04

1A/052595

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402941
Date Collected: 04/21/04
Date Received: 04/22/04
Units: µG/L
Basis: NA

Sample Name: BXS-4

Lab Code: K2402941-001 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.6		
Barium	6010B	5.0	1	5/3/04	5/4/04	29.3		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	42.4		
Manganese	6010B	5.0	1	5/3/04	5/4/04	110		
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402941
Date Collected: 04/21/04
Date Received: 04/22/04
Units: µG/L
Basis: NA

Sample Name: BXS-6

Lab Code: K2402941-002 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.5		
Barium	6010B	5.0	1	5/3/04	5/4/04	29.1		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	90.6		
Manganese	6010B	5.0	1	5/3/04	5/4/04	111		
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2402941
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2402941-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

Columbia Analytical Services INC.
An Employee - Owned Company

K2402... EDD here

CHAIN OF CUSTODY

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SR#: K2402990

PAGE 1 OF 2 COC #

PROJECT NAME: J. H. Baxter + Co.
PROJECT NUMBER: BXS-Wells Landfill
PROJECT MANAGER: Mary Lee Larson
COMPANY/ADDRESS: 6520 188th St. NE. P.O. Box 305
CITY/STATE/ZIP: Arlington, WA. 98223
E-MAIL ADDRESS:
PHONE #: 360-435-2146
FAX #: 360-435-3035
SAMPLER'S SIGNATURE: Jim Clawson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ 8021☐ BTEX☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3	BOD, TSS, TDS (circle) NH3-N, COD, Total-P, TKN, TOC	DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin	Total Coliforms			REMARKS
BXS-1	4-22-04	11:10A	1	Water	4										X		X	X			X	X			
BXS-5	4-22-04	8:00A	2	↓	4										X		X	X			X	X			

8

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: J.H. Baxter Co, PO Box 10797, Eugene, OR. 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:______ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RECEIVED 5-13-04

Attn: RoeAnn Thomas
Mary Larson

Not Validated

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Jim Clawson Date/Time: 4/22/04 1:00pm	Signature: [signature] Date/Time: 4/23/04	Signature: Date/Time:	Signature: Date/Time:
Printed Name: Jim Clawson Firm: J.H. Baxter + Co.	Printed Name: [illegible] Firm: CAS	Printed Name: Firm:	Printed Name: Firm:

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

May 12, 2004 Service Request No: K2402990

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on April 23, 2004. For your reference, these analyses have been assigned our service request number K2402990.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2402990
Project:	Arlington Landfill Wells	**Date Received:**	4/23/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 4/23/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Coliforms by Standard Methods Method 9221B:
Samples BXS-1 and BXS-5 were received past the eight hour holding time. The analysis was performed as soon as possible after receipt by the laboratory. Only sample BXS-5 was started past the 30 hour holding time. The data is flagged to indicate the holding time violation.

No other anomalies associated with the analysis of these samples were observed.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by EMW Date 5/12/04

CHAIN OF CUSTODY

SR#: K2402490

Columbia Analytical Services INC.
An Employee - Owned Company

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PAGE 1 OF 2 COC #

PROJECT NAME: J.H. BAXTER & CO.
PROJECT NUMBER: BXS-WELLS LAND FILL
PROJECT MANAGER: MARY LEE LARSON
COMPANY/ADDRESS: 6520 188TH ST. NE. P.O. BOX 305 ARLINGTON, WA. 98223
CITY/STATE/ZIP:
E-MAIL ADDRESS:
PHONE#: 360-435-2146 FAX#: 360-435-3035
SAMPLER'S SIGNATURE: Jim Clawson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ Oil ☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	(Metals) Total or (Dissolved) (See list below)	Cyanide ☐	Hex-Chrom ☐	pH Cond Cl SO4 PO4 F NO2 (NO3 BOD TSS TDS (circle)	(NH3-N COD) Total-P TKN (circle) NO2+NO3	DOC (circle)	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	Tannin/Lignin	Total Coliforms		REMARKS
BXS-1	4-22-04	11:10A	1	WATER	4									X	X		X	X		X	X				
BXS-5	4-22-04	8:00A	2	↓	4									X	X		X	X		X	X				

REPORT REQUIREMENTS

- X I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. Data Validation Report (includes all raw data)
- ___ IV. CLP Deliverable Report
- ___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: J.H. BAXTER & CO.
PO BOX 10797
EUGENE, OR. 97440

TURNAROUND REQUIREMENTS

- ___ 24 hr. ___ 48 hr.
- ___ 5 Day
- X Standard (10-15 working days)
- ___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

ATTN: ROEANN THOMAS
MARY LARSON

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Jim Clawson	Signature:	Signature:	Signature:
Date/Time: 4/22/04 1:00PM	Date/Time: 4/23/04	Date/Time:	Date/Time:
Printed Name: Jim Clawson	Printed Name:	Printed Name:	Printed Name:
Firm: J.H. BAXTER & CO.	Firm: CAS	Firm:	Firm:

8

greyhound -

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

Project/Client IH Baxter Work Order K240 2990

Cooler received on 4-23-04 and opened on 4-23-04 by BW

1. Were custody seals on outside of coolers? (Y) N
   If yes, how many and where? 2 sides
2. Were seals intact and signature & date correct? (Y) N
3. Is the shipper's airbill available and filed? If no, record airbill number: _____ (Y) ~~N~~
4. COC#

Temperature of cooler(s) upon receipt:	4.3			
Temperature Blank:	4.2			

5. Were custody papers properly filled out (ink, signed, etc.)? (Y) N
6. Type of packing material present ICE, gel packs
7. Did all bottles arrive in good condition (unbroken)? (Y) N
8. Were all bottle labels complete (i.e analysis, preservation, etc.)? (Y) N
9. Did all bottle labels and tags agree with custody papers? (Y) N
10. Were the correct types of bottles used for the tests indicated? (Y) N
11. Were all of the preserved bottles received at the lab with the appropriate pH? (Y) N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~Y~~ N
13. Did the bottles originate from CAS/K or a branch laboratory? (Y) N
14. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? Y (N)
15. Was C12/Res negative? ~~Y~~ N

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

Bicarbonate as CaCO3

Analysis Method SM 2320B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	2	1	04/29/04	147	
BXS-5	K2402990-002	2	1	04/29/04	3	
Method Blank	K2402990-MB	2	1	04/29/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402990
Project Name :	Arlington Landfill Wells	**Date Collected :**	04/22/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	04/23/04
Sample Matrix :	WATER		

Chloride

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.2	2	04/26/04	4.8	
BXS-5	K2402990-002	0.2	1	04/26/04	ND	
Method Blank	K2402990-MB	0.2	1	04/26/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

Sulfate

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.2	2	04/26/04	10.5	
BXS-5	K2402990-002	0.2	1	04/26/04	ND	
Method Blank	K2402990-MB	0.2	1	04/26/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS/-Landfill
Sample Matrix :	WATER

Service Request :	K2402990
Date Collected :	04/22/04
Date Received :	04/23/04

Conductivity

Analysis Method 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	2	1	04/24/04	295	
BXS-5	K2402990-002	2	1	04/24/04	ND	
Method Blank	K2402990-MB	2	1	04/24/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

pH

Analysis Method 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	-	1	04/23/04	6.14	
BXS-5	K2402990-002	-	1	04/23/04	5.65	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402990
Project Name :	Arlington Landfill W	**Date Collected :**	04/22/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	04/23/04
Sample Matrix :	Water		

Solids, Total Dissolved (TDS)

Analysis Method 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	5	1	04/27/04	226	
BXS-5	K2402990-002	5	1	04/27/04	ND	
Method Blank	K2402990-MB	5	1	04/27/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

Chemical Oxygen Demand

Analysis Method 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	5	1	04/29/04	10	
BXS-5	K2402990-002	5	1	04/29/04	ND	
Method Blank	K2402990-MB	5	1	04/29/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2402990
Project Name :	Arlington Landfill W	**Date Collected :**	04/22/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	04/23/04
Sample Matrix :	WATER		

Ammonia as Nitrogen

Analysis Method 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.05	1	04/26/04	ND	
BXS-5	K2402990-002	0.05	1	04/26/04	ND	
Method Blank	K2402990-MB	0.05	1	04/26/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

Nitrate+Nitrite as Nitrogen

Analysis Method 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.2	1	04/30/04	1.4	
BXS-5	K2402990-002	0.2	1	04/30/04	ND	
Method Blank	K2402990-MB	0.2	1	04/30/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill W
Project Number :	BXS-WELLS-Landfill
Sample Matrix :	WATER

Service Request :	K2402990
Date Collected :	04/22/04
Date Received :	04/23/04

Tannin and Lignin

Analysis Method SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.2	1	04/30/04	ND	
BXS-5	K2402990-002	0.2	1	04/30/04	ND	
Method Blank	K2402990-MB	0.2	1	04/30/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2402990
Date Collected : 04/22/04
Date Received : 04/23/04

Carbon, Total Organic

Analysis Method 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2402990-001	0.5	1	05/04/04	4.6	
BXS-5	K2402990-002	0.5	1	05/04/04	ND	
Method Blank	K2402990-MB	0.5	1	05/04/04	ND	

Report By: AYaple

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: J.H. Baxter & Company
Project: Arlington Landfill Wells/BXS-WELLS-Landfill
Sample Matrix: Water

Service Request: K2402990
Date Collected: 4/22/2004
Date Received: 4/23/2004

Coliform, Total

Prep Method: NONE
Analysis Method: SM 9221B
Test Notes:

Units: MPN/100ml
Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Time Test Started		Result	Result Notes
BXS-1	K2402990-001	2	1	NA	4/23/2004	1630	hrs.	ND	X
BXS-5	K2402990-002	2	1	NA	4/23/2004	1630	hrs	ND	X

SM *Standard Methods for the Examination of Water and Wastewater*, 18th Ed., 1992.

Approved By: EMW Date: 5/12/04

IA/052595

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Labdfill Wells
Matrix: WATER

Service Request: K2402990
Date Collected: 04/22/04
Date Received: 04/23/04
Units: µG/L
Basis: NA

Sample Name: BXS-1

Lab Code: K2402990-001 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	19.9		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	144		
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	33.0		

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Labdfill Wells
Matrix: WATER

Service Request: K2402990
Date Collected: 04/22/04
Date Received: 04/23/04
Units: µG/L
Basis: NA

Sample Name: BXS-5

Lab Code: K2402990-002 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	10	U	
Iron	6010B	20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Nickel	6010B	20	1	5/3/04	5/4/04	20	U	
Zinc	6010B	10	1	5/3/04	5/4/04	10	U	

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Labdfill Wells
Matrix: WATER

Service Request: K2402990
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2402990-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	U	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	U	
Copper	6010B	10	1	5/3/04	5/4/04	5.0	U	
Iron	6010B	20	1	5/3/04	5/4/04	10	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	20	U	
Nickel	6010B	20	1	5/3/04	5/4/04	5.0	U	
Zinc	6010B	10	1	5/3/04	5/4/04	20	U	
						10	U	

% Solids: 0.0

Comments:

Analytical Services INC.
An Employee-Owned Company

CHAIN OF CUSTODY Rec'd 8-1-04

EDD Here

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SR#: K2405102

PAGE 1 OF 1 COC #

PROJECT NAME: J.H. Baxter & Co

PROJECT NUMBER: Landfill Wells

PROJECT MANAGER: Mary Lee Larson

COMPANY/ADDRESS: 6520 188th St NE, PO Box 305

CITY/STATE/ZIP: Arlington, WA 98223

E-MAIL ADDRESS:

PHONE #: 360 435-2146 FAX#: 360 435-3035

SAMPLER'S SIGNATURE: [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	(Metals), Total or (Dissolved) (See list below)	Cyanide ☐	Hex-Chrom ☐	(pH), (Cond), (Cl), (SO4), PO4, F, (NO2), (NO3), BOD, TSS, (TDS) (circle)	(NH3-N), (COD), Total-P, TKN, (TOC), DOC (circle) NO2+NO3	TOX 9020 ☐	AOX 1650 ☐ 506 ☐ Tannin/Lignin				REMARKS
BXS-2	7-12-04	11:40		Water	3										X			X	X		X				
BXS-3	7-12-04	13:15		|	3										X			X	X		X				
BXS-4	7-12-04	10:15		|	3										X			X	X		X				
BXS-6	7-12-04	10:30		|	3										X			X	X		X				

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

__ II. Report Dup., MS, MSD as required

__ III. Data Validation Report (includes all raw data)

__ IV. CLP Deliverable Report

__ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter & Co, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

__ 24 hr. __ 48 hr.

__ 5 Day

X Standard (10-15 working days)

__ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals): Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: __ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not validated

Attn: RoeAnn Thomas, Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 7-12-04 15:00	Signature: [signature] Date/Time: 7/13/04 1000	Signature Date/Time	Signature Date/Time
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name Firm	Printed Name Firm

6

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Company

July 29, 2004 Service Request No: K2405102

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-LANDFILL

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on July 13, 2004. For your reference, these analyses have been assigned our service request number K2405102.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2405102
Project:	Arlington Landfill Wells	**Date Received:**	7/13/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 7/13/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Ammonia as Nitrogen by EPA Method 350.1:
The Relative Percent Difference (RPD) criterion for the replicate analysis of Ammonia in sample BXS-2 is not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Tannin and Lignin by SM 5550 B:
The matrix spike recovery of Tannin and Lignin for sample BXS-2 was outside control criteria because of suspected matrix interference. A Matrix Spike Duplicate (MSD) was also analyzed, but produced similar results. The results of the original analysis are reported. No further corrective action was appropriate.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by EMW **Date** 7/29/04

CHAIN OF CUSTODY

SR#: K2405102

Columbia Analytical Services INC.
An Employee - Owned Company

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PAGE 1 OF 1 COC #

PROJECT NAME: J.H. Baxter & Co
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 620 18th St NE
PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2140 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Mary Lee Larson

SAMPLE ID.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	REMARKS
BXS-2	7-12-04	11:40		Water	3	
BXS-3	7-12-04	13:15		"	3	
BXS-4	7-12-04	10:15		"	3	
BXS-6	7-12-04	10:30		"	3	

Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐
Volatile Organics 624 ☐ 8260 ☐
Hydrocarbons Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ (*see below) Oil ☐
☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen
Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐
PCB's Aroclors ☐ Congeners ☐
Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐
Chlorophenolics Tri ☐ Tetra ☐ - 8151M PCP ☐
PAHs 8310 ☐ SIM ☐
(Metals) Total or Dissolved (See list below)
Cyanide ☐
(pH) Cond (Cl, SO4) ☐ Hex-Chrom ☐
(NO3 BOD, TSS (TDS) (circle) PO4; F, (NO2)
(NH3-N) COD Total-P; TKN (TOC)
DOC (circle) NO2+NO3
TOX 9020 ☐ AOX 1650 ☐ 506 ☐
Tannin/Lignin

REPORT REQUIREMENTS

- X I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. Data Validation Report (includes all raw data)
- ___ IV. CLP Deliverable Report
- ___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: J.H. Baxter & Co
PO Box 10717
Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: Roetan Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Mary Lee Larson	Signature: [illegible]	Signature:	Signature:
Date/Time: 7-12-04 15:00	Date/Time: 7/13/04 1000	Date/Time:	Date/Time:
Printed Name: Marylee Larson	Printed Name: [illegible]	Printed Name:	Printed Name:
Firm: JH Baxter	Firm: CAS	Firm:	Firm:

6

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

PC 611

Project/Client J+t Baxter Work Order K240 5102

Cooler received on 7/13/04 and opened on 7/13/04 by TBlack

1. Were custody seals on outside of coolers?	(Y)	N
If yes, how many and where? 1 front, 1 side	(Y)	
2. Were custody seals intact?	(Y)	N
3. Were signature and date present on the custody seals?		
4. Is the shipper's airbill available and filed? If no, record airbill number: greyhound	Y	(N)
5. COC#		
Temperature of cooler(s) upon receipt: 3.2		
Temperature Blank: NA		
Were samples hand delivered on the same day as collection?	Y	(N)
6. Were custody papers properly filled out (ink, signed, etc.)?	(Y)	N
7. Type of packing material present ice/water in bags bags		
8. Did all bottles arrive in good condition (unbroken)?	(Y)	N
9. Were all bottle labels complete (i.e analysis, preservation, etc.)?	(Y)	N
10. Did all bottle labels and tags agree with custody papers?	(Y)	N
11. Were the correct types of bottles used for the tests indicated?	(Y)	N
12. Were all of the preserved bottles received at the lab with the appropriate pH?	(Y)	N
13. Were VOA vials checked for absence of air bubbles, and if present, noted below?	~~Y~~	~~N~~
14. Did the bottles originate from CAS/K or a branch laboratory?	(Y)	N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	~~Y~~	~~N~~
16. Was C12/Res negative?	~~Y~~	~~N~~

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405102
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/12/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	07/13/04
Sample Matrix :	WATER		

Chloride

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.2	0.06	2	07/14/04	4.8	
BXS-3	K2405102-002	0.2	0.06	2	07/14/04	2.7	
BXS-4	K2405102-003	0.2	0.06	2	07/14/04	1.9	
BXS-6	K2405102-004	0.2	0.06	2	07/14/04	1.8	
Method Blank	K2405102-MB	0.2	0.03	1	07/14/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405102
Date Collected : 07/12/04
Date Received : 07/13/04

Sulfate

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.2	0.18	2	07/14/04	ND	
BXS-3	K2405102-002	0.2	0.18	2	07/14/04	ND	
BXS-4	K2405102-003	0.2	0.18	2	07/14/04	0.9	
BXS-6	K2405102-004	0.2	0.18	2	07/14/04	0.9	
Method Blank	K2405102-MB	0.2	0.09	1	07/14/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405102
Date Collected : 07/12/04
Date Received : 07/13/04

Chemical Oxygen Demand

Analysis Method 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	5	3	1	07/15/04	37	
BXS-3	K2405102-002	5	3	1	07/15/04	58	
BXS-4	K2405102-003	5	3	1	07/15/04	ND	
BXS-6	K2405102-004	5	3	1	07/15/04	ND	
Method Blank	K2405102-MB	5	3	1	07/15/04	ND	

Analytical Report

Client :	J.H. Baxter & Company	Service Request :	K2405102
Project Name :	Arlington Landfill Wells	Date Collected :	07/12/04
Project Number :	BXS-WELLS/-Landfill	Date Received :	07/13/04
Sample Matrix :	WATER		

Conductivity

Analysis Method 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	2	0.2	1	07/17/04	681	
BXS-3	K2405102-002	2	0.2	1	07/17/04	739	
BXS-4	K2405102-003	2	0.2	1	07/17/04	171	
BXS-6	K2405102-004	2	0.2	1	07/17/04	168	
Method Blank	K2405102-MB	2	0.2	1	07/17/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405102
Date Collected : 07/12/04
Date Received : 07/13/04

Ammonia as Nitrogen

Analysis Method 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.05	0.03	1	07/14/04	0.06	
BXS-3	K2405102-002	0.05	0.03	1	07/14/04	0.13	
BXS-4	K2405102-003	0.05	0.03	1	07/14/04	0.50	
BXS-6	K2405102-004	0.05	0.03	1	07/14/04	0.47	
Method Blank	K2405102-MB	0.05	0.03	1	07/14/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405102
Date Collected : 07/12/04
Date Received : 07/13/04

Nitrate+Nitrite as Nitrogen

Analysis Method 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.2	0.02	1	07/15/04	ND	
BXS-3	K2405102-002	0.2	0.02	1	07/15/04	ND	
BXS-4	K2405102-003	0.2	0.02	1	07/15/04	0.05	J
BXS-6	K2405102-004	0.2	0.02	1	07/15/04	0.05	J
Method Blank	K2405102-MB	0.2	0.02	1	07/15/04	0.04	J

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405102
Date Collected : 07/12/04
Date Received : 07/13/04

pH

Analysis Method 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	-	-	1	07/13/04	6.50	
BXS-3	K2405102-002	-	-	1	07/13/04	6.52	
BXS-4	K2405102-003	-	-	1	07/13/04	8.00	
BXS-6	K2405102-004	-	-	1	07/13/04	8.01	

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405102
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/12/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	07/13/04
Sample Matrix :	WATER		

Tannin and Lignin

Analysis Method SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.2	0.07	1	07/26/04	ND	
BXS-3	K2405102-002	0.2	0.07	1	07/26/04	4.4	
BXS-4	K2405102-003	0.2	0.07	1	07/26/04	0.5	
BXS-6	K2405102-004	0.2	0.07	1	07/26/04	0.5	
Method Blank	K2405102-MB	0.2	0.07	1	07/26/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By: AYapple

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405102
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/12/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	07/13/04
Sample Matrix :	Water		

Solids, Total Dissolved (TDS)

Units : mg/L (ppm)
Basis : NA

Analysis Method 160.1
Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	5	5	1	07/14/04	396	
BXS-3	K2405102-002	5	5	1	07/14/04	528	
BXS-4	K2405102-003	5	5	1	07/14/04	128	
BXS-6	K2405102-004	5	5	1	07/14/04	123	
Method Blank	K2405102-MB	5	5	1	07/14/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405102
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/12/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	07/13/04
Sample Matrix :	WATER		

Carbon, Total Organic

Units : mg/L (ppm)
Analysis Method 415.1 Basis : NA
Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2405102-001	0.5	0.07	1	07/15/04	15.0	
BXS-3	K2405102-002	0.5	0.07	1	07/15/04	23.6	
BXS-4	K2405102-003	0.5	0.07	1	07/15/04	0.9	
BXS-6	K2405102-004	0.5	0.07	1	07/16/04	1.0	
Method Blank	K2405102-MB	0.5	0.07	1	07/15/04	ND	
Method Blank	K2405102-MB	0.5	0.07	1	07/16/04	ND	

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company

Project No.: BXS-WELLS-Landfill

Project Name: Arlington Landfill Wells

Matrix: WATER

Service Request: K2405102

Date Collected: 07/12/04

Date Received: 07/13/04

Units: MG/L

Basis: NA

Sample Name: BXS-2

Lab Code: K2405102-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	B	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.055		
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.004	U	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.75		
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	1.420		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.05		
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.008	B	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2405102
Date Collected: 07/12/04
Date Received: 07/13/04
Units: MG/L
Basis: NA

Sample Name: BXS-3
Lab Code: K2405102-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.003	B	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.054		
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.006		
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.005	B	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	4.29		
Manganese	6010B	0.050	0.020	10	7/20/04	7/28/04	18.2		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.021		

% Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company

Project No.: BXS-WELLS-Landfill

Project Name: Arlington Landfill Wells

Matrix: WATER

Service Request: K2405102

Date Collected: 07/12/04

Date Received: 07/13/04

Units: MG/L

Basis: NA

Sample Name: BXS-4

Lab Code: K2405102-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.005		
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.031		
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.005	B	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.06		
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.189		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.004	B	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2405102
Date Collected: 07/12/04
Date Received: 07/13/04
Units: MG/L
Basis: NA

Sample Name: BXS-6

Lab Code: K2405102-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.005		
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.029		
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.006	B	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.05		
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.114		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.007	B	

* Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2405102
Date Collected:
Date Received:
Units: MG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2405102-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	U	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	U	
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.004	U	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.005		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.002	U	

% Solids: 0.0

Comments:

Columbia Analytical Services INC.
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Return EDD here

CHAIN OF CUSTODY

Recd 8-1-04

SR#: K2405162

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PAGE 1 OF 2 COC #

PROJECT NAME: J.H. Baxter & Co
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 6520 188th St NE, PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2146
FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Mary Lee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	Tannin/Lignin			REMARKS
BXS-1	7-13-04	10:15	1	Water	3										X		X	X		X			
BXS-5	7-13-04	11:30	2	Water	3										X		X	X		X			

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # ____

Bill To: JH Baxter & Co, PO Box 10797, Eugene OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not Validated

Attn: Rueann Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 7-13-04 14:00	Signature: [signature] Date/Time: 7/14/04 1300	Signature: Date/Time:	Signature: Date/Time:
Printed Name: Marylee Larson Firm: JH Baxter	Printed Name: [illegible] Firm: CAS	Printed Name: Firm:	Printed Name: Firm:

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC
An Employee - Owned Company

RECEIVED
RJO 8.9.04
EDD too

August 2, 2004

Service Request No: K2405162

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on July 14, 2004. For your reference, these analyses have been assigned our service request number K2405162.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2405162
Project:	Arlington Landfill Wells	**Date Received:**	7/14/04

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 7/14/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Tannin and Lignin by SM 5550 B:
The matrix spike recovery of Tannin and Lignin for sample Batch QC was outside control criteria because of suspected matrix interference. A Matrix Spike Duplicate (MSD) was also analyzed, but produced similar results. The results of the original analysis are reported. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Dissolved Metals

No anomalies associated with the analysis of these samples were observed.

Approved by Emw Date 8/5/04

CHAIN OF CUSTODY

SR#: 1240516 2

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PAGE 1 OF 2 COC #

PROJECT NAME: T.H. Baxter/JH Baxter Co
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 6620 188th St NE
CITY/STATE/ZIP: PO Box 305 Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2146 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Marylee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons Gas☐ 8021☐ BTEX☐ Diesel☐ (*see below) Oil☐ Fuel Fingerprint (FIQ)☐ NW-HCID☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals (See list below) Total or Dissolved	Cyanide☐	Hex-Chrom☐	pH Cond Cl SO4 PO4 NO_3 NO_2	NH_3 BOD TSS (TDS) (circle)	DOC (circle) Total-P TKN NO_2+NO_3 (TOC)	TOX 9020☐ AOX 1650☐ 506☐	Calcium Hardness			REMARKS
BXS-1	7-3-04	10:15	1	Water	3									X		X			X						
BXS-5	7-3-04	11:30	2	Water	3									X		X			X						

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter Co
PO Box 10777
Eugene OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RueAnn Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Marylee Larson	Signature:	Signature:	Signature:
Date/Time: 7-3-04 14:00	Date/Time: 7/4/04 1300	Date/Time:	Date/Time:
Printed Name: Marylee Larson	Printed Name:	Printed Name:	Printed Name:
Firm: JH Baxter	Firm: CAS	Firm:	Firm:

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

PC CJ

Project/Client JH Baxter Work Order K240 5162

Cooler received on 7/14/04 and opened on 7/14/04 by TBlake

1.	Were custody seals on outside of coolers? If yes, how many and where? front, inside	(Y) N
2.	Were custody seals intact?	(Y) N
3.	Were signature and date present on the custody seals?	(Y) N
4.	Is the shipper's airbill available and filed? If no, record airbill number: greyhound	Y (N)
5.	COC#	
	Temperature of cooler(s) upon receipt: 1.2	
	Temperature Blank: 1.9	
	Were samples hand delivered on the same day as collection?	Y (N)
6.	Were custody papers properly filled out (ink, signed, etc.)?	(Y) N
7.	Type of packing material present loose ice - gelpacks	
8.	**Did all bottles arrive in good condition (unbroken)?**	(Y) N
9.	Were all bottle labels complete (i.e analysis, preservation, etc.)?	(Y) N
10.	Did all bottle labels and tags agree with custody papers?	(Y) N
11.	**Were the correct types of bottles used for the tests indicated?**	(Y) N
12.	Were all of the preserved bottles received at the lab with the appropriate pH?	(Y) N
13.	Were VOA vials checked for absence of air bubbles, and if present, noted below?	(Y) N
14.	Did the bottles originate from CAS/K or a branch laboratory?	(Y) N
15.	**Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?**	~~Y~~ ~~N~~
16.	Was C12/Res negative?	(Y) N

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS/-Landfill
Sample Matrix :	WATER

Service Request :	K2405162
Date Collected :	07/13/04
Date Received :	07/14/04

Chloride

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.2	0.06	2	07/15/04	4.3	
BXS-5	K2405162-002	0.2	0.06	2	07/15/04	ND	
Method Blank	K2405162-MB	0.2	0.03	1	07/15/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405162
Date Collected : 07/13/04
Date Received : 07/14/04

Sulfate

Analysis Method 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.2	0.18	2	07/15/04	7.7	
BXS-5	K2405162-002	0.2	0.18	2	07/15/04	ND	
Method Blank	K2405162-MB	0.2	0.09	1	07/15/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS/-Landfill
Sample Matrix :	WATER

Service Request :	K2405162
Date Collected :	07/13/04
Date Received :	07/14/04

Chemical Oxygen Demand

Analysis Method 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	5	3	1	07/15/04	14	
BXS-5	K2405162-002	5	3	1	07/15/04	ND	
Method Blank	K2405162-MB	5	3	1	07/15/04	ND	

eport By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405162
Date Collected : 07/13/04
Date Received : 07/14/04

Conductivity

Analysis Method 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	2	0.2	1	07/17/04	347	
BXS-5	K2405162-002	2	0.2	1	07/17/04	ND	
Method Blank	K2405162-MB	2	0.2	1	07/17/04	ND	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405162
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/13/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	07/14/04
Sample Matrix :	WATER		

Ammonia as Nitrogen

Analysis Method 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.05	0.03	1	07/22/04	ND	
BXS-5	K2405162-002	0.05	0.03	1	07/22/04	ND	
Method Blank	K2405162-MB	0.05	0.03	1	07/22/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405162
Date Collected : 07/13/04
Date Received : 07/14/04

Nitrate+Nitrite as Nitrogen

Analysis Method 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.2	0.02	1	07/15/04	0.6	
BXS-5	K2405162-002	0.2	0.02	1	07/15/04	0.04	J
Method Blank	K2405162-MB	0.2	0.02	1	07/15/04	0.04	J

eport By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405162
Project Name :	Arlington Landfill Wells	**Date Collected :**	07/13/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	07/14/04
Sample Matrix :	WATER		

pH

Analysis Method	150.1	Units :	pH UNITS
Test Notes :		Basis :	NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	-	-	1	07/14/04	6.28	
BXS-5	K2405162-002	-	-	1	07/14/04	5.78	

port By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2405162
Date Collected : 07/13/04
Date Received : 07/14/04

Tannin and Lignin

Analysis Method SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.2	0.07	1	07/26/04	0.3	
BXS-5	K2405162-002	0.2	0.07	1	07/26/04	0.14	J
Method Blank	K2405162-MB	0.2	0.07	1	07/26/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

port By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2405162
Project Name :	Arlington Landfill W	**Date Collected :**	07/13/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	07/14/04
Sample Matrix :	Water		

Solids, Total Dissolved (TDS)

Analysis Method 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	5	5	1	07/16/04	222	
BXS-5	K2405162-002	5	5	1	07/16/04	ND	
Method Blank	K2405162-MB	5	5	1	07/16/04	ND	

eport By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill W
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2405162
Date Collected : 07/13/04
Date Received : 07/14/04

Carbon, Total Organic

Analysis Method 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2405162-001	0.5	0.07	1	07/16/04	6.1	
BXS-5	K2405162-002	0.5	0.07	1	07/16/04	0.17	J
Method Blank	K2405162-MB	0.5	0.07	1	07/16/04	ND	

Report By: AYaple

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2405162
Date Collected: 07/13/04
Date Received: 07/14/04
Units: MG/L
Basis: NA

Sample Name: BXS-1

Lab Code: K2405162-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	U	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.021		
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.011		
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.326		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02		
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.024		

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2405162
Date Collected: 07/13/04
Date Received: 07/14/04
Units: MG/L
Basis: NA

Sample Name: BXS-5
Lab Code: K2405162-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	U	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	U	
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.004	U	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	U	
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.009	B	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company

Project No.: BXS-WELLS-Landfill

Project Name: Arlington Landfill Wells

Matrix: WATER

Service Request: K2405162

Date Collected:

Date Received:

Units: MG/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2405162-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	U	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	U	
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.005	U	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.004	U	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.005		
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02	U	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.002	U	

Solids: 0.0

Comments:

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5801
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-1
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611642
Collect Date: 7/13/2004
Date Received: 7/14/2004
Report Date: 7/19/2004
Field ID: Arlington
Supervisor:

cmp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT_ST

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Washington State Department of Health

WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5749
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: Arlington BXS-2
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611557
Collect Date: 7/12/2004
Date Received: 7/13/2004
Report Date: 7/19/2004
Field ID:
Supervisor:

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	4	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT ST

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Washington State Department of Health

WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5749
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: Arlington BXS-3
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611559
Collect Date: 7/12/2004
Date Received: 7/13/2004
Report Date: 7/19/2004
Field ID:
Supervisor: mp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	14	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5749
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: Arlington BXS-4
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611558
Collect Date: 7/12/2004
Date Received: 7/13/2004
Report Date: 7/19/2004
Field ID:
Supervisor: cmp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	23	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT_ST

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5801
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-5
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611643
Collect Date: 7/13/2004
Date Received: 7/14/2004
Report Date: 7/19/2004
Field ID: Arlington
Supervisor:

mp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT_ST

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: JH Baxter Company
P.O.Box 10797
Eugene, OR 97440

Reference Number: 04-5749
Project: bacteria

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: Arlington BXS-6
County:
Sampled By: ML

Repeat Sample Number:
Lab Number: 04611560
Collect Date: 7/12/2004
Date Received: 7/13/2004
Report Date: 7/19/2004
Field ID:
Supervisor: mp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	23	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-13-04	10:15	BXS-1 1040 002 245
Group Type	**Public System ID**	**County**
N/A	N/A	SNO.

System Name: J. H. Baxter & Co Monitoring Well

Sample Location / Field ID: Arlington BXS-1

Telephone Number: 360 435-2146

Sample Collected By: Mary Lee Larson

☐ Treated ☐ Before ☐ After

☒ Untreated

Chlorine Residual: ____ Total ____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223
Attn: Mary Lee Larson

Paid By (Same as above if blank)
J. H. Baxter & Co
PO Box 10797
Eugene, OR 97440
Attn: RoxAnn Thomas

Type of Sample

☒ Compliance Sample Total Coliforms
- ☐ Drinking Water (P/A) (Default method is Colilert)
  - ☐ Special Request Method: _____
- ☐ Raw Source Number: S __ __
- ☐ Standard or Heterotrophic Plate Count
- ☐ Repeat Sample (previous sample information needed)
  - Lab #: _____ Date: _____

☐ Investigative/Sanitary Service/Building Permit
- ☐ Building Permit (P/A)
- ☐ New Construction/Repairs (P/A)
- ☐ Surface Water (Pond, Lake, River, etc.)
- ☐ Biosolids/Composts
- ☒ Other (Specify) Landfill Monitoring

FAX Number: 360 435-3035

Received by _____ 04-5801 7/13/2004 Time _____

11642

Comments:

FORM: PrePrintBACT

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	11:40	BxS-2 1040 002.239
Group Type	**Public System ID**	**County**
N/A	N/A	N/A

System Name: J. H. Baxter & Co

Sample Location / Field ID: Arlington BxS-2

Telephone Number: 360 435-2146

Sample Collected By: Marylee Larson

- ☐ Treated
  - ☐ Before ☐ After
- ☒ Untreated

Chlorine Residual: ____ Total ____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223
Attn: Marylee Larson

Paid By (Same as above if blank)
J. H. Baxter & Co
PO Box 10617
Eugene, OR 97440
Attn: Rae Ann Thomas

Type of Sample
- ☒ Compliance Sample Total Coliforms
  - ☐ Drinking Water (P/A) (Default method is Colilert)
    - ☐ Special Request Method: _____
  - ☐ Raw Source Number: S __ __
  - ☐ Standard or Heterotrophic Plate Count
  - ☐ Repeat Sample (previous sample information needed)
    - Lab #: _____ Date: _____
- ☐ Investigative/Sanitary Service/Building Permit
  - ☐ Building Permit (P/A)
  - ☐ New Construction/Repairs (P/A)
  - ☐ Surface Water (Pond, Lake, River, etc.)
  - ☐ Biosolids/Composts
  - ☒ Other (Specify) Landfill Monitoring

FAX Number: 360 435-3035

Received by _____ Date/Time 7/12/2004

Comments: 04-5749

11557

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	13:15	BXS-3 1046 003 248
Group Type	**Public System ID**	**County**
N/A	N/A	N/A

System Name: J. H. Baxter & Co

Sample Location / Field ID	Telephone Number
Arlington BXS-3	360-435-2146

Sample Collected By: MaryLee Larson

- ☐ Treated
  - ☐ Before ☐ After
- ☒ Untreated

Chlorine Residual: ____ Total ____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223 Attn: Mary Larson

Paid By (Same as above if blank)
J. H. Baxter & Co
PO Box 10797
Eugene, OR 97440
Attn: RueAnn Thomas

Type of Sample
- ☒ Compliance Sample Total Coliforms
- ☐ Drinking Water (P/A) (Default method is Colilert)
  - ☐ Special Request Method: _____
- ☐ Raw Source Number: S __ __
- ☐ Standard or Heterotrophic Plate Count
- ☐ Repeat Sample (previous sample information needed)
  - Lab #: _____ Date: _____

- ☐ Investigative/Sanitary Service/Building Permit
  - ☐ Building Permit (P/A)
  - ☐ New Construction/Repairs (P/A)
  - ☐ Surface Water (Pond, Lake, River, etc.)
  - ☐ Biosolids/Composts
  - ☒ Other (Specify) Landfill Monitoring

FAX Number: 360-435-3035

Received by: TG Date/Time: 7/12/2004

Comments: 04-5749 11559

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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	10:15	BXS-4
Group Type	**Public System ID**	**County** 1040 002.
N/A	N/A	N/A 241

System Name: J.H. Baxter & Co BXS-4

Sample Location / Field ID: Arlington

Telephone Number: 360 435-2146

Sample Collected By: Maryllee Larson

☐ Treated ☐ Before ☐ After

☒ Untreated

Chlorine Residual: ____ Total ____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223 Attn: Mary Larson

Paid By (Same as above if blank)
J H Baxter & Co. Attn: RveAnn Thomas
PO Box 10797
Eugene, OR 97440

Type of Sample
☒ Compliance Sample Total coliforms
☐ Drinking Water (P/A) (Default method is Colilert)
☐ Special Request Method: _____
☐ Raw Source Number: S __ __
☐ Standard or Heterotrophic Plate Count
☐ Repeat Sample (previous sample information needed)
Lab #: _____ Date: _____

☐ Investigative/Sanitary Service/Building Permit
☐ Building Permit (P/A)
☐ New Construction/Repairs (P/A)
☐ Surface Water (Pond, Lake, River, etc.)
☐ Biosolids/Composts
☒ Other (Specify) Landfill Monitoring

FAX Number: 360 435-3086

Received by _____ Date/Time _____

04-5749 7/12/2004

Comments:

11558

FORM: PrePrntBACT

EDGE ANALYTICAL
"The lab you can trust"
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

10a

Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-13-04	11:30	BxS-5 1040 002.248
Group Type	**Public System ID**	**County**
N/A	N/A	SNO.

System Name: J.H. Baxter-Fee Monitoring Well

Sample Location / Field ID: Arlington BxS-5

Telephone Number: 360 435-2146

Sample Collected By: Mary Lee Larson

☐ Treated
☐ Before ☐ After
☒ Untreated

Chlorine Residual
____ Total
____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223 Attn: Mary Lee Larson

Paid By (Same as above if blank)
J.H. Baxter & Co.
PO Box 10797
Eugene, OR 97440 Attn RueAnn Thomas

Type of Sample
☒ Compliance Sample Total Coliforms
☐ Drinking Water (P/A) (Default method is Colilert)
☐ Special Request Method: _____
☐ Raw Source Number: S __ __
☐ Standard or Heterotrophic Plate Count
☐ Repeat Sample (previous sample information needed)
Lab #: _____ Date: _____

☐ Investigative/Sanitary Service/Building Permit
☐ Building Permit (P/A)
☐ New Construction/Repairs (P/A)
☐ Surface Water (Pond, Lake, River, etc.)
☐ Biosolids/Composts
☒ Other (Specify) Landfill Monitoring

FAX Number: 360 435-3035

Received by _____ Date/Time _____

Comments: 04-5801 7/13/2004

FORM: PrePrintBACT

11643

EDGE ANALYTICAL
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Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	10:30	BXS-6 1040 002 2446

Group Type	Public System ID	County
N/A	N/A	N/A

System Name: JH Baxter Co BXS-6

Sample Location / Field ID: Arlington

Telephone Number: 360-435-2146

Sample Collected By: Marylee Larson

- [ ] Treated
  - [ ] Before
  - [ ] After
- [x] Untreated

Chlorine Residual
____ Total
____ Free

Send Report To
J H Baxter Company
P O Box 305
Arlington, WA 98223
Attn: Marylee Larson

Paid By (Same as above if blank)
J.H. Baxter Co
PO Box 10797
Eugene, OR 97440
Attn: RaeAnn Thomas

Type of Sample
- [x] Compliance Sample Total Coliforms
  - [ ] Drinking Water (P/A) (Default method is Colilert)
    - [ ] Special Request Method: ____________
  - [ ] Raw Source Number: S __ __
  - [ ] Standard or Heterotrophic Plate Count
  - [ ] Repeat Sample (previous sample information needed)

  Lab #: ____________ Date: ____________

- [ ] Investigative/Sanitary Service/Building Permit
  - [ ] Building Permit (P/A)
  - [ ] New Construction/Repairs (P/A)
  - [ ] Surface Water (Pond, Lake, River, etc.)
  - [ ] Biosolids/Composts
  - [x] Other (Specify) Landfill Monitoring

FAX Number: 360 435-3035

Received by ____ Date/Time ____

04-5749 7/12/2004

Comments:

11560

Columbia Analytical Services INC.
An Employee - Owned Company

Recd 8-11-04

CHAIN OF CUSTODY

SR#: K2408011

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 1 COC #

PROJECT NAME: JH Baxter & CO
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 6520 188th St NE, PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2146
FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Marylee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ 8021☐ BTEX☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals: Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin			REMARKS
BXS-2	10-11-04	14:00		Water	3										X		X	X		X			
BXS-3	10-11-04	12:05		|	3										X		X	X		X			
BXS-4	10-11-04	10:30		|	3										X		X	X		X			
BXS-6	10-11-04	11:00		|	3										X		X	X		X			

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter & CO, PO Box 10797, Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

___ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: ___ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not Validated

Attn: RueAnn Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Marylee Larson	Signature: [illegible]	Signature	Signature
Date/Time: 10-11-04 15:00	Date/Time: 10/12/04 1200	Date/Time	Date/Time
Printed Name: Marylee Larson	Printed Name: [illegible]	Printed Name	Printed Name
Firm: JH Baxter	Firm: CAS	Firm	Firm

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

November 3, 2004

Service Request No: K2408011

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on October 12, 2004. For your reference, these analyses have been assigned our service request number K2408011.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2408011
Project:	Arlington Landfill Wells	**Date Received:**	10/12/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 10/12/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Dissolved Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Manganese for the Batch QC sample is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Approved by EWW Date 11/4/04

Columbia Analytical Services, Inc.
An Employee - Owned Company

CHAIN OF CUSTODY

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SR#: K240 8011

PAGE 1 OF 1 COC #

PROJECT NAME: J H Baxter (2)
PROJECT NUMBER: Landfill Wells
PROJECT MANAGER: Marylee Larson
COMPANY/ADDRESS: 6320 188th St NE
PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2140 FAX#: 360 435-8036
SAMPLER'S SIGNATURE: Marylee Larson

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS
BXS-2	10-11-04	14:00		Water	3
BXS-3	10-11-04	12:05			3
BXS-4	10-11-04	10:30			3
BXS-6	10-11-04	11:00			3

Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐
Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐
Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐
☐ Fuel Fingerprint (FIQ)
☐ NW-HCID Screen
Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐
PCB's Aroclors ☐ Congeners ☐
Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐
Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐
PAHS 8310 ☐ SIM ☐
(Metals) Total or Dissolved (See list below)
Cyanide ☐
Hex-Chrom ☐
pH, Cond, Cl, SO_4, PO_4, F, (NO_3) (circle)
(NH_3-N, COD, Total-P, TKN, TOC) (circle) NO_2+NO_3
BOD, TSS, TDS (circle)
TOX 9020 ☐ AOX 1650 ☐ 506 ☐
Tannin / Lignin
REMARKS

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: J H Baxter (2)
PO Box 10797
Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Attn: RueAnn Thomas
Marylee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Marylee Larson	Signature:	Signature	Signature
Date/Time: 10-14-04 5:00	Date/Time: 10/12/04 1200	Date/Time	Date/Time
Printed Name: Marylee Larson	Printed Name:	Printed Name	Printed Name
Firm: J H Baxter	Firm:	Firm	Firm

Cooler Receipt and Preservation Form

Project/Client JH Baxter Work Order K240 8011

Cooler received on 10/12/04 and opened on 10/12/04 by TBlack

1. Were custody seals on outside of coolers?	(Y)	N
If yes, how many and where? 1 front		
2. Were custody seals intact?	(Y)	N
3. Were signature and date present on the custody seals?	(Y)	N
4. Is the shipper's airbill available and filed? If no, record airbill number:	(Y)	N
5. COC#		
Temperature of cooler(s) upon receipt: (°C) 2.6		
Temperature Blank: (°C) 3.0		
Were samples hand delivered on the same day as collection?	Y	(N)
6. Were custody papers properly filled out (ink, signed, etc.)?	(Y)	N
7. Type of packing material present gel packs - loose in		
8. Did all bottles arrive in good condition (unbroken)?	(Y)	N
9. Were all bottle labels complete (i.e analysis, preservation, etc.)?	(Y)	N
10. Did all bottle labels and tags agree with custody papers?	(Y)	N
11. Were the correct types of bottles used for the tests indicated?	(Y)	N
12. Were all of the preserved bottles received at the lab with the appropriate pH?	(Y)	N
13. Were VOA vials checked for absence of air bubbles, and if present, noted below?	~~Y~~	N
14. Did the bottles originate from CAS/K or a branch laboratory?	(Y)	N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	~~Y~~	~~N~~
16. Was C12/Res negative?	~~Y~~	N

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2408011
Project Name :	Arlington Landfill Wells	**Date Collected :**	10/11/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	10/12/04
Sample Matrix :	WATER		

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-2	K2408011-001	0.2	0.06	2	10/16/04	3.3	
XS-3	K2408011-002	0.2	0.06	2	10/16/04	0.8	
XS-4	K2408011-003	0.2	0.06	2	10/16/04	1.6	
XS-6	K2408011-004	0.2	0.06	2	10/16/04	1.6	
Method Blank	K2408011-MB	0.2	0.03	1	10/16/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2408011
Date Collected : 10/11/04
Date Received : 10/12/04

Sulfate

Analysis Method : 300.0
Lab Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	0.2	0.18	2	10/16/04	ND	
BXS-3	K2408011-002	0.2	0.18	2	10/16/04	ND	
BXS-4	K2408011-003	0.2	0.18	2	10/16/04	1.5	
BXS-6	K2408011-004	0.2	0.18	2	10/16/04	1.4	
Method Blank	K2408011-MB	0.2	0.09	1	10/16/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client :	J.H. Baxter & Company
Project Name :	Arlington Landfill Wells
Project Number :	BXS-WELLS/-Landfill
Sample Matrix :	WATER

Service Request :	K2408011
Date Collected :	10/11/04
Date Received :	10/12/04

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-2	K2408011-001	5	3	1	10/20/04	43	
XS-3	K2408011-002	5	3	1	10/20/04	63	
XS-4	K2408011-003	5	3	1	10/20/04	4	J
XS-6	K2408011-004	5	3	1	10/20/04	3	J
Method Blank	K2408011-MB	5	3	1	10/20/04	ND	

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2408011
Project Name :	Arlington Landfill Wells	**Date Collected :**	10/11/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	10/12/04
Sample Matrix :	WATER		

Conductivity

Analysis Method 120.1
Lab Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	2	0.2	1	10/13/04	819	
BXS-3	K2408011-002	2	0.2	1	10/13/04	933	
BXS-4	K2408011-003	2	0.2	1	10/13/04	179	
BXS-6	K2408011-004	2	0.2	1	10/13/04	178	
Method Blank	K2408011-MB	2	0.2	1	10/13/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2408011
Date Collected : 10/11/04
Date Received : 10/12/04

Ammonia as Nitrogen

Analysis Method 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	0.05	0.03	1	10/13/04	ND	
BXS-3	K2408011-002	0.05	0.03	1	10/13/04	0.12	
BXS-4	K2408011-003	0.05	0.03	1	10/13/04	0.53	
BXS-6	K2408011-004	0.05	0.03	1	10/13/04	0.51	
Method Blank	K2408011-MB	0.05	0.03	1	10/13/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2408011
Date Collected : 10/11/04
Date Received : 10/12/04

Nitrate+Nitrite as Nitrogen

Analysis Method 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	0.05	0.01	1	10/18/04	0.01	J
BXS-3	K2408011-002	0.05	0.01	1	10/18/04	0.01	J
BXS-4	K2408011-003	0.05	0.01	1	10/18/04	ND	
BXS-6	K2408011-004	0.05	0.01	1	10/18/04	ND	
Method Blank	K2408011-MB	0.05	0.01	1	10/18/04	ND	

Report By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2408011
Date Collected : 10/11/04
Date Received : 10/12/04

pH

Analysis Method 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	-	-	1	10/12/04	6.67	
BXS-3	K2408011-002	-	-	1	10/12/04	6.57	
BXS-4	K2408011-003	-	-	1	10/12/04	7.96	
BXS-6	K2408011-004	-	-	1	10/12/04	7.97	

Report By: AYaple

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2408011
Project Name :	Arlington Landfill Wells	**Date Collected :**	10/11/04
Project Number :	BXS-WELLS/-Landfill	**Date Received :**	10/12/04
Sample Matrix :	WATER		

Tannin and Lignin

Analysis Method : SM 5550 B
Lab Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	0.2	0.07	1	10/15/04	1.6	
BXS-3	K2408011-002	0.2	0.14	2	10/15/04	8.3	
BXS-4	K2408011-003	0.2	0.07	1	10/15/04	0.5	
BXS-6	K2408011-004	0.2	0.07	1	10/15/04	0.4	
Method Blank	K2408011-MB	0.2	0.07	1	10/15/04	ND	

Ref. Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Report By:BReller

Analytical Report

lient :	J.H. Baxter & Company	**Service Request :**	K2408011
roject Name :	Arlington Landfill Wells	**Date Collected :**	10/11/04
roject Number :	BXS-WELLS/-Landfill	**Date Received :**	10/12/04
ample Matrix :	Water		

Solids, Total Dissolved (TDS)

nalysis Method 160.1
est Notes :

Units : mg/L (ppm)
Basis : NA

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-2	K2408011-001	5	5	1	10/13/04	440	
XS-3	K2408011-002	5	5	1	10/13/04	528	
XS-4	K2408011-003	5	5	1	10/13/04	129	
XS-6	K2408011-004	5	5	1	10/13/04	132	
lethod Blank	K2408011-MB	5	5	1	10/13/04	ND	

ort By: AYaple

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS/-Landfill
Sample Matrix : WATER

Service Request : K2408011
Date Collected : 10/11/04
Date Received : 10/12/04

Carbon, Total Organic

Analysis Method 415.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2408011-001	0.5	0.14	2	10/21/04	14.7	
BXS-3	K2408011-002	0.5	0.14	2	10/21/04	24.4	
BXS-4	K2408011-003	0.5	0.07	1	10/21/04	1.0	
BXS-6	K2408011-004	0.5	0.07	1	10/21/04	0.9	
Method Blank	K2408011-MB	0.5	0.07	1	10/21/04	ND	

Report By: AYaple

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408011
Date Collected: 10/11/04
Date Received: 10/12/04
Units: µG/L
Basis: NA

Sample Name: BXS-2

Lab Code: K2408011-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	43.3		
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	836		
Manganese	6010B	5.0	0.4	1	10/25/04	10/27/04	1430		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	36.5		
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	12.8		

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408011
Date Collected: 10/11/04
Date Received: 10/12/04
Units: µG/L
Basis: NA

Sample Name: BXS-3
Lab Code: K2408011-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	4.4	B	
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	53.3		
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	1710		
Manganese	6010B	10.0	0.8	2	10/25/04	10/27/04	17700		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	29.5		
Zinc	6010B	20.0	6.0	2	10/25/04	10/27/04	8.0	B	

Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408011
Date Collected: 10/11/04
Date Received: 10/12/04
Units: µG/L
Basis: NA

Sample Name: BXS-4

Lab Code: K2408011-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	5.7		
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	29.4		
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	40.3		
Manganese	6010B	5.0	0.4	1	10/25/04	10/27/04	110		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	3.0	U	
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	3.0	U	

% Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

lient: J.H. Baxter & Company
roject No.: BXS-WELLS-Landfill
roject Name: Arlington Landfill Wells
atrix: WATER

Service Request: K2408011
Date Collected: 10/11/04
Date Received: 10/12/04
Units: µG/L
Basis: NA

Sample Name: BXS-6

Lab Code: K2408011-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	5.3		
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	28.3		
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	39.3		
Manganese	6010B	5.0	0.4	1	10/25/04	10/27/04	107		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	3.0	U	
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	3.0	U	

° Solids: 0.0

mments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408011
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank

Lab Code: K2408011-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	
Barium	6010B	5.0	0.7	1	10/25/04	10/26/04	0.7	U	
Cadmium	6010B	5.0	2.0	1	10/25/04	10/26/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/26/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/26/04	10	U	
Manganese	6010B	5.0	0.4	1	10/25/04	10/26/04	0.4	U	
Nickel	6010B	20.0	3.0	1	10/25/04	10/26/04	3.0	U	
Zinc	6010B	10.0	3.0	1	10/25/04	10/26/04	3.0	U	

% Solids: 0.0

Comments:

Columbia Analytical Services INC.
An Employee - Owned Company

Rec'd 11-8-04

CHAIN OF CUSTODY

SR#: K2408663

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 2 OF 2 COC #

PROJECT NAME J.H. Baxter Co
PROJECT NUMBER Landfill wells
PROJECT MANAGER Maryjee Larson
COMPANY/ADDRESS 6520 188th St NE
PO Box 305
CITY/STATE/ZIP Arlington, WA 98223
E-MAIL ADDRESS
PHONE # 360 435-2146
FAX# 360 435-3035
SAMPLER'S SIGNATURE [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 8270 8270LL	Volatile Organics 624 8260 8021 BTEX	Hydrocarbons (*see below) Gas Diesel Oil	Fuel Fingerprint (FIQ) NW-HCID Screen	Oil & Grease/TRPH 1664 HEM 1664 SGT	PCB's Aroclors Congeners	Pesticides/Herbicides 608 8081A 8141A 8151A	Chlorophenolics - 8151M Tri Tetra PCP	PAHS 8310 SIM	Metals Total or Dissolved (See list below)	Cyanide Hex-Chrom	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 AOX 1650 506	Tannin/Lignin			REMARKS
BXS-1	10-12-04	10:15		Water	3										X		X	X		X			
BXS-5	10-12-04	11:00		Water	3										X		X	X		X			

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: JH Baxter Co
PO Box 10797
Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

(Dissolved Metals:) Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Not Validated

Attn: RaeAnn Thomas
Maryjee Larson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 10-13-04 15:00	Signature: Tracy Black Date/Time: 10/13/04 1440	Signature: Date/Time:	Signature: Date/Time:
Printed Name: Maryjee Larson Firm: JH Baxter	Printed Name: Black Firm: CAS	Printed Name: Firm:	Printed Name: Firm:

1317 South 13th Avenue P.O. Box 479 Kelso, Washington 98626 (360) 577-7222 ph (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

November 3, 2004 Service Request No: K2408063

Mary Larson
JH Baxter & Company
P.O. Box 305
Arlington, WA 98223

RE: Arlington Landfill Wells / BXS-WELLS-Landfill

Dear Mary:

Enclosed are the results of the sample(s) submitted to our laboratory on October 13, 2004. For your reference, these analyses have been assigned our service request number K2408063.

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

Please call if you have any questions. My extension is 3291.

Respectfully submitted,

Columbia Analytical Services, Inc.

Ed Wallace
Project Chemist

EW/jeb

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	J.H. Baxter & Company	**Service Request No.:**	K2408063
Project:	Arlington Landfill Wells	**Date Received:**	10/13/04
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 10/13/04. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Dissolved Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Manganese for the Batch QC sample is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Approved by EMW **Date** 11/4/04

CHAIN OF CUSTODY

Columbia Analytical Services INC.
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SR#: K2408063

PAGE 2 OF 2 COC #

PROJECT NAME: J.H. Baxter & Co
PROJECT NUMBER: Landfill wells
PROJECT MANAGER: Maryleelarson
COMPANY/ADDRESS: 6520 188th St NE
PO Box 305
CITY/STATE/ZIP: Arlington, WA 98223
E-MAIL ADDRESS:
PHONE #: 360 435-2146 FAX#: 360 435-3035
SAMPLER'S SIGNATURE: Marylee [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ 8021☐ BTEX☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen Diesel☐ Oil☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐	Pesticides/Herbicides 608☐ 8081A☐ Congeners☐	Chlorophenolics - 8151M Tri☐ Tetra☐ 8141A☐ 8151A☐	PAHS 8310☐ SIM☐ PCP☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond, Cl, NO3, SO4, PO4, F, NO2, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	Tannin/Lignin			REMARKS
BXS-1	10-12-04	10:45		Water	3										X		X	X		X			
BXS-5	10-12-04	17:00		Water	3										X		X	X		X			

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To: JH Baxter & Co
PO Box 10797
Eugene, OR 97440

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results
___ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals (circled): Al (As) Sb (Ba) Be B Ca (Cd) Co Cr (Cu) (Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr Tl Sn V (Zn) Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:______ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:
Attn: RoeAnn Thomas
Maryleelarson

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date/Time: 10-12-04 15:00	Signature: Tracy Black Date/Time: 10/13/04 1440	Signature Date/Time	Signature Date/Time
Printed Name: Maryleelarson Firm: JH Baxter	Printed Name: Black Firm: CAS	Printed Name Firm	Printed Name Firm

7

Cooler Receipt and Preservation Form

Project/Client J H Baxter Work Order K240 8063

Cooler received on 10/13/04 and opened on 10/13/04 by JBlaide

1.	Were custody seals on outside of coolers?	(Y)	N
	If yes, how many and where? 1 front		
2.	Were custody seals intact?	(Y)	N
3.	Were signature and date present on the custody seals?	(Y)	N
4.	Is the shipper's airbill available and filed? If no, record airbill number:	Y	(N)
5.	COC#		
	Temperature of cooler(s) upon receipt: (°C)	3.0	
	Temperature Blank: (°C)	2.0	
	Were samples hand delivered on the same day as collection?	(Y)	N
6.	Were custody papers properly filled out (ink, signed, etc.)?	(Y)	N
7.	Type of packing material present ice - bmap		
8.	**Did all bottles arrive in good condition (unbroken)?**	(Y)	N
9.	Were all bottle labels complete (i.e analysis, preservation, etc.)?	(Y)	N
10.	Did all bottle labels and tags agree with custody papers?	(Y)	N
11.	**Were the correct types of bottles used for the tests indicated?**	(Y)	N
12.	Were all of the preserved bottles received at the lab with the appropriate pH?	(Y)	N
13.	Were VOA vials checked for absence of air bubbles, and if present, noted below?	~~Y~~	~~N~~
14.	Did the bottles originate from CAS/K or a branch laboratory?	(Y)	N
15.	**Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?**	~~Y~~	~~N~~
16.	Was C12/Res negative?	~~Y~~	~~N~~

SAMPLE HANDLING

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Chloride

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.2	0.06	2	10/16/04	3.0	
BXS-5	K2408063-002	0.2	0.06	2	10/16/04	ND	
Method Blank	K2408063-MB	0.2	0.03	1	10/16/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Sulfate

Analysis Method : 300.0
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.2	0.18	2	10/16/04	6.9	
BXS-5	K2408063-002	0.2	0.18	2	10/16/04	ND	
Method Blank	K2408063-MB	0.2	0.09	1	10/16/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Chemical Oxygen Demand

Analysis Method : 410.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	5	3	1	10/20/04	15	
BXS-5	K2408063-002	5	3	1	10/20/04	ND	
Method Blank	K2408063-MB	5	3	1	10/20/04	ND	

Report By:PWiest

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Ammonia as Nitrogen

Analysis Method : 350.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.05	0.03	1	10/19/04	ND	
BXS-5	K2408063-002	0.05	0.03	1	10/19/04	ND	
Method Blank	K2408063-MB	0.05	0.03	1	10/19/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

pH

Analysis Method : 150.1
Test Notes :

Units : pH UNITS
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	-	-	1	10/13/04	6.26	
BXS-5	K2408063-002	-	-	1	10/13/04	6.50	

Report By:PWiest

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Nitrate+Nitrite as Nitrogen

Analysis Method : 353.2
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.2	0.01	1	10/18/04	0.3	
BXS-5	K2408063-002	0.2	0.01	1	10/18/04	ND	
Method Blank	K2408063-MB	0.2	0.01	1	10/18/04	ND	

Report By:PWiest

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Conductivity

Analysis Method : 120.1
Test Notes :

Units : uMhos/cm
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	2	0.2	1	10/23/04	395	
BXS-5	K2408063-002	2	0.2	1	10/23/04	0.2	J
Method Blank	K2408063-MB	2	0.2	1	10/23/04	ND	

ort By:PWiest

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

ient : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
oject Number : BXS-WELLS-Landfill
mple Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Carbon, Total Organic

Analysis Method : 415.1
st Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.5	0.07	1	10/22/04	5.8	
S-5	K2408063-002	0.5	0.07	1	10/22/04	ND	
Method Blank	K2408063-MB	0.5	0.07	1	10/22/04	ND	

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : Water

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Solids, Total Dissolved (TDS)

Analysis Method : 160.1
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	5	5	1	10/15/04	262	
BXS-5	K2408063-002	5	5	1	10/15/04	ND	
Method Blank	K2408063-MB	5	5	1	10/15/04	ND	

Analytical Report

Client :	J.H. Baxter & Company	**Service Request :**	K2408063
Project Name :	Arlington Landfill Wells	**Date Collected :**	10/12/04
Project Number :	BXS-WELLS-Landfill	**Date Received :**	10/13/04
Sample Matrix :	WATER		

Tannin and Lignin

Analysis Method : SM 5550 B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	0.2	0.07	1	10/22/04	0.3	
BXS-5	K2408063-002	0.2	0.07	1	10/22/04	0.08	J
Method Blank	K2408063-MB	0.2	0.07	1	10/22/04	ND	

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

Analytical Report

Client : J.H. Baxter & Company
Project Name : Arlington Landfill Wells
Project Number : BXS-WELLS-Landfill
Sample Matrix : WATER

Service Request : K2408063
Date Collected : 10/12/04
Date Received : 10/13/04

Bicarbonate as CaCO3

Analysis Method : SM 2320B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1	K2408063-001	2	0.7	1	10/26/04	218	
BXS-5	K2408063-002	2	0.7	1	10/26/04	12	
Method Blank	K2408063-MB	2	0.7	1	10/26/04	ND	

M Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.

ort By:PWiest

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408063
Date Collected: 10/12/04
Date Received: 10/13/04
Units: µG/L
Basis: NA

Sample Name: BXS-1
Lab Code: K2408063-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	23.4		
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	10	U	
Manganese	6010B	5.0	0.4	1	10/25/04	10/27/04	478		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	18.8	B	
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	9.9	B	

Solids: 0.0

Comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408063
Date Collected: 10/12/04
Date Received: 10/13/04
Units: µG/L
Basis: NA

Sample Name: BXS-5

Lab Code: K2408063-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	
Barium	6010B	5.0	0.7	1	10/25/04	10/27/04	0.7	U	
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/27/04	10	U	
Manganese	6010B	5.0	0.4	1	10/25/04	10/27/04	0.4	U	
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	3.0	U	
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	3.0	U	

Solids: 0.0

Comments:

DISSOLVED METALS
-1-
INORGANIC ANALYSIS DATA SHEET

Client: J.H. Baxter & Company
Project No.: BXS-WELLS-Landfill
Project Name: Arlington Landfill Wells
Matrix: WATER

Service Request: K2408063
Date Collected:
Date Received:
Units: µG/L
Basis: NA

Sample Name: Method Blank
Lab Code: K2408063-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	
Barium	6010B	5.0	0.7	1	10/25/04	10/26/04	0.7	U	
Cadmium	6010B	5.0	2.0	1	10/25/04	10/26/04	2.0	U	
Copper	6010B	10.0	7.0	1	10/25/04	10/26/04	7.0	U	
Iron	6010B	20	10	1	10/25/04	10/26/04	10	U	
Manganese	6010B	5.0	0.4	1	10/25/04	10/26/04	0.4	U	
Nickel	6010B	20.0	3.0	1	10/25/04	10/26/04	3.0	U	
Zinc	6010B	10.0	3.0	1	10/25/04	10/26/04	3.0	U	

Solids: 0.0

Comments:

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11626 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9696
Project: Landfill Wells Sno Co

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-1
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619933
Collect Date: 10/12/2004
Date Received: 10/13/2004
Report Date: 10/18/2004
Field ID: BXS-1
Supervisor: KD

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	4	per 100mL	ko	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated

Comments:

FORM: BACT_ST

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Burlington, WA 98233
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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9637
Project: Landfill Wells/Sno Co.

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-2
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619821
Collect Date: 10/11/2004
Date Received: 10/12/2004
Report Date: 10/15/2004
Field ID: BXS-2
Supervisor: KJ

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	sk	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated

Comments:

FORM. BACT_BT

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Burlington, WA 98233
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(360) 757-1400 - FAX (360) 757-1402

Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9637
Project: Landfill Wells/Sno Co.

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-3
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619822
Collect Date: 10/11/2004
Date Received: 10/12/2004
Report Date: 10/15/2004
Field ID: BXS-3
Supervisor: KD

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	12	per 100mL	sk	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM. BACT_ST

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Burlington, WA 98233
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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9637
Project: Landfill Wells/Sno Co.

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-4
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619823
Collect Date: 10/11/2004
Date Received: 10/12/2004
Report Date: 10/15/2004
Field ID: BXS-4
Supervisor:

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	sk	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM BACT_ST

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Burlington, WA 98233
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Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9698
Project: Landfill Wells Sno Co

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-5
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619934
Collect Date: 10/12/2004
Date Received: 10/13/2004
Report Date: 10/18/2004
Field ID: BXS-5
Supervisor: KD

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	ka	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated

Comments:

FORM: BACT_ST

EDGE ANALYTICAL
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Burlington, WA 98233
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(360) 757-1400 • FAX (360) 757-1402

Washington State Department of Health
WATER BACTERIOLOGICAL ANALYSIS

Client Name: J H Baxter Company
P O Box 305
Eugene, OR 97440

Reference Number: 04-9637
Project: Landfill Wells/Sno Co.

System Name:
System ID Number:
DOH Source Number:
Sample Type:
Sample Purpose: Investigative or Other
Sample Location: BXS-6
County:
Sampled By:

Repeat Sample Number:
Lab Number: 04619824
Collect Date: 10/11/2004
Date Received: 10/12/2004
Report Date: 10/15/2004
Field ID: BXS-6
Supervisor:

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	2	per 100mL	sk	SM9221 B	

NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems. Private individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coli or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT_ST

Appendix C

Statistical Analysis of
Groundwater Quality Results
(BXS-1 through BXS-4)

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Field pH

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	n	4
Critical Statistic	t_c	2.353

BXS-4

(Upgradient well)

Apr-03	7.91				*Average Concentration*
Jul-03	7.9				m_o
Oct-03	7.84				
Feb-04	7.14	7.91	7.9	7.84	7.70
Apr-04	7.48	7.9	7.84	7.14	7.59
Jul-04	7.38	7.84	7.14	7.48	7.46
Oct-04	7.54	7.14	7.48	7.38	7.39

BXS-3

(Downgradient well)

Apr-03	6.96							
Jul-03	6.33				X_{bar}	s^2	s	t_{stat}
Oct-03	6.26							
Feb-04	5.31	6.96	6.33	6.26	6.22	0.46	0.68	-1.09
Apr-04	6.11	6.33	6.26	5.31	6.00	0.22	0.47	-1.69
Jul-04	6.02	6.26	5.31	6.11	5.93	0.18	0.42	-1.82
Oct-04	6.16	5.31	6.11	6.02	5.90	0.16	0.40	-1.87

BXS-2

(Downgradient well)

Apr-03	6.52							
Jul-03	6.25				X_{bar}	s^2	s	t_{stat}
Oct-03	6.07							
Feb-04	4.73	6.52	6.25	6.07	5.89	0.63	0.80	-1.13
Apr-04	6.07	6.25	6.07	4.73	5.78	0.50	0.71	-1.28
Jul-04	5.96	6.07	4.73	6.07	5.71	0.43	0.65	-1.34
Oct-04	6.11	4.73	6.07	5.96	5.72	0.44	0.66	-1.26

BXS-1

(Downgradient well)

Apr-03	5.97							
Jul-03	6.12				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	8.87	5.97	6.12		6.99	2.67	1.63	-0.22
Apr-04	5.84	6.12		8.87	6.94	2.80	1.67	-0.19
Jul-04	5.92		8.87	5.84	6.88	2.98	1.73	-0.17
Oct-04	6.01	8.87	5.84	5.92	6.66	2.18	1.47	-0.25

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Field Conductivity

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	191				
Jul-03	193				
Oct-03	207				
Feb-04	174	191	193	207	191.25
Apr-04	197	193	207	174	192.75
Jul-04	216	207	174	197	198.50
Oct-04	203	174	197	216	197.50

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	899							
Jul-03	945							
Oct-03	945							
Feb-04	699	899	945	945	872	13772	117	**2.90**
Apr-04	836	945	945	699	856	13630	117	**2.84**
Jul-04	926	945	699	836	852	12596	112	**2.91**
Oct-04	949	699	836	926	853	12850	113	**2.89**

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	808							
Jul-03	869							
Oct-03	883							
Feb-04	737	808	869	883	824	4444	67	**4.75**
Apr-04	838	869	883	737	832	4344	66	**4.85**
Jul-04	874	883	737	838	833	4474	67	**4.74**
Oct-04	834	737	838	874	821	3441	59	**5.31**

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	442							
Jul-03	441							
Oct-03								
Feb-04	297	442	441		393	6960	83	1.21
Apr-04	339	441		297	359	5484	74	1.12
Jul-04	417		297	339	351	3708	61	1.25
Oct-04	478	297	339	417	383	6504	81	1.15

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Ammonia

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	0.53				*Average Concentration*
Jul-03	0.55				m_o
Oct-03	0.48				
Feb-04	0.51	0.53	0.55	0.48	0.52
Apr-04	0.55	0.55	0.48	0.51	0.52
Jul-04	0.5	0.48	0.51	0.55	0.51
Oct-04	0.53	0.51	0.55	0.5	0.52

BXS-3

(Downgradient well)

Apr-03	0.15							
Jul-03	0.18				X_{bar}	s^2	s	t_{stat}
Oct-03	0.25							
Feb-04	0.12	0.15	0.18	0.25	0.18	0.00	0.06	*-3.08*
Apr-04	0.61	0.18	0.25	0.12	0.29	0.05	0.22	-0.53
Jul-04	0.13	0.25	0.12	0.61	0.28	0.05	0.23	-0.51
Oct-04	0.12	0.12	0.61	0.13	0.25	0.06	0.24	-0.57

BXS-2

(Downgradient well)

Apr-03	0.025							
Jul-03	0.02				X_{bar}	s^2	s	t_{stat}
Oct-03	0.025							
Feb-04	0.04	0.025	0.02	0.025	0.03	0.00	0.01	*-28.29*
Apr-04	0.05	0.02	0.025	0.04	0.03	0.00	0.01	*-17.75*
Jul-04	0.06	0.025	0.04	0.05	0.04	0.00	0.01	*-15.61*
Oct-04	0.025	0.04	0.05	0.06	0.04	0.00	0.01	*-16.03*

BXS-1

(Downgradient well)

Apr-03	0.025							
Jul-03	0.025				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	0.025	0.025	0.025		0.03	0.00	0.00	#DIV/0!
Apr-04	0.025	0.025		0.025	0.03	0.00	0.00	#DIV/0!
Jul-04	0.025		0.025	0.025	0.03	0.00	0.00	#DIV/0!
Oct-04	0.025	0.025	0.025	0.025	0.03	0.00	0.00	#DIV/0!

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Chemical Oxygen Demand

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	2				
Jul-03	2.5				
Oct-03	4				
Feb-04	2.5	2	2.5	4	2.75
Apr-04	2.5	2.5	4	2.5	2.88
Jul-04	2.5	4	2.5	2.5	2.88
Oct-04	4	2.5	2.5	2.5	2.88

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	59							
Jul-03	56							
Oct-03	55							
Feb-04	49	59	56	55	54.75	17.58	4.19	**6.20**
Apr-04	65	56	55	49	56.25	43.58	6.60	**4.04**
Jul-04	58	55	49	65	56.75	44.25	6.65	**4.05**
Oct-04	63	49	65	58	58.75	50.92	7.14	**3.92**

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	40							
Jul-03	37							
Oct-03	36							
Feb-04	35	40	37	36	37.00	4.67	2.16	**7.93**
Apr-04	37	37	36	35	36.25	0.92	0.96	**17.43**
Jul-04	37	36	35	37	36.25	0.92	0.96	**17.43**
Oct-04	43	35	37	37	38.00	12.00	3.46	**5.07**

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	16							
Jul-03	14							
Oct-03								
Feb-04	5	16	14		11.67	34.33	5.86	0.76
Apr-04	10	14		5	9.67	20.33	4.51	0.75
Jul-04	14		5	10	9.67	20.33	4.51	0.75
Oct-04	15	5	10	14	11.00	20.67	4.55	0.89

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Chloride

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	2.1				*Average Concentration*
Jul-03	1.8				m_o
Oct-03	2				
Feb-04	1.9	2.1	1.8	2	1.95
Apr-04	1.8	1.8	2	1.9	1.88
Jul-04	1.9	2	1.9	1.8	1.90
Oct-04	1.6	1.9	1.8	1.9	1.80

BXS-3

(Downgradient well)

Apr-03	4							
Jul-03	3				X_{bar}	s^2	s	t_{stat}
Oct-03	3.1							
Feb-04	2.7	4	3	3.1	3.20	0.31	0.56	1.12
Apr-04	3.1	3	3.1	2.7	2.98	0.04	0.19	**2.91**
Jul-04	2.7	3.1	2.7	3.1	2.90	0.05	0.23	2.17
Oct-04	0.8	2.7	3.1	2.7	2.33	1.07	1.03	0.25

BXS-2

(Downgradient well)

Apr-03	6							
Jul-03	5.2				X_{bar}	s^2	s	t_{stat}
Oct-03	5							
Feb-04	4.6	6	5.2	5	5.20	0.35	0.59	**2.76**
Apr-04	4.6	5.2	5	4.6	4.85	0.09	0.30	**4.96**
Jul-04	4.8	5	4.6	4.6	4.75	0.04	0.19	**7.44**
Oct-04	3.3	4.6	4.6	4.8	4.33	0.48	0.69	1.83

BXS-1

(Downgradient well)

Apr-03	4.9							
Jul-03	4.8				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	6.1	4.9	4.8		5.27	0.52	0.72	2.29
Apr-04	4.8	4.8		6.1	5.23	0.56	0.75	2.24
Jul-04	4.3		6.1	4.8	5.07	0.86	0.93	1.70
Oct-04	3	6.1	4.8	4.3	4.55	1.64	1.28	1.07

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Nitrate + Nitrite as N

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples **n**	**4**
Critical Statistic t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	0.1				
Jul-03	0.1				
Oct-03	0.1				
Feb-04	0.06	0.1	0.1	0.1	0.09
Apr-04	0.1	0.1	0.1	0.06	0.09
Jul-04	0.05	0.1	0.06	0.1	0.08
Oct-04	0.025	0.06	0.1	0.05	0.06

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	0.1							
Jul-03	0.1							
Oct-03	0.1							
Feb-04	0.08	0.1	0.1	0.1	0.10	0.00	0.01	0.25
Apr-04	0.1	0.1	0.1	0.08	0.10	0.00	0.01	0.25
Jul-04	0.1	0.1	0.08	0.1	0.10	0.00	0.01	0.87
Oct-04	0.01	0.08	0.1	0.1	0.07	0.00	0.04	0.16

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	0.1							
Jul-03	0.1							
Oct-03	0.1							
Feb-04	0.1	0.1	0.1	0.1	0.10	0.00	0.00	#DIV/0!
Apr-04	0.1	0.1	0.1	0.1	0.10	0.00	0.00	#DIV/0!
Jul-04	0.1	0.1	0.1	0.1	0.10	0.00	0.00	#DIV/0!
Oct-04	0.01	0.1	0.1	0.1	0.08	0.00	0.05	0.21

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	0.9							
Jul-03	1.5							
Oct-03								
Feb-04	1.1	0.9	1.5		1.17	0.09	0.31	1.76
Apr-04	1.4	1.5		1.1	1.33	0.04	0.21	2.99
Jul-04	0.6		1.1	1.4	1.03	0.16	0.40	1.18
Oct-04	0.3	1.1	1.4	0.6	0.85	0.24	0.49	0.80

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Total Dissolved Solids

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	143				*Average Concentration*
Jul-03	128				m_o
Oct-03	140				
Feb-04	123	143	128	140	133.50
Apr-04	126	128	140	123	129.25
Jul-04	128	140	123	126	129.25
Oct-04	129	123	126	128	126.50

BXS-3

(Downgradient well)

Apr-03	524							
Jul-03	592				X_{bar}	s^2	s	t_{stat}
Oct-03	568							
Feb-04	404	524	592	568	522	6981	84	2.32
Apr-04	512	592	568	404	519	7001	84	2.33
Jul-04	528	568	404	512	503	4911	70	**2.67**
Oct-04	528	404	512	528	493	3577	60	**3.06**

BXS-2

(Downgradient well)

Apr-03	460							
Jul-03	492				X_{bar}	s^2	s	t_{stat}
Oct-03	528							
Feb-04	428	460	492	528	477	1839	43	**4.01**
Apr-04	492	492	528	428	485	1732	42	**4.27**
Jul-04	396	528	428	492	461	3588	60	**2.77**
Oct-04	440	428	492	396	439	1593	40	**3.91**

BXS-1

(Downgradient well)

Apr-03	236							
Jul-03	245				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	202	236	245		228	514	23	2.08
Apr-04	226	245		202	224	464	22	2.21
Jul-04	222		202	226	217	165	13	**3.40**
Oct-04	262	202	226	222	228	624	25	2.03

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Sulfate

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	1.1				*Average Concentration*
Jul-03	1.5				m_o
Oct-03	1				
Feb-04	1.3	1.1	1.5	1	1.23
Apr-04	0.9	1.5	1	1.3	1.18
Jul-04	0.9	1	1.3	0.9	1.03
Oct-04	1.5	1.3	0.9	0.9	1.15

BXS-3

(Downgradient well)

Apr-03	0.19							
Jul-03	0.1				X_{bar}	s^2	s	t_{stat}
Oct-03	0.1							
Feb-04	0.15	0.19	0.1	0.1	0.14	0.00	0.04	*-12.50*
Apr-04	0.1	0.1	0.1	0.15	0.11	0.00	0.02	*-21.25*
Jul-04	0.1	0.1	0.15	0.1	0.11	0.00	0.03	*-18.25*
Oct-04	0.1	0.15	0.1	0.1	0.11	0.00	0.03	*-20.75*

BXS-2

(Downgradient well)

Apr-03	0.3							
Jul-03	0.2				X_{bar}	s^2	s	t_{stat}
Oct-03	0.2							
Feb-04	0.14	0.3	0.2	0.2	0.21	0.00	0.07	*-7.65*
Apr-04	0.1	0.2	0.2	0.14	0.16	0.00	0.05	*-10.36*
Jul-04	0.1	0.2	0.14	0.1	0.14	0.00	0.05	*-9.42*
Oct-04	0.1	0.14	0.1	0.1	0.11	0.00	0.02	*-26.00*

BXS-1

(Downgradient well)

Apr-03	8.2							
Jul-03	9.6				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	12.1	8.2	9.6		9.97	3.90	1.98	2.21
Apr-04	10.5	9.6		12.1	10.73	1.60	1.27	**3.77**
Jul-04	7.7		12.1	10.5	10.10	4.96	2.23	2.04
Oct-04	6.9	12.1	10.5	7.7	9.30	5.87	2.42	1.68

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Tannin and Lignin

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	0.6				*Average Concentration* m_o
Jul-03	0.3				
Oct-03	0.5				
Feb-04	0.4	0.6	0.3	0.5	0.45
Apr-04	0.5	0.3	0.5	0.4	0.43
Jul-04	0.5	0.5	0.4	0.5	0.48
Oct-04	0.5	0.4	0.5	0.5	0.48

BXS-3

(Downgradient well)

Apr-03	2.5				X_{bar}	s^2	s	t_{stat}
Jul-03	4.6							
Oct-03	8.5							
Feb-04	10	2.5	4.6	8.5	6.40	11.94	3.46	0.86
Apr-04	9.9	4.6	8.5	10	8.25	6.39	2.53	1.55
Jul-04	4.4	8.5	10	9.9	8.20	6.89	2.62	1.47
Oct-04	8.3	10	9.9	4.4	8.15	6.86	2.62	1.47

BXS-2

(Downgradient well)

Apr-03	2				X_{bar}	s^2	s	t_{stat}
Jul-03	1.5							
Oct-03	1.9							
Feb-04	1.9	2	1.5	1.9	1.83	0.05	0.22	**3.10**
Apr-04	1.8	1.5	1.9	1.9	1.78	0.04	0.19	**3.57**
Jul-04	0.1	1.9	1.9	1.8	1.43	0.78	0.88	0.54
Oct-04	1.6	1.9	1.8	0.1	1.35	0.71	0.84	0.52

BXS-1

(Downgradient well)

Apr-03	0.3				X_{bar}	s^2	s	t_{stat}
Jul-03	0.2							
Oct-03								
Feb-04	0.2	0.3	0.2		0.23	0.00	0.06	-1.88
Apr-04	0.1	0.2		0.2	0.17	0.00	0.06	-2.24
Jul-04	0.3		0.2	0.1	0.20	0.01	0.10	-1.38
Oct-04	0.3	0.2	0.1	0.3	0.23	0.01	0.10	-1.31

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Total Organic Carbon

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	1				
Jul-03	0.7				
Oct-03	0.125				
Feb-04	1	1	0.7	0.125	0.71
Apr-04	0.8	0.7	0.125	1	0.66
Jul-04	0.9	0.125	1	0.8	0.71
Oct-04	1	1	0.8	0.9	0.93

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	22.2							
Jul-03								
Oct-03	21.2							
Feb-04	19.7	22.2		21.2	21.03	1.58	1.26	**8.08**
Apr-04	24.8		21.2	19.7	21.90	6.87	2.62	**4.05**
Jul-04	23.6	21.2	19.7	24.8	22.33	5.30	2.30	**4.69**
Oct-04	24.4	19.7	24.8	23.6	23.13	5.46	2.34	**4.75**

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	14.1							
Jul-03								
Oct-03	14.6							
Feb-04	14	14.1		14.6	14.23	0.10	0.32	**21.04**
Apr-04	15		14.6	14	14.53	0.25	0.50	**13.79**
Jul-04	15	14.6	14	15	14.65	0.22	0.47	**14.75**
Oct-04	14.7	14	15	15	14.68	0.22	0.47	**14.57**

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	5.9							
Jul-03								
Oct-03								
Feb-04	3.7	5.9			4.80	2.42	1.56	1.32
Apr-04	4.6			3.7	4.15	0.40	0.64	**2.74**
Jul-04	6.1		3.7	4.6	4.80	1.47	1.21	1.69
Oct-04	5.8	3.7	4.6	6.1	5.05	1.23	1.11	1.86

Notes:

X_{bar} Average Concentration

s^2 Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).

Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Total Coliform

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	1				*Average Concentration*
Jul-03	23				m_o
Oct-03	900				
Feb-04	1	1	23	900	231.25
Apr-04	1	23	900	1	231.25
Jul-04	23	900	1	1	231.25
Oct-04	1	1	1	23	6.50

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	1							
Jul-03	1							
Oct-03	1							
Feb-04	1	1	1	1	1	0	0	#DIV/0!
Apr-04	1	1	1	1	1	0	0	#DIV/0!
Jul-04	14	1	1	1	4	42	7	*-17.46*
Oct-04	12	1	1	14	7	49	7	0.04

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	1							
Jul-03	1600							
Oct-03	1							
Feb-04	1	1	1600	1	401	639200	800	0.11
Apr-04	1	1600	1	1	401	639200	800	0.11
Jul-04	4	1	1	1	2	2	2	*-76.50*
Oct-04	1	1	1	4	2	2	2	-1.58

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	1							
Jul-03	30							
Oct-03								
Feb-04	25	1	30		19	240	16	*-6.86*
Apr-04	1	30		25	19	240	16	*-6.86*
Jul-04	1		25	1	9	192	14	*-8.02*
Oct-04	4	25	1	1	8	134	12	0.05

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Arsenic

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	5.2				
Jul-03	6				
Oct-03	4.9				
Feb-04	2.5	5.2	6	4.9	4.65
Apr-04	5.6	6	4.9	2.5	4.75
Jul-04	5	4.9	2.5	5.6	4.50
Oct-04	5.7	2.5	5.6	5	4.70

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	4.6							
Jul-03	2.5							
Oct-03	3.7							
Feb-04	3	4.6	2.5	3.7	3.45	0.83	0.91	-0.66
Apr-04	8.5	2.5	3.7	3	4.43	7.62	2.76	-0.06
Jul-04	3	3.7	3	8.5	4.55	7.04	2.65	0.01
Oct-04	4.4	3	8.5	3	4.73	6.77	2.60	0.00

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	1.2							
Jul-03	2.5							
Oct-03	2.5							
Feb-04	2.5	1.2	2.5	2.5	2.18	0.42	0.65	-1.90
Apr-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!
Jul-04	1	2.5	2.5	2.5	2.13	0.56	0.75	-1.58
Oct-04	2.5	2.5	2.5	1	2.13	0.56	0.75	-1.72

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	2.5							
Jul-03	2.5							
Oct-03								
Feb-04	2.5	2.5	2.5		2.50	0.00	0.00	#DIV/0!
Apr-04	2.5	2.5		2.5	2.50	0.00	0.00	#DIV/0!
Jul-04	2.5		2.5	2.5	2.50	0.00	0.00	#DIV/0!
Oct-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Barium

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	29.1				*Average Concentration*
Jul-03	32				m_o
Oct-03					
Feb-04	2.5	29.1	32		21.20
Apr-04	29.3	32		2.5	21.27
Jul-04	31		2.5	29.3	20.93
Oct-04	29.4	2.5	29.3	31	23.05

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	54.4							
Jul-03	58.1							
Oct-03	50.7							
Feb-04	65.3	54.4	58.1	50.7	57.13	38.83	6.23	**2.88**
Apr-04	111	58.1	50.7	65.3	71.28	736.90	27.15	0.92
Jul-04	54	50.7	65.3	111	70.25	777.11	27.88	0.88
Oct-04	53.3	65.3	111	54	70.90	744.91	27.29	0.88

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	48.7							
Jul-03	42.1							
Oct-03	47.8							
Feb-04	45	48.7	42.1	47.8	45.90	8.90	2.98	**4.14**
Apr-04	48.8	42.1	47.8	45	45.93	9.09	3.01	**4.09**
Jul-04	55	47.8	45	48.8	49.15	17.80	4.22	**3.34**
Oct-04	43.3	45	48.8	55	48.03	26.91	5.19	**2.41**

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	20.3							
Jul-03	18							
Oct-03								
Feb-04	10	20.3	18		16.10	29.23	5.41	-0.47
Apr-04	19.9	18		10	15.97	27.60	5.25	-0.50
Jul-04	21		10	19.9	16.97	36.70	6.06	-0.33
Oct-04	23.4	10	19.9	21	18.58	34.82	5.90	-0.38

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Copper

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	5				
Jul-03	5				
Oct-03	5				
Feb-04	5	5	5	5	5.00
Apr-04	5	5	5	5	5.00
Jul-04	5	5	5	5	5.00
Oct-04	5	5	5	5	5.00

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	5							
Jul-03	5							
Oct-03	5							
Feb-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Apr-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Jul-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Oct-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	5							
Jul-03	5							
Oct-03	5							
Feb-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Apr-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Jul-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Oct-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	16.8							
Jul-03	5							
Oct-03								
Feb-04	5	16.8	5		8.93	46.41	6.81	0.29
Apr-04	5	5		5	5.00	0.00	0.00	#DIV/0!
Jul-04	11		5	5	7.00	12.00	3.46	0.29
Oct-04	5	5	5	11	6.50	9.00	3.00	0.25

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Cadmium

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03					
Jul-03	2.5				
Oct-03	2.5				
Feb-04	2.5		2.5	2.5	2.50
Apr-04	2.5	2.5	2.5	2.5	2.50
Jul-04	2.5	2.5	2.5	2.5	2.50
Oct-04	2.5	2.5	2.5	2.5	2.50

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03								
Jul-03	2.5							
Oct-03	5							
Feb-04	2.5		2.5	5	3.33	2.08	1.44	0.29
Apr-04	2.5	2.5	5	2.5	3.13	1.56	1.25	0.25
Jul-04	6	5	2.5	2.5	4.00	3.17	1.78	0.42
Oct-04	2.5	2.5	2.5	6	3.38	3.06	1.75	0.25

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03								
Jul-03	2.5							
Oct-03	2.5							
Feb-04	2.5		2.5	2.5	2.50	0.00	0.00	#DIV/0!
Apr-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!
Jul-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!
Oct-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03								
Jul-03	2.5							
Oct-03								
Feb-04	2.5		2.5		2.50	0.00	0.00	#DIV/0!
Apr-04	2.5	2.5		2.5	2.50	0.00	0.00	#DIV/0!
Jul-04	2.5		2.5	2.5	2.50	0.00	0.00	#DIV/0!
Oct-04	2.5	2.5	2.5	2.5	2.50	0.00	0.00	#DIV/0!

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Iron

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	40.8				*Average Concentration*
Jul-03	53				m_o
Oct-03	36.1				
Feb-04	10	40.8	53	36.1	34.98
Apr-04	42.4	53	36.1	10	35.38
Jul-04	60	36.1	10	42.4	37.13
Oct-04	40.3	10	42.4	60	38.18

BXS-3

(Downgradient well)

Apr-03	4280							
Jul-03	3680				X_{bar}	s^2	s	t_{stat}
Oct-03	903							
Feb-04	2950	4280	3680	903	2953	2163989	1471.05	0.99
Apr-04	8890	3680	903	2950	4106	11554559	3399.20	0.60
Jul-04	4290	903	2950	8890	4258	11474446	3387.40	0.62
Oct-04	1710	2950	8890	4290	4460	9832133	3135.62	0.71

BXS-2

(Downgradient well)

Apr-03	780							
Jul-03	926				X_{bar}	s^2	s	t_{stat}
Oct-03	836							
Feb-04	753	780	926	836	824	5842	76.43	**5.16**
Apr-04	796	926	836	753	828	5439	73.75	**5.37**
Jul-04	750	836	753	796	784	1655	40.68	**9.18**
Oct-04	836	753	796	750	784	1655	40.68	**9.16**

BXS-1

(Downgradient well)

Apr-03	10							
Jul-03	10				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	10	10	10		10	0	0.00	#DIV/0!
Apr-04	10	10		10	10	0	0.00	#DIV/0!
Jul-04	10		10	10	10	0	0.00	#DIV/0!
Oct-04	10	10	10	10	10	0	0.00	#DIV/0!

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Manganese

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

Apr-03	118				*Average Concentration*
Jul-03	115				m_o
Oct-03	115				
Feb-04	2.5	118	115	115	87.63
Apr-04	110	115	115	2.5	85.63
Jul-04	189	115	2.5	110	104.13
Oct-04	110	2.5	110	189	102.88

BXS-3

(Downgradient well)

Apr-03	17800							
Jul-03	15900				X_{bar}	s^2	s	t_{stat}
Oct-03	14500							
Feb-04	15700	17800	15900	14500	15975	1862500	1364.73	**5.82**
Apr-04	14900	15900	14500	15700	15250	436667	660.81	**11.47**
Jul-04	18200	14500	15700	14900	15825	2755833	1660.07	**4.74**
Oct-04	17700	15700	14900	18200	16625	2489167	1577.71	**5.24**

BXS-2

(Downgradient well)

Apr-03	1560							
Jul-03	1390				X_{bar}	s^2	s	t_{stat}
Oct-03	1580							
Feb-04	1410	1560	1390	1580	1485	9767	98.83	**7.07**
Apr-04	1420	1390	1580	1410	1450	7667	87.56	**7.79**
Jul-04	1420	1580	1410	1420	1458	6692	81.80	**8.27**
Oct-04	1430	1410	1420	1420	1420	67	8.16	**80.66**

BXS-1

(Downgradient well)

Apr-03	431							
Jul-03	370				X_{bar}	s^2	s	t_{stat}
Oct-03								
Feb-04	277	431	370		359	6014	77.55	1.75
Apr-04	144	370		277	264	12902	113.59	0.78
Jul-04	326		277	144	249	8869	94.18	0.77
Oct-04	478	277	144	326	306	19023	137.92	0.74

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Nickel

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	n	4
Critical Statistic	t_c	2.353

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	10				
Jul-03	10				
Oct-03	10				
Feb-04	10	10	10	10	10.00
Apr-04	10	10	10	10	10.00
Jul-04	10	10	10	10	10.00
Oct-04	10	10	10	10	10.00

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	22.9							
Jul-03	18.5							
Oct-03	33.3							
Feb-04	49	22.9	18.5	33.3	30.93	183.71	13.55	0.77
Apr-04	30.8	18.5	33.3	49	32.90	157.05	12.53	0.91
Jul-04	10	33.3	49	30.8	30.78	256.71	16.02	0.65
Oct-04	29.5	49	30.8	10	29.83	253.92	15.93	0.62

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	39							
Jul-03	35.9							
Oct-03	37.1							
Feb-04	36.2	39	35.9	37.1	37.05	1.95	1.40	**9.69**
Apr-04	40.3	35.9	37.1	36.2	37.38	4.06	2.02	**6.79**
Jul-04	50	37.1	36.2	40.3	40.90	39.90	6.32	**2.45**
Oct-04	36.5	36.2	40.3	50	40.75	41.51	6.44	**2.39**

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	10							
Jul-03	14.8							
Oct-03								
Feb-04	10	10	14.8		11.60	7.68	2.77	0.29
Apr-04	10	14.8		10	11.60	7.68	2.77	0.29
Jul-04	20		10	10	13.33	33.33	5.77	0.29
Oct-04	18.8	10	10	20	14.70	29.69	5.45	0.43

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic

Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!

Appendix C. Statistical Analysis of Groundwater Quality Results for Downgradient Well, South Landfill

Zinc

$$t_{stat} = X_{bar} - m_o/s/sqrt(n)$$

Number of Samples	**n**	**4**
Critical Statistic	t_c	**2.353**

BXS-4

(Upgradient well)

					Average Concentration m_o
Apr-03	5				
Jul-03	6				
Oct-03	5				
Feb-04	5	5	6	5	5.25
Apr-04	5	6	5	5	5.25
Jul-04	4	5	5	5	4.75
Oct-04	5	5	5	4	4.75

BXS-3

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	14.5							
Jul-03	5.8							
Oct-03	5							
Feb-04	10.6	14.5	5.8	5	8.98	19.68	4.44	0.42
Apr-04	5	5.8	5	10.6	6.60	7.25	2.69	0.25
Jul-04	21	5	10.6	5	10.40	56.91	7.54	0.37
Oct-04	8	10.6	5	21	11.15	48.36	6.95	0.46

BXS-2

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	5							
Jul-03	9.9							
Oct-03	12.7							
Feb-04	6.1	5	9.9	12.7	8.43	12.53	3.54	0.45
Apr-04	5	9.9	12.7	6.1	8.43	12.53	3.54	0.45
Jul-04	8	12.7	6.1	5	7.95	11.56	3.40	0.47
Oct-04	12.8	6.1	5	8	7.98	11.88	3.45	0.47

BXS-1

(Downgradient well)

					X_{bar}	s^2	s	t_{stat}
Apr-03	36.1							
Jul-03	26.2							
Oct-03								
Feb-04	5	36.1	26.2		22.43	252.44	15.89	0.54
Apr-04	33	26.2		5	21.40	213.28	14.60	0.55
Jul-04	24		5	33	20.67	204.33	14.29	0.56
Oct-04	9.9	5	33	24	17.98	165.20	12.85	0.51

Notes:

X_{bar} Average Concentration
s^2 Sample variance
s Sample Standard Deviation
t_{stat} Student's T-Test Statistic
Item shown in **bold** or *gray italics* indicate a statistically valid detection (according to the student's T-Test statistic).
Items with no difference at all (zero difference) will indicate #DIV/0!