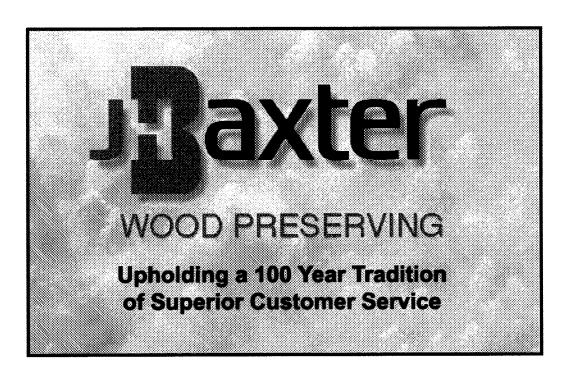
March 6/2/2

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

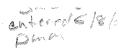
Prepared by:

J. H. Baxter & Company P.O. Box 10797 Eugene, Oregon 97440

May 2005









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.

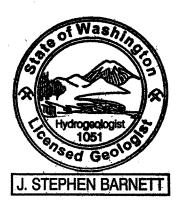
J. Stephen Barnett, Premier Environmental Services, Inc.



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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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 $(\mathbf{v}_{\mathbf{x}})$ 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 (**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.

2004 Groundwater Monitoring Report South Woodwaste Landfill May 2005

• 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 resampled 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 30hour 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 $10 \mu g/L$ 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 μ g/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 μ g/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 μ g/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 μ g/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 μ g/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 μ g/L with a concentration of 6 μ g/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.
- <u>TDS</u> 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 μ g/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 μ g/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

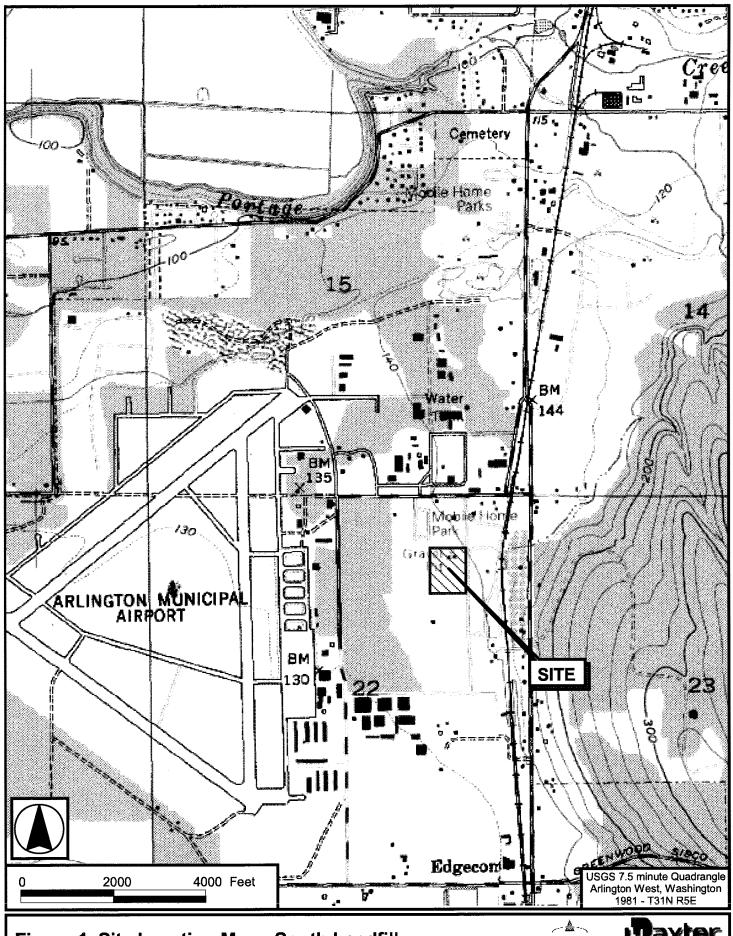


Figure 1. Site Location Map - South Landfill



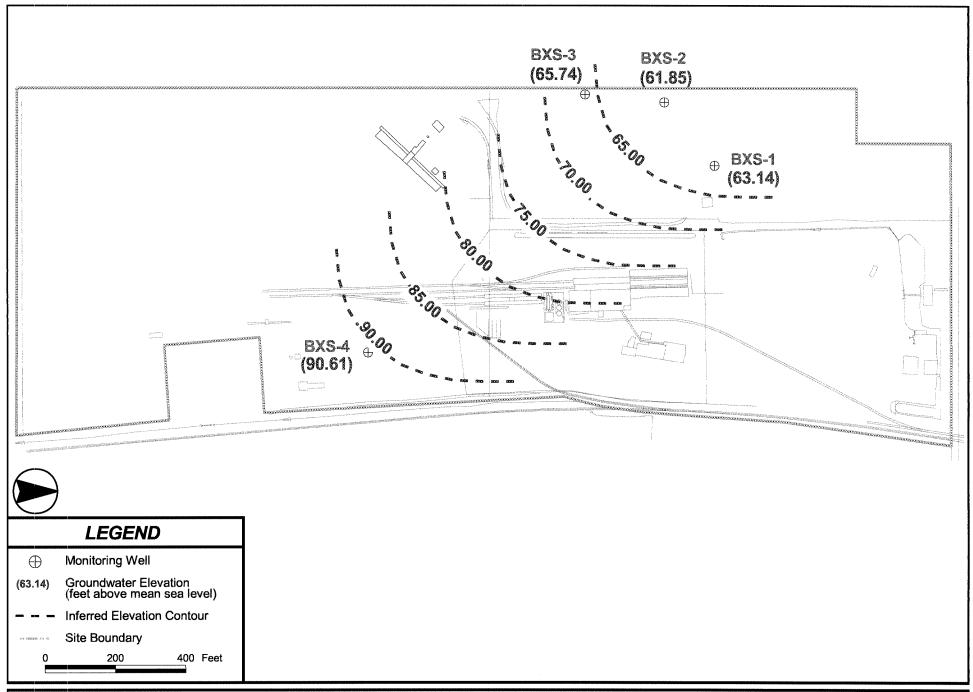


Figure 2. Groundwater Elevation Contour Map - February 2004 - South Landfill



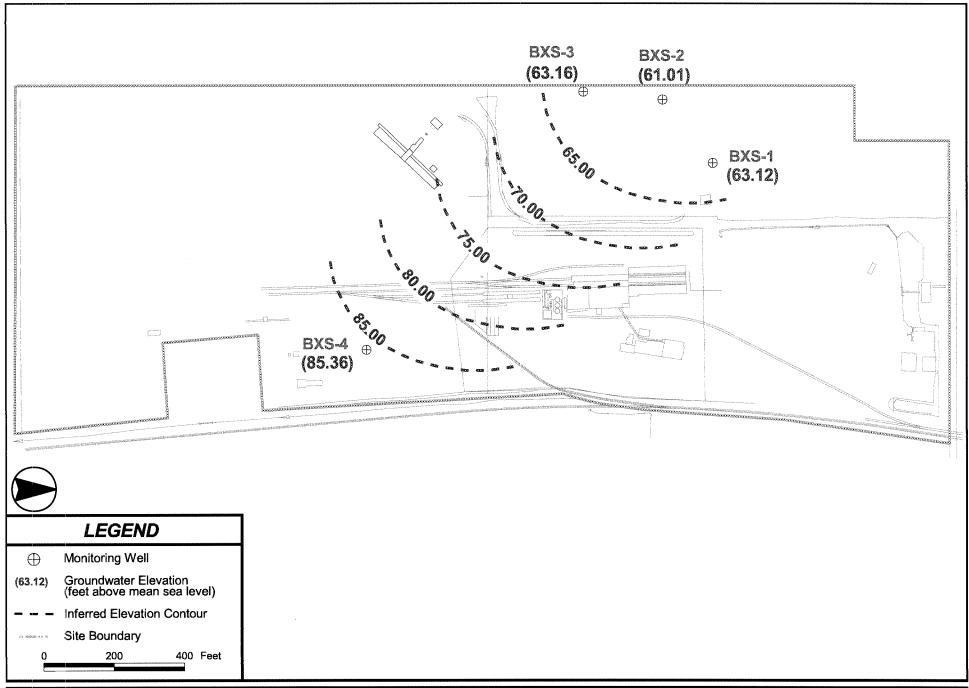
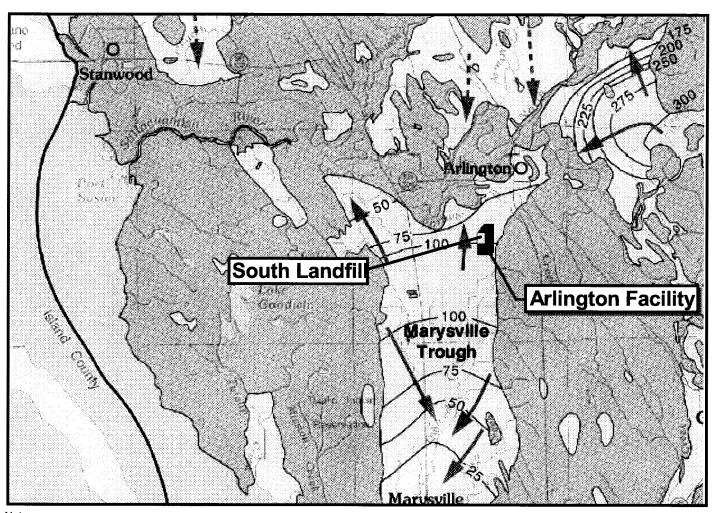


Figure 3. Groundwater Elevation Contour Map - October 2004 - South Landfill







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 Augifers, Western Snohomish County, Washington," dated 1997

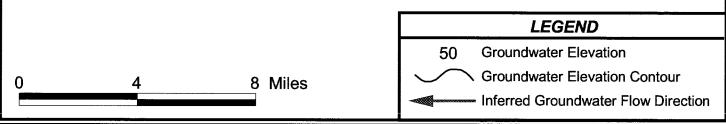


Figure 4. Regional Groundwater Flow Directions



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

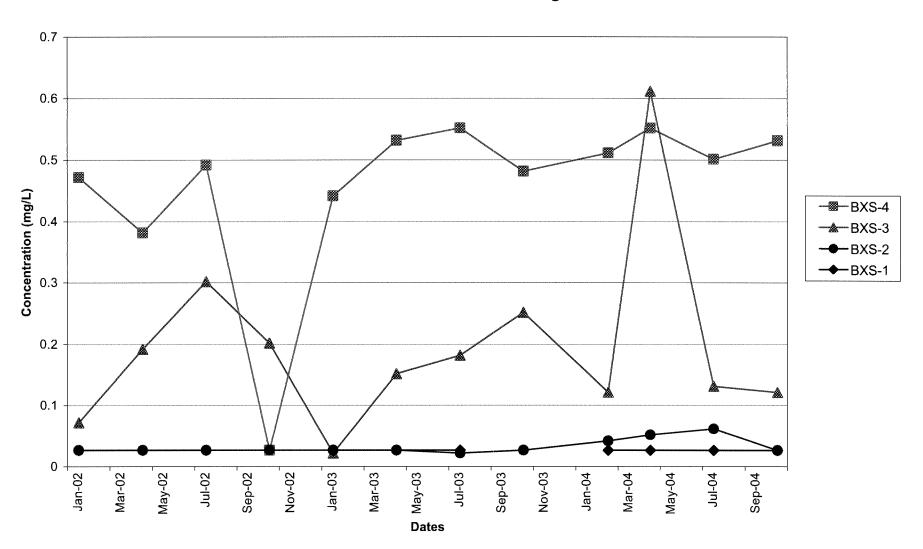


Figure 5. Concentration Trends for Ammonia South Woodwaste Landfill Monitoring Well Data

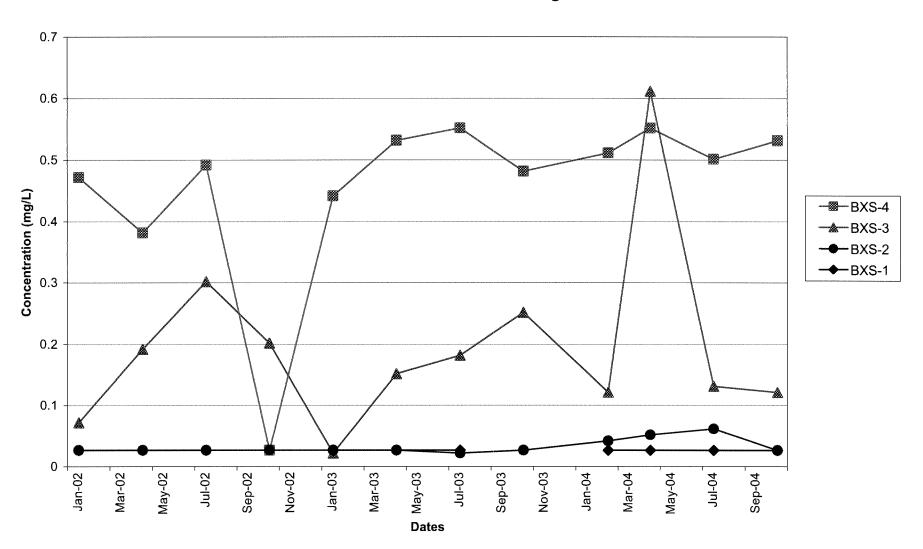


Figure 6. Concentration Trends for Arsenic South Woodwaste Landfill Monitoring Well Data

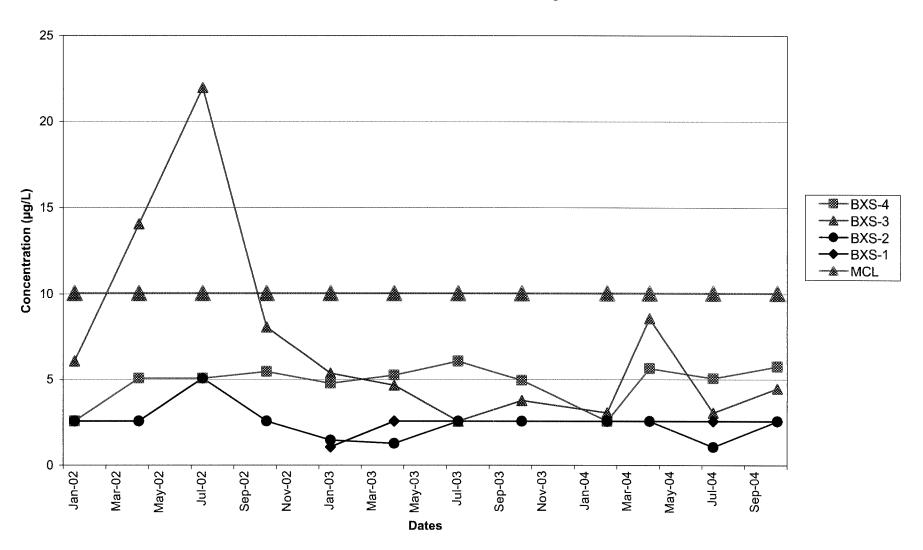


Figure 7. Concentration Trends for Barium South Woodwaste Landfill Monitoring Well Data

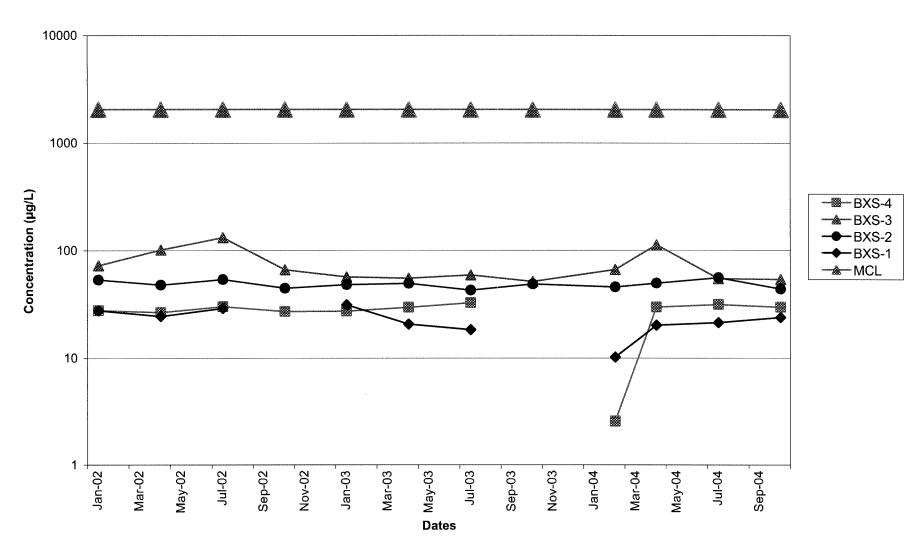


Figure 8. Concentration Trends for Chemical Oxygen Demand South Woodwaste Landfill Monitoring Well Data

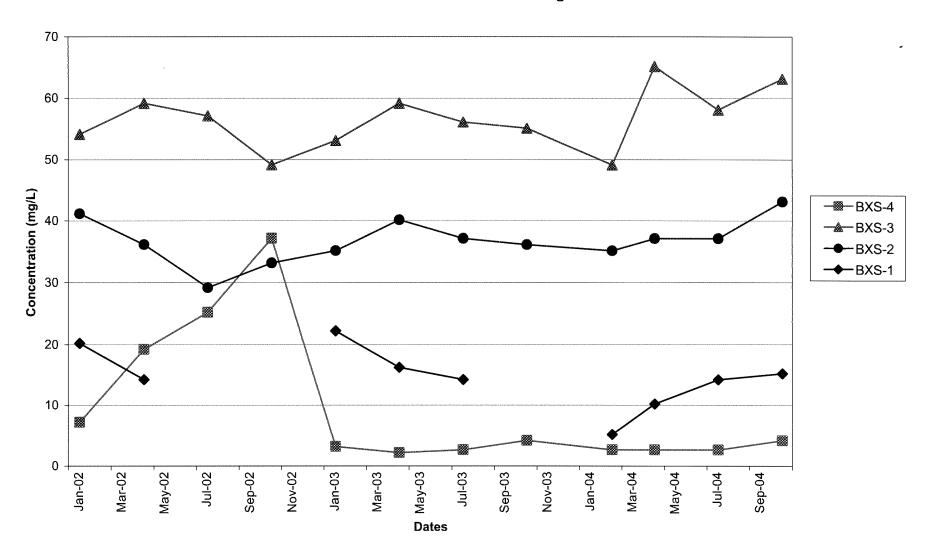


Figure 9. Concentration Trends for Chloride South Woodwaste Landfill Monitoring Well Data

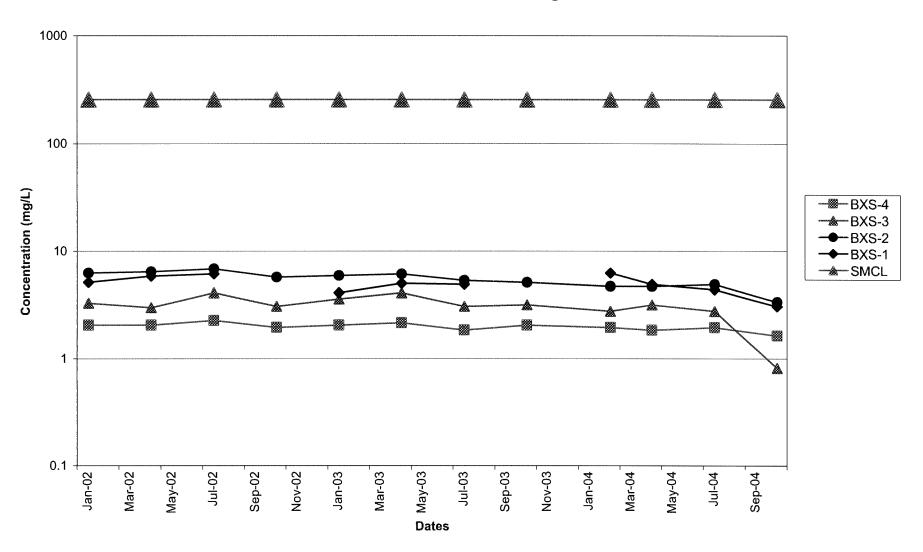


Figure 10. Concentration Trends for Field Conductivity South Woodwaste Landfill Monitoring Well Data

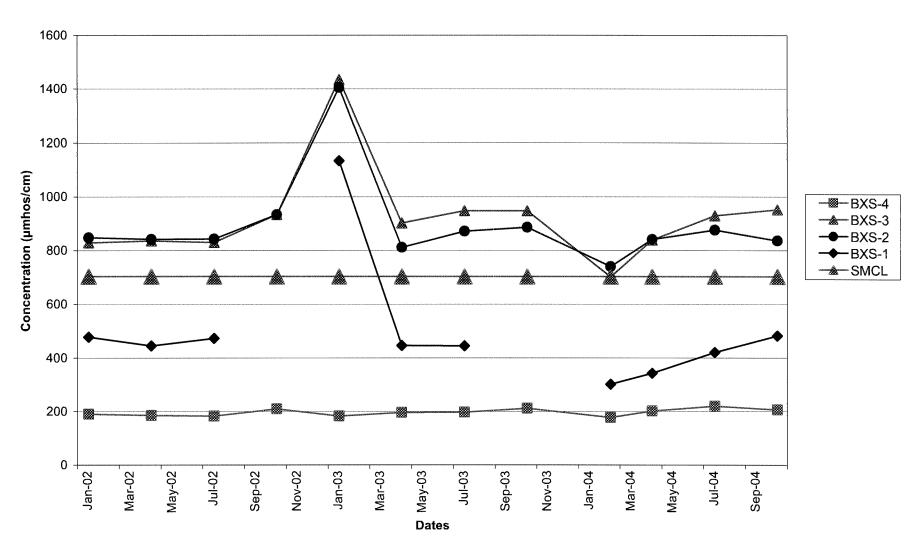


Figure 11. Concentration Trends for Iron South Woodwaste Landfill Monitoring Well Data

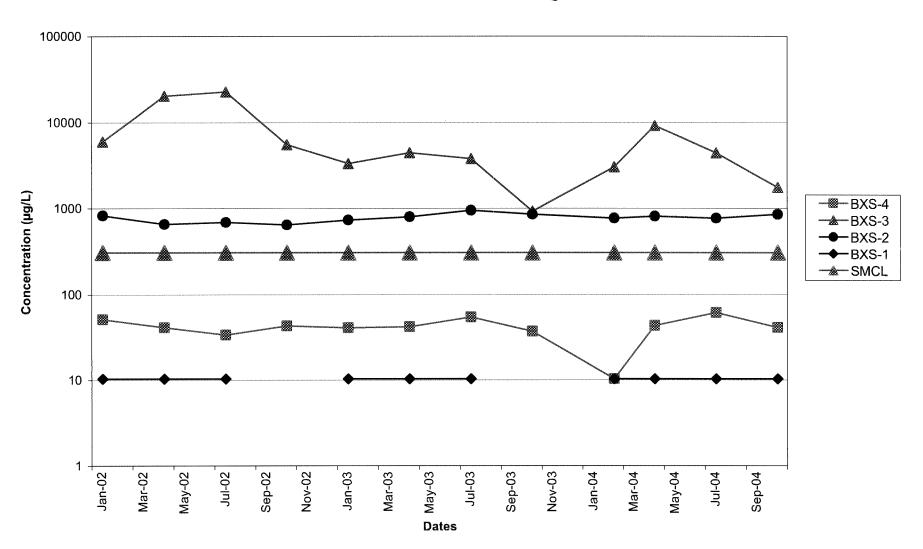


Figure 12. Concentration Trends for Manganese South Woodwaste Landfill Monitoring Well Data

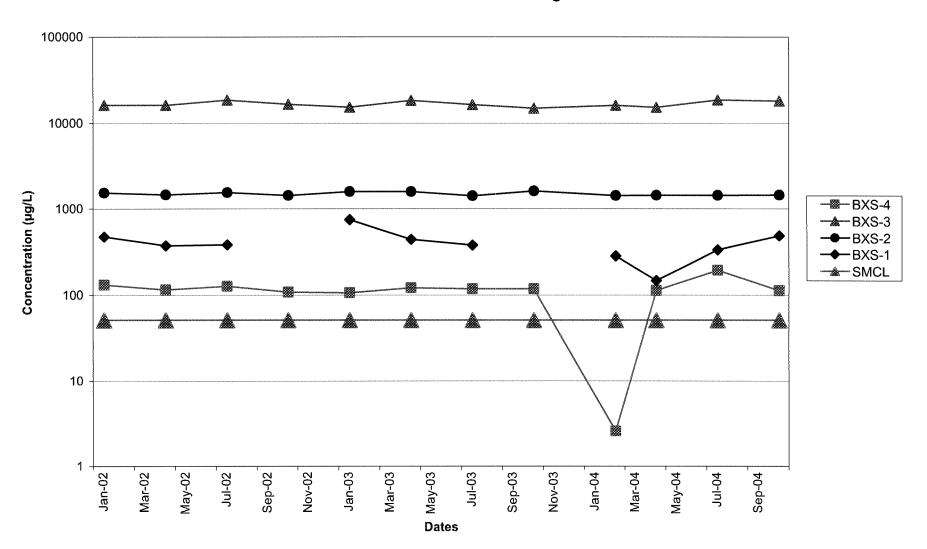


Figure 13. Concentration Trends for Nickel South Woodwaste Landfill Monitoring Well Data

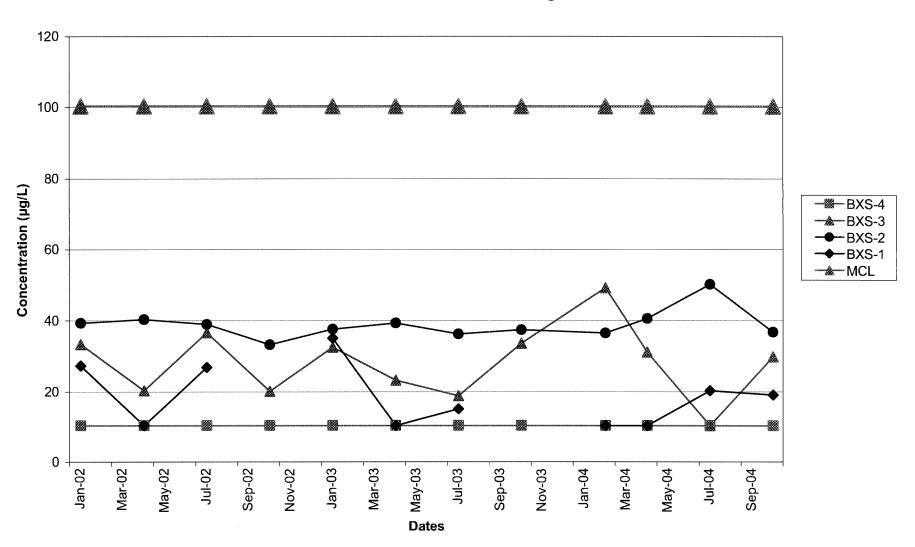


Figure 14. Concentration Trends for Sulfate South Woodwaste Landfill Monitoring Well Data

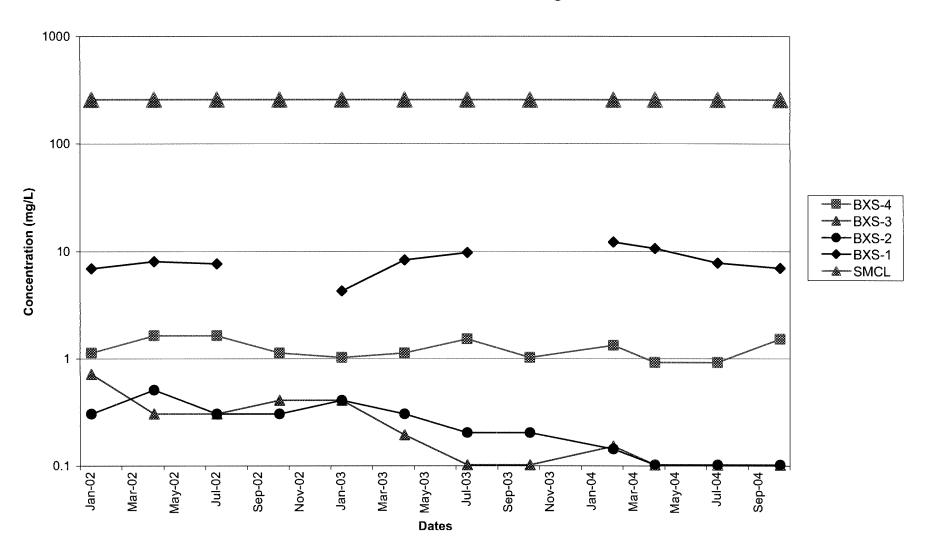


Figure 15. Concentration Trends for Tannin and Lignin South Woodwaste Landfill Monitoring Well Data

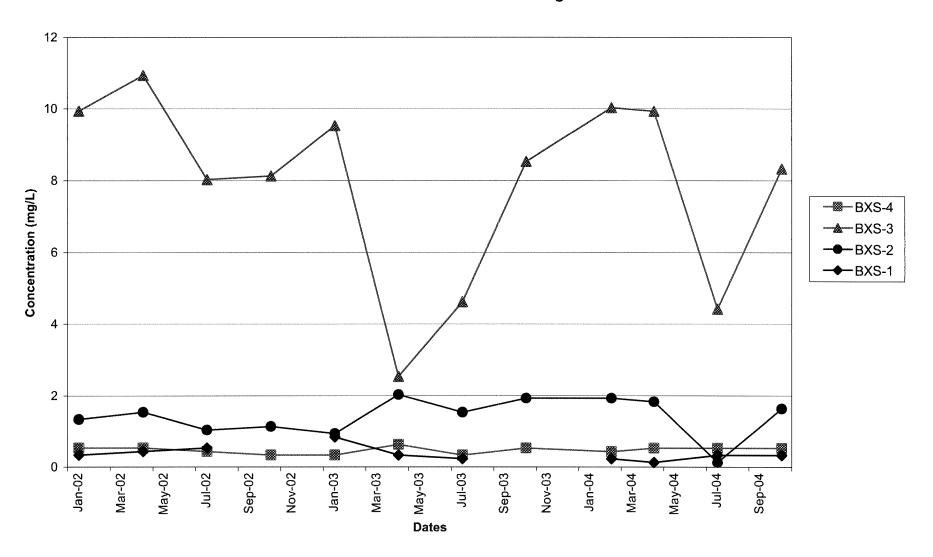


Figure 16. Concentration Trends for Total Organic Carbon South Woodwaste Landfill Monitoring Well Data

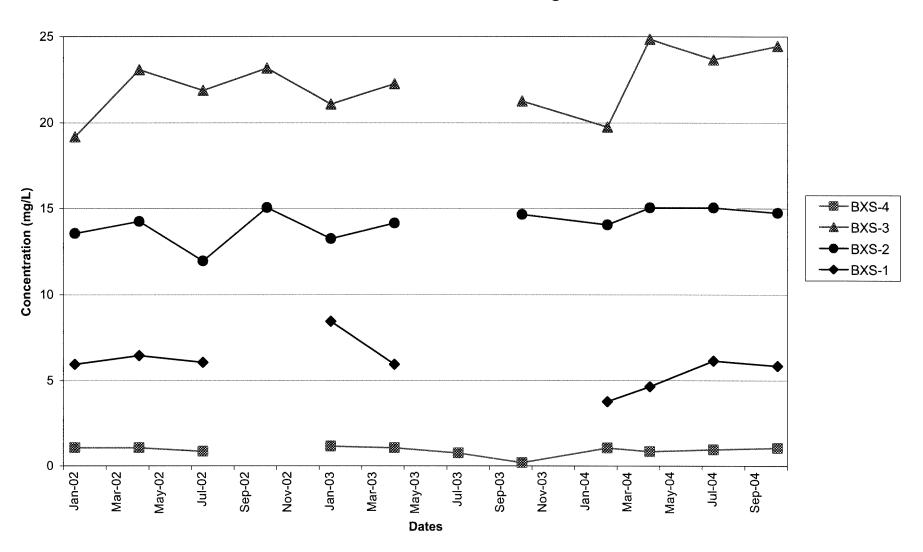


Figure 17. Concentration Trends for Field pH South Woodwaste Landfill Monitoring Well Data

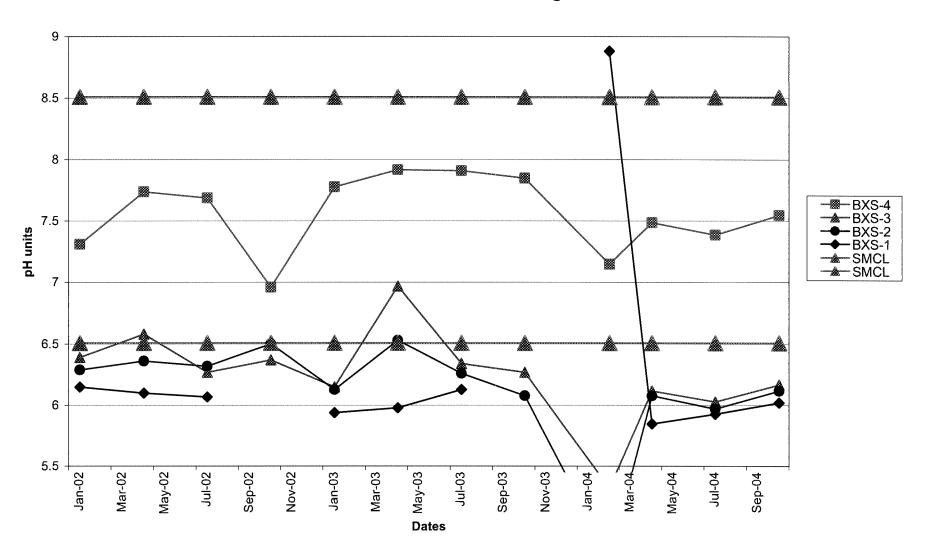
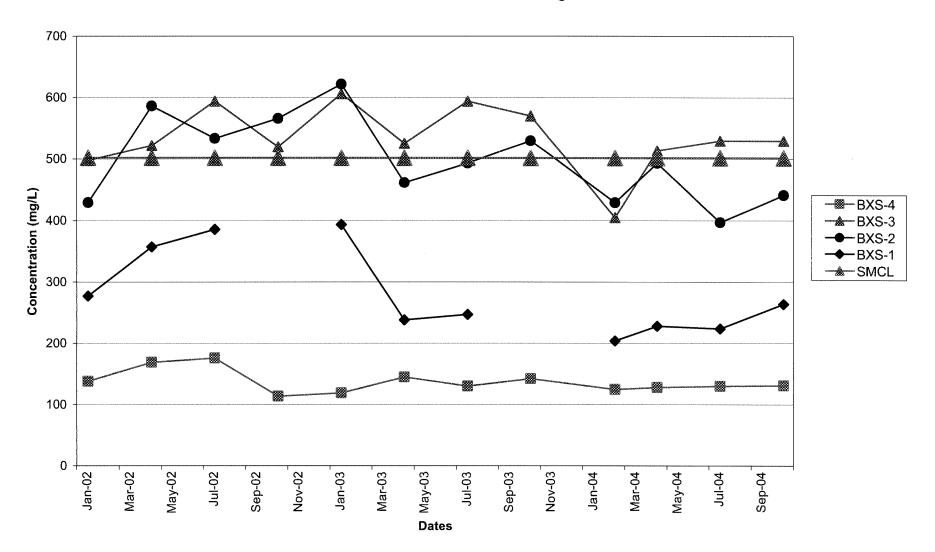


Figure 18. Concentration Trends for Total Dissolved Solids South Woodwaste Landfill Monitoring Well Data



Tables

Table 1. Summary of Groundwater Elevations (South Landfill)

			Length of	тос	TOC Elevation				Depth to GW	Groundwater
	_	Depth of Well	Screen	Elevation	10/2002 ^a	Screene	d Interval	Date	from TOC	Elevation
	(inches)	(ft bgs)	(ft)	(ft asd)	(ft msl)	(ft l	bgs)		(ft)	(ft asd)
_							,	2/05/04	36.63	63.14
Ś	2	47.90	10	99.59	142.90	37.90	47.90	4/13/04	36.74	63.03
BXS-1	_			00.00	142.00	01.00	47.00	7/07/04	36.91	62.86
								10/05/04	36.65	63.12
Ģ								2/05/04	37.92	61.85
BXS-2	2	45.40	10	99.77	143.02	35.40	45.40	4/13/04	36.49	63.28
ă					1.0.02	00.10	70.10	7/07/04	37.69	62.08
								10/05/04	38.76	61.01
ო								2/05/04	33.25	65.74
Ś	2	44.15	10	98.99	142.07	34.15	44.15	4/13/04	31.64	67.35
BXS-3				00.00	,	00	,	7/07/04	33.71	65.28
								10/05/04	35.83	63.16
4	•	•						2/05/04	9.73	90.61
ġ	2	47.40	10	100.34	143.42	37.40	47.40	4/13/04	13.29	87.05
BXS-4						0.110	,,,,,,	7/07/04	13.55	86.79
Notes:								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	K		n _e		v			V	
	(cm/cm)	(cm/se	c)			(cm/sec)			(ft/day)	
2/05/04	0.026				0.003	to	0.005	7.375	to	14.750
4/13/04	0.022	3.00E-02 to	6.00E-02	0.300	0.002	to	0.004	6.098	to	12.195
7/07/04	0.022	0.002-02 10	0.00L-02	0.500	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 Critical Statistic	4 2.353			H u.)				uctivity /cm)			Tempe (°	rature C)	
Primary MCL ^(a) Secondary MCL ^(a)				- 8.5				00			`	<u> </u>	
		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	1	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	000000000000000000000000000000000000000	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
Jui-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 Critical Statistic	4 2.353			ih nV)				O g/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	8.0	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				рН (s.u.)							Conductiv (umhos/c	•		
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	l													
Jul-03							5.86		i					2 U
Oct-03	8.04	7.99	6.56	6.41	200000000000000000000000000000000000000	20000000000000000000000000000000000000	7.05	182	182	851	789		640.00000000000000000000000000000000000	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 I (mg/L)	N						COD (mg/L)			
Primary MCL (a) Secondary MCL (a)				(mg/c)	-						(Hg/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	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 ∪	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 ป	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 ป	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
Арг-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						Nit	rate + Nitrite	as N		
	ļ			(mg/L)							(mg/L)			
Primary MCL (*) Secondary MCL (*)											10			
Secondary MCE		,		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)
A pr-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 ປ		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			3.2 3
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		200000000000000000000000000000000000000	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 ∪	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				Nitrate as	N						Nitrite as N			
Critical Statistic 2.4 Primary MCL (8) Secondary MCL (4)				(mg/L)							(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														
A pr-01														
Jul-01														
Oct-01	0.2 UJ		0.3 UJ	0.3 UJ	0.3 ÚJ	0.3 UJ	0.3	0.1 ປ		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							-							í
Oct-04			J											

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

Number of Samples 4 Critical Statistic 2.4			So	ids, total dis (mg/L)	solved						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	1	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 & Lig (mg/L)	nin					То	tal Organic C (mg/L)	arbon		
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				Total Coliform	S		
Critical Statistic 2.4				(MPN/100 ml)			
Primary MCL (a)				<5% ^(b)			
Secondary MCL 1°7							
	BXS-4	BXS-4 Dup ^(c)	BXS-3	BXS-2	BXS-1	BXS-1 Dup ^(c)	Field blk ^(d)
Арг-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 ป	2 U	2 U	2	2 U
Арг-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
Арг-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)

			Α	rsenic, disso (µg/L)	lved					E	Barium, diss (μg/L)	olved		
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)
Арг-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		\propto 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	000000000		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)

			Ca	admium, disso (µg/L)	olved			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)

	-			lron, dissolv (µg/L)	ed					Ма	nganese, dis (µg/L)	solved		
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
Арг-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)

				lickel, dissol (µg/L)	ved						Zinc, dissolv (µg/L)	ed		
Primary MCL (a) Secondary MCL (a)				100							5000			7
	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 ∪	20 ⊍	49	36.2	20 ∪		20 U	10 ∪	10 ∪	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 V	alue Down	gradient	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 V	alue Down	gradient	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	002	149
Conventionals	Conductivity (umhos/cm)	1996	290	602	787	161
Conventionals	Conductivity (umhos/cm)	1997	326	502	767 765	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	410	821	853	198
Conventionals	Nitrate + Nitrite as Nitrogen	1990	0.7	021	000	0.1
Conventionals	Nitrate + Nitrite as Nitrogen	1993	0.8			0.1
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	0.0			0.1
Conventionals	Nitrate + Nitrite as Nitrogen	2002	0.5			0.2
Conventionals	Nitrate + Nitrite as Nitrogen	2004	0.9			0.2
Conventionals	рН	1992	6.1	6.3	6.4	7.9
Conventionals	pΗ	2000	6.1	6.4	6.5	7.9 7.9
Conventionals	рH	2001	6.1	6.4	6.7	7.9
Conventionals	Solids, Total Dissolved	1990	0.1	397	436	228
Conventionals	Solids, Total Dissolved	1992		352	351	147
Conventionals	Solids, Total Dissolved	1993		330	501	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	230 273	473	562	137
Conventionals	Solids, Total Dissolved	1999	273 256	473 524		
Conventionals	Solids, Total Dissolved	2000	297		517 527	156
Conventionals	Solids, Total Dissolved	2000	297 261	544 299	527 346	140 135

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

			Mean V	alue Down	gradient	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 Metals	Barium	1993		36	38	28
Metals Metals	Banium	1994		38	51	25
Metals Metals	Barium	1995		45	58	27
Metals	Barium	1996		48	. 74	26
Metals 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 V	'alue Dowi	ngradient	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 Metals	Iron	2004		784		38.18
Metals 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 1997		1120	10800	121
Metals	Manganese	1997	475	1510	13000	90
Metals	Manganese Manganese	1990	175 200	1650 1420	13800	126
Metals	Manganese	2000	331	1420	14800	116 .
Metals	Manganese	2000	425.5	1512.5	15025 15350.0	124 119.0
Metals	Manganese	2002	430	1502	15763	119.0
Metals	Manganese	2003	100	1523	15750	113
Metals	Manganese	2004		1420	16625	103
Metals	Nickel	1993		18	.5020	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	<u>Bottom</u>	Comments	Pump
	2"	BXN-1	51.00	58.18'		T
	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 Requirements	
		BXN-6		Blank	canonii (Tequirements	
	2"	BXS-1	36.63'	47.90	Top of Pump	X
2-12-04) (-	BXS-2	37.92	45.40'		-
2-12-01	2"	BXS-3	33.25'	44.15'	Pump raised out of ground 1 1/2'	X
2-10-04	2"	BXS-4	9.73'	47.40'		X
2-10-04		BXS-5		Blank		
2-10-04		BXS-6		Dup BXS-4	l territoria	ļ
o stratt				Dup 0.70-4	Landfill Requirements	L
2-11-04	4"	MW-1	22.00'	41.02'		
2-13-04		MW-2	43,85'	51.23'		X
	4"	MW-3	40.77'	51.96'		$\frac{\hat{x}}{x}$
	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		$\frac{\lambda}{X}$
2-13-04	₹ 2"	HCMW-7	43.69'	55.08'		^
		MW-A		Dup MW-15	Permit Requirements	
-12-04		MW-B		Blank	- Clinic Frequire Henris	
	: 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'	14/41 12	
	2"	MW-15	39.28'	50.30'		
	2"	MW-16	42.19'	52.65'		
·	2"	MW-17	40.79'	55.00'		
1	2"	MW-18	42.25'	53.83'		

Depths Taken - 02/05/04

PO Box 305

	29.700 4:			Arlington			Date 2-18	3-04
	3x5-1				Jim Clawson /			
Sample No.	- A				2-18-05			
	2400,hours)			alibration Date	<u> </u>	<u> </u>		
Well Condition	~~~	stactory New		7				
Field Condition	s/Weather	470	Close	d <i>y</i>	DI Water Die			
Equipment Dec	contamination	Liquinox, H	exane, M	etKanoi, and	D.I. Water Rins	se		
Casing Diamet (Circle One) 6"	er: 4" Other		Multiply W	olume (gallons /ater Column r purge volum	s/ft) for: 2"=0.16 Height by appro e.	3; 4"=0.653 priate numl	; 6"=1.47 per above to	
Depth of We	ell (feet):	47.9	0		Sheen / LNAPL	./DNAPL p	resent:	
Depth to Wa		36.6	-3		Other remai	rks:		
Water Colu			17		.:	·		
	ıme (gallons		3					
Calaulatas !	Burgo Volum							
	Purge Volum		1471					
Actual Purg	e Volume (g	alions).						
Time	Cumulative	TEMP	рН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
2400 hrs	Volume (gal)	(°C)	P	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
0726	0	A Commence of the Commence of	and the second s		and the second second second second	والمستقل والمستورة		Purge Start
D736	1/2	12.58	4.07	0.350	6,50	126	~3	CLEAR
27-13	1	19,600	304	8.316	Cull	34	-4	
Name of the last	之	ACA.	7.69	0305	6,52	136	-2	
0000	3	12 UR	3 89	1301	10162	139		<u> </u>
0015	71	10 49	2.99	1:300	6,54	134		
100 J	12	Both	3.05	0,218	7,46	142	-3	
103/	216	13'24	0 97	0.297	7,39	143	-2	
0836	310	101-11	0.07	101012				
			-					
								•
			 					
	 	 						
<u> </u>		<u> </u>						
			 					
	 			 				
	ļ	 	 			 		
		 			<u> </u>			
	 	 	_	 	 			
			<u></u>	<u> </u>	<u></u>	<u> </u>	<u> </u>	. <u></u>
Purging Equir	ment:Port.	Ded. Bladder	Pump\Se	mpling Equipme	nt_Horiba U22	Sample	intake Depth:	
Remarks:								
					 		-	Revised 02/06/03

PO Box 305

Well No.	BX5-2	J	Location	Arlington			Date 2-		
Sample No			Field Person	nnel/Company	Jim Clawson	/ Mary Lars	on J.H. Bax	ter	
	(2400 hours) <i>[</i>	720	Instrument	Calibration Date					
Well Condition		stactory Nev	v (If poor,	explain)	2-12-	<u>C4</u>			-
Field Condition		700		- cold					
Equipment De	contamination	Liquinox, I	łexane, M	ethanol, and	D.I. Water Rin	Se.			
Casing Diame (Circle One) 2"			Multiply V	olume (gallon: Vater Column r purge volum	s/ft) for: 2"=0.16 Height by appro	63; 4"=0.653 opriate num	3; 6"=1.47 ber above to		
Depth of W	ell (feet):	45.4	4D		Sheen / LNAP	L/DNAPL;	oresent:		
Depth to W	••		92_	¥	Other rema	rks:			
Water Colu	• ,	7,	48]
1	ıme (gallons): / ,	21	-	•				
	Purge Volum		4 6						
	e Volume (g								
								10 10 10 1	
Time	Cumulative		pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/ Remarks	
2400 hrs	Volume (gal)	(°C)	aparagramational masacidasers (r. p.	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Purge Start	
0656	0	13 (4)		A 70.2	0776		75	CIENTUME	•
0101	1/2	12100	DIAY.	0.126	9,76	3.	1	Charilyne	200
0706		12,166	7150	0.736	11.11	26	50	 	1
0710	11/2	17,82	4.70	0.738	11.7	33	9	+	1
0713	2_	12.82	4.78	0.737	11.37	34	- 4	 	┫.
0714	3	12.60	4.77	0.737	11.68	36	 	 	1
0716	31/2	12.79	4.73	0.731	8,84	35_	-6		1
							 	 	┨
	<u> </u>						ļ	 	1
				 			 	 	4
							 		1
				ļ				 	-
								 	-
									-
								<u> </u>	4
									+
							<u> </u>		7.5
								 	4
		<u> </u>	<u> </u>	<u></u>	<u> </u>		<u> </u>		4
Purging Fouls	ment Port /T	ed. Bladder	Pump Sa	mplina Eaulomen	t Horiba U22	Sample	Intake Depth:		
]
Remarks:								<u> </u>	1
					-		F	Revised 02/06/03	3

PO Box 305

BX5-3		Location	Ariington	Date 2-12-04						
).		Fleid Pers	onnel/Company	Jim Clawson	/ Mary Lar					
(2400 hours)	0830	instrument	t Calibration Date							
n Poor (Sa			, explain)							
ns/Weather	3	or cle	HO SAL							
econtamination	Liquinox,	Hexane, I	Methanol, and	i D.I. Water Ri	nse.					
)		Casing V	olume (gallon	s/ft) for: 2"=0.1	63; 4"=0.65	3; 6"=1.47				
4" Other		Multiply \	Water Column	Height by app	ropriate nun	nber above to				
Ou 161		ger prope	a purge volun	I O .						
ell (feet):	44.14	ξ		Sheen / I NAF	I /DNAPI	nresent:				
• •				1		present.				
		7				, , , , , , , , , , , , , , , , , , , 				
		4,2	3							
		النبا الرحي								
	<u>, </u>									
1		pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/			
	(°C)	migration de room de	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks			
	(e) (b)	D 116	(A) (C) (C)				Purge Start			
1/2		2.48	0.533		~20	<u> - 8</u>	CIGHE/Slight			
		3.40			- 19	- 7	-			
7/2	13.04	2.41			-17	 - 7	 			
	<u> </u>									
472	13.15									
3//-	13.15									
		5 37								
		201								
										
- J //L	13.12	701	0.677	4.81	<u>-6</u>	-3				
سر										
ent:Port./De	d. Bladder I	Pump)Sam	pling Equipment	Horiba U22	Sample Ir	ntake Depth:				
	(2400 hours) on Poor (Sa ons/Weather econtamination eter:) /ell (feet): /ater (feet): /ume (gallons Purge Volume / ye Volume (gal) 0 //2 1 //2 3 //2 4//2 5 //2	(2400 hours) 0830 In Poor Satisfactory) No ons/Weather accontamination accontamination are: (ell (feet): 4" Other (ell (feet): 33.72 (ater (feet): 16.9 (ater (gallons): 1.7 Purge Volume (gallons): 1.7 Purge Volume (gallons): 1.7 Purge Volume (gallons): 1.7 (°C) (°C)	(2400 hours) 0830 Instrument 1	(2400 hours)	(2400 hours) 0830	Caton hours OB30 Instrument Calibration Date 2 - 7 - 2 4 In Poor (Satisfactory) New (If poor, explain) In Poor (Satisfactory) New (Pall of Poor, In Poor (Satisfactory) In Poor (Satisfactory) New (Pall of Poor (Satisfactory) In Poor (Satisfactory) New (Poor (Satisfactory)	Instrument Calibration Date 2 - 7 - 2 4			

PO Box 305

Sample No. Sample Time (Well Condition Field Condition Equipment Dec	(2400 hours)	1210		onnel/Company	Jim Clawsor	/ Mary Lar	Date 2 - 10	
Well Condition		210				- / -: :: /	3011 U.I I. Daz	LLEI
Fleid Condition	Door John		Instrument	Calibration Date	2-10-04			
	Lool (SE	tisfactory Ne		explain)				
Equipment Dec	ns/Weather	300	fragu					
	contamination	Liquinox,	Hexane, I	lethanol, and	I D.I. Water Ri	nse.		
Casing Diamet (Circle One)	4" Other		Multiply V	olume (gallon Vater Column or purge volum	s/ft) for: 2"=0.1 Height by app ne.	63; 4″=0.65 ropriate nun	3; 6"=1.47 nber above to	
Depth of We	eii (feet):	47.	40'		Sheen / LNAF	L / DNAPL	present:	
Depth to Wa	ater (feet):	9,	13		Other rema		•	
Vater Colun	nn (feet):	37.	67					
Casing Volu	me (gallons): 6.	14					
		ne (gallons):	18.4	7		. "		
ctual Purge								
Time	Cumulative	TEMP	рН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
	Volume (gal)	(℃)		ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
1942	0	and process continues and a continues as a		and the same and t		Allaha Bara Lee Ti		Purge Start
946	1/2	B:03	7.44	1.178	14.78	-112	17	Clanica
1954	2	8.77	7.83	1.176	13.14	-128	13	j
5001	3	R.79	7.64	0.176	14.80	-128	24	
1007	4	8.81	7.58	0.175	14,20	-132	18	
026	6	9,00	7.60	0.176	12,32	-133	44	
1040	R	9,10	7.6	0.175	11,45	-13)	48	
059	10	9.48	7.49	D. 174	10,78	-131	80	
11/3	12	9.55	7.44	0,174	11,64	-130	110	
133	14	9.68	7.39	1,175	10.87	- 124	280	
147	16	9.63	フ・スプ	1.174	10.76	~128	330	1
1204	18	9.66	7.46	0.174	10.14	- 119	670	
207	181/2	9,58	7.14	0.174	11,24	~/10	700	/
						1.7.		
						Je sviilleduss		
		d. Bladder i	Pump_Sam	pling Equipment	Horiba U22	Sample in	ıtake Depth:	
emarks:🔯.	<u> BXS - (</u>	e Dup	120	7				
/		Y						

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Groundwater Sampling Field Form

Well No.	BX5~5	Š	Location	Arlington			Date Z~	10-04
Sample No	D		Field Personnel/Company Jim Clawson / Mary Larson J.H				son J.H. Ba	
Sample Time	(2400 hours)	1330	Instrument	Calibration Date	Feild	BLANDA	£	
Well Condition	n Poor Sa	tisfactory Ne	w (If poor	, explain)				
Field Condition		48°5	UNNU	Mark and the second				
Equipment D	econtamination	Liquinox,	Hexane, N	fethanol, and	I D.I. Water Ri	nse.		<u>, </u>
Casing Diame			_	· <u>, , , , , , , , , , , , , , , , , , ,</u>				
(Circle One)			Casing Volume (gallons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47 Multiply Water Column Height by appropriate number above to					
6"	4" Other		det prope	vater Column er purge volum	Height by appi	ropriate num	iber above to	•
Ŭ	01181		get prope	n haide voiati	10.			
Depth of W	fell (feet):	1	-		Sheen / LNAP	L / DNAPL	present:	
Depth to Water (feet):			·		Other remarks:			
Water Column (feet):								
Casing Vol	ume (gallons	;):						···
	Purge Volun		- · · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				
	ge Volume (g							······································
							······································	
Time	Cumulative	3	pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color
2400 hrs	Volume (gal)	(℃)		ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
	0		ستأسلهم والمعادي		and the many the state of the	Andrea Santa Basalan and a side capacida	ر بر نما نما نما الما الما الما الما الما ال	Purge Start
	· · · · ·							
		-						
· · · · · · · · · · · · · · · · · · ·	·							
			•					
						-		
							······································	
								
				-				
								
								;
	L			L				
urging Equipn	nent: <u>Port. / De</u>	d. Bladder F	oump Sam	pling Equipment_	Horiba U22	Sample In	take Depth:	
Remarks: _								
				•				
							Be	vised 02/06/03

Case	Well Number	Water Level	<u>Bottom</u>	Comments	Pump
2"	BXN-1	50.19'	58.18'		T
2"	BXN-2	46.56'	57.24'		
2"	BXN-3	47.69'	58.66'		ļ
2"	BXN-4	45.29'	51.74'		
	BXN-5		Dup BXN-1	Landfill Requirements	
	BXN-6		Blank	- Landin Hedianements	
2"	BXS-1	00 741			
		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
	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'		
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'	*	$\frac{\hat{x}}{x}$
2"	HCMW-7	42.53'	55.08'		
· .	MW-A		Dup MW-15	Permit Requirements	
	MW-B		Blank		
2"	MW-10	32.75'	45 50L		
2"	MW-11	22.25'	45.58' 38'		
4"	MW-12		39.85'	NADI	
4"	MW-13		37.19'	NAPL	
2"	MW-14	25.12'	38'	NAPL	
2"	MW-15	38.00'	50.30'		
2"	AANA/ 40				
2"	MW-16	40.89'	52.65'		
2"	MW-17	39.53'	55.00'		
	MW-18	40.92'	53.83'		

PO Box 305

Well No.	BX5-	I	Location	Arlington	<u> </u>		Date 4-	22.00
Sample N	0.		Field Pen	sonnel/Company	Jim Clawson	n / Mary Lar		vter
Sample Tim	e (2400 hours)	11:10		at Calibration Date	//	04	9011 U.I.I. DO	IXIGI
Well Conditi	on Poor (Se	itisfactory N		r, explain)		<u> </u>		
Field Conditi	ons/Weather	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	clocal		***		,	
Equipment D	econtamination				d D.I. Water Ri	nse.		
···								
Casing Diam								
(Circle One	•	1.	Casing \	Volume (gallor	is/ft) for: 2"=0.1	63; 4"=0.65	3; 6"=1.47	
(2")	4" Other		Mumpry cot prop	Water Column	Height by app	ropriate nun	nber above to)
	O 101		Aer hich	er purge volun	ne.			
Depth of W	/ell (feet);	117.	90		Sheen / LNAF	D / DNIADI	ntonont.	
	/ater (feet):	36.	74		Other rema		present:	
Water Colu		11,	18			ai no.		· · · · · · · · · · · · · · · · · · ·
	ume (gallons): 1,	81		<u> </u>			
	Purge Volum			5				
	je Volume (g			<u> </u>				·
Time	Cumulative		pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color
2400 hrs	Volume (gal)	(°C)	. , 'Ant' its tainstand, datamies	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
8:55	0							Purge Start
7:22		13.46	5.86	0.373	4.07	<i>3</i> 03	16	Clocx
7:43	ಎ	13.28	582	0.346	3.55	208	16	
10:02	3	1356	5.85	0.338	_3.3%_	212	14	
10:28	4	13.72	2,83	0.341	2.74	213	110	
10:47	\$	13:69	7.85	0.33%	3.34	212	15	
11:00	51/2	13.71	5.84	0.339	3.18	212	16	
			<i>593</i>	pH New	,			
				,				
			·					
		1	<u>, </u>		~~,			
ırging Equipm	ent:Port. De	d. Bladder i	ump Sam	pling Equipment_	Horiba U22	Sample int	ake Depth:	
	br bubble							
		=	- COL					
					****		Pos	rised 02/06/03
				······································			1101	.000 020000

PO Box 305

Well No.	<u> </u>	Z	Location	Arlington			Date 4	0-04
Sample No),		Field Pers	onnel/Company	Jim Clawson	/ Mary Lar	son J.H. Ba	xter
Sample Time	(2400 hours)	10:45	Instrument	Calibration Date		XI.		
Well Condition	n Poor (Sa	tisfactory Ne	w (if poor	, explain)				
Field Conditio	ns/Weather	46	2 Wike	In clear	,			
Equipment De	econtamination	Liquinox,			D.I. Water Ri	nse.		***************************************
Casing Diame								
(Circle One)					s/ft) for: 2"=0.1			
ريع)	4*				Height by app	ropriate nun	nber above to	
6	Other	İ	get prope	er purge volum	18.			
Depth of W	all (foot):	4	c un		Chan / NAD	L / DAIADI		
Depth to W	• •	27	1 (18	-	Sheen / LNAP		present:	· · · · · · · · · · · · · · · · · · ·
Water Colu	• •	لِک	0170	·	Other rema	ITKS:		
	ımı (1 00 1). ıme (gallons	$\frac{7}{5}$	<u> </u>					
	Purge Volum		196 W.4	0				
	e Volume (g		<u> </u>	<u> </u>				
Acida Fuly	e volulije (g	anons):		· · · · · · · · · · · · · · · · · · ·				
Time	Cumulative	TEMP	рH	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
2400 hrs	Volume (gal)	(°C)		ms/cm 25°C		MV	(NTU)	Remarks
0:23	0	in the state of th			and the state of t			Purge Start
10:26	1 :	12.92	Ja.D.I	0.830	1.46	26	31	clear
10:29	ا لـــ	12.90	6.04	12.840	131	46	39	
10:32	3	13.89	6.04	65841	1.35	50	62	
10:38	4	12.89	10.07	6.841	1.02	48	41	
10:43	41/2	12.89	6.07	0.838	1.28	51	39	
			6.02	off mek	_			
			W-17 -					
		·						
						<u> </u>		
					···			
								
								
	<u> </u>						,	
urging Equipm	ent: <u>Port. (De</u>	d. Bladder F	Sam	pling Equipment	Horlba U22	Sample In	itake Depth:	
Remarks:						· · · · · · · · · · · · · · · · · · ·		
	· · · · · · · · · · · · · · · · · · ·						Re	vised 02/06/03

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	<u>BXS~3</u>)	Location	Arlington			Date 4-	70-00
Sample N	0.		Field Pen	sonnel/Company	Jim Clawso	n / Mary La	rson J.H. Ba	
Sample Time	e (2400 hours)	12:00		nt Calibration Date	4-ZO-E	XT	13011 U.II. Da	Atei
Well Condition	on Poor Se			r, expiain)		<u> </u>		
Field Conditi	ons/Weather	45	\sim	winder.				
Equipment D	econtamination	Liquinox,	Hexane,	Methanol, an	d D.I. Water R	inse		
Casing Diam			1-0-					······································
(Circle One	•	1	Casing \	√olume (gallor	ns/ft) for: 2"=0.	163; 4"=0.65	3; 6"≃1.47	
(2.)	4" Other		Muniply	water Colum <i>i</i>	າ Height by app	ropriate nur	nber above to	,
	Ou 161		ger brop	er purge volur	ne.			
Depth of W	/ell (feet):	44.	ic	······································	Shoon / LNAF	OL / DAIADI		
	ater (feet):	71	7.4		Sheen / LNAF Other rem		present:	
Water Colu		12,	5 1	· · · · · · · · · · · · · · · · · · ·		ains.		
	ume (galions		23		 			
	Purge Volun				<u> </u>			
Actual Purg	je Volume (g	allons):	·		 	·		
	(3						<u> </u>	
Time	Cumulative		pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color
2400 hrs	Volume (gai)	(°C)	Carability and country and the second second	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
11:13	0	and the second second		ing		Andreas de la constante de la		Purge Start
11:14	<u>{</u>	13.55	5.87	0.728	12.70	-25	30	Clear
11:16	ವ	13.56	5.93	0.783	6.77	-30	18	
Tita	3	13.62	5.74	0.819	0.73	-28	گ ا	
11:95	4	13.45	جان تها	0.850	0.65	-31	27	
11.36	5	13.42	40.04	0.837	0.78	-33-	30	
11.30	(0)	13.42	10.09	4839	1,27	-29	39	
11.40	le'ld	13.47	4,11	0.836	1,27	-28	32	
			10.06	ptt mote				
							-	
 								
			i					
rging Equipm	ent:Port. /Dec	d. Bladder P	ump\Sam	pling Equipment_	Horiba U22	Sample Int	ake Depth:	
emarks:				A South transition		0@1410 1111	ava nahii!	
			· · · · · · · · · · · · · · · · · · ·			· · ·	D.	i d 00/22/25
							Hev	rised 02/06/03

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	Bx5-4	+	Location	Arlington			Data 4	- 1 - 4
Sample N	lo.	1		rsonnel/Company	.lim Clawso	n / Many La	Date 4 -	21-04
Sample Tim	e (2400 hours)	11:11		nt Calibration Dat			rson J.H. Ba	axter
Weil Conditi	on Poor S			or, explain)	7921.6	7.7		· · · · · · · · · · · · · · · · · · ·
Field Condit	lons/Weather	470	clear					
Equipment [Decontamination	Liquinox	, Hexane,	Methanol, an	d D.I. Water R	inse.		
Casing Dian	eter:			· · · · · · · · · · · · · · · · · · ·				
(Circle On	9)		Casing	Volume (galio	ns/ft) for: 2"=0.	163· <i>4"</i> 0 65	9-6"-1 47	
(2)	4"		wininbia	water Columi	n Height by app	propriate nur	o, o ≘1.47 nber above to	1
6	Other		get prop	er purge volur	me.			•
Depth of V	Vell (feet):	4	1.40		Sheen / LNAI	PI / DNAPI	Drocont:	
	/ater (feet):	13	3, 29		Other rem		hieseiir	
	ımn (feet):	3/	till				·	
Casing Vol	ume (gailons):	5.510					
Calculated	Purge Volun	ne (gallons)	:_16.	70				
Actual Purg	je Volume (g	alions):	•					
Time	Cumulative	TEMP	T 5U	T				
2400 hrs	Volume (gai)	(°C)	pН	Conductivity ms/cm 25°C	Dissolved	EH	Turbidity	Odor/Color
855	0			ms/cm 25 C	Oxygen (mg/L)	MV	(NTU)	Remarks
9:00		מליא	7.00	0.1910	4 8	1,5		Purge Start
9:19	4	9:47	723	0 191	0.68	-115	27	Clear
9:40		9.710	7.67	3197	0.40	-154	<u> </u>	ador
10:06	10	9.60	1.100	A 10-1	0.34	750	de (/
10:26	13	9:18	7.51	0.197	0.34	7104	2	
11:00	17	9.13	7.48	0 197	636	762	d	
					- Lich	- 1.00	74	
			760	of met	_			·
rging Equipme	Port,) Dec	Bladder D	ump \see	pling Equipment_	Uarib- Hoo			
marks:		· · · /	J.c		norida U22	Sample Inte	ake Depth:	
e a sense e crisión p	Dr. F	2420	,	(OO)				
								
				 			Rev	rised 02/06/03

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	Bx5-5	Ŝ	Location	Arlington		100	Date 4L:) A A
Sample N	0.		Field Pers	sonnel/Company	Jim Clawso	n / Mary Lai	son J.H. Ba	23-04 exter
Sample Time	e (2400 hours)	3:DDAN		nt Calibration Date			- V.II. DO	Alce
Well Condition	on Poor Sa	lisfactory Ne		r, explain)				
Field Conditi	ons/Weather				•			
Equipment D	econtamination	Liquinox,	Hexane,	Methanol, and	d D.I. Water R	inse.		
Casing Diam	eter:			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			
(Circle One	-		Casing \	Volume (gallon	ıs/ft) for: 2"=0.	163; 4"=0.65	3; 6=1.47	
2" 6"	4"		Multiply	Water Column	i Height by app	ropriate nun	nber above to	•
0	Other		get prop	er purge volun	ne.			
Depth of W	/ell (feet):				Shoop / I MAI	DI / DNIADI		
l .	/ater (feet):				Sheen / LNAI Other rem		present:	
Water Colu					Outer lett	arks:		
	ume (galions)):	- '					
	Purge Volum		-				· · · · · · · · · · · · · · · · · · ·	
Actual Purg	ge Volume (ga	allons):	-					
Time	Cumulative	TEMP	рН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
2400 hrs	Volume (gal)	(°C)	والمديد والمتسارة برطا	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
	0	Service beautiful and the service of	أعبا تساكر يستطيعهم	and the second second second second		er surresse		Purge Start
· · · · · · · · · · · · · · · · · · ·			· ·					
		- , - , - 						
			-					
	-							
								
-				<u> </u>				
<u>-</u>								
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					•			
raina Facilia			L		<u></u>		-··L	
iging Equipm	ent <u>Port. / Ded</u>	. Bladder Pu	ımp Sam	pling Equipment_	Horiba U22	Sample Int	ake Depth:	
emarks:	Fleld	dans						
						,		
							Rev	ised 02/06/03

Case	Well Number	Water Level	<u>Bottom</u>	Comments	Pump
2"	BXN-1	50.61'	58.18'	T	
2 ^H	BXN-2	46.92'	57.24'		1
2"	BXN-3	48.18'	58.66'		
2"	BXN-4	45.75'	51.74'		
	BXN-5		Dup BXN-1	Landfill Requirements	
	BXN-6		Blank	Tib qualitation to	
2"	BXS-1	36.91'	47.90'		X
2"	BXS-2	37.69'	45.40'	Pump raised out of ground 1 1/2'	
2"	BXS-3	33.71'	44.15'	remp ranged out of ground 1 1/2.	X
2"	BXS-4	13.55'	47.40'	А	-^-
	BXS-5		Blank		
	BXS-6		Dup BXS-4	Landfill Requirements	
4"	NAVAZ 4	07 441		reduirements	
4"	MW-1 MW-2	27.44'	41.02'		
4"	MW-3	43.72'	51.23'		X
2"	MW-4	41.22'	51.96'		X
2"	HCMW-5	13.55'	41.92'		
2"	HCMW-6	28.26' 41.62'	35.43'		_X
2"	HCMW-7	43.41'	51.10'		_X
	MW-A		55.08'		
	MW-B		Dup MW-15	Permit Requirements	
			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'		——

PO Box 305

Well No.	13XS-	.	Location	Arlington			Date 7-1	3-04
Sample N	0.		Field Pers	onnel/Company	Jim Clawsor	ı / Mary Laı	son J.H. Ba	xter
Sample Time	(2400 hours)	10:15	Instrumen	t Calibration Date				
Well Condition	on Poor Sa	tisfactory N	ew (If poor	, explain)				
Field Condition	ons/Weather	overc	ast l	150				
Equipment D	econtamination	Liquinox,	Hexane, I	Vethanol, and	d D.I. Water Ri	nse.		
Casing Diam	eter:		•			<u> </u>		
(Circle One)		Casing \	/olume (gallon	ıs/ft) for: 2"=0,1	63: 4"=0.65	3: 6"=1.47	
(3)	4"		Multiply \	Water Column	Height by app	ropriate nun	nber above to)
6"	Other		get prope	er purge volun	ne.			
Depth of W	ell (feet):	47	.90		Sheen / LNAF	L / DNAPL	present:	
Depth to W		36	,91	***	Other rema		procona	
Water Colu			, 99		TO TOP O		^	
	ume (gailons		79		 0 0 0 0 0 0 0 0 0 0	of Pump		
_	Purge Volum		5.3	7	11 11 14 140	00%	7-7-04	· · · · · · · · · · · · · · · · · · ·
	je Volume (g			<u>'</u>	betaking	12.0 10	1-1-04	<u> </u>
	,							
Time	Cumulative	TEMP	pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
2400 hrs	Volume (gal)	(°C)	Angles - a manufactures 1 of th Mari	ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
8:26	0		را اراده الاستان به الاستان ويتكلفون المارة ومسان	in the second				Purge Start
<u>₹:48</u>		1364	5.80	0.461	2.83	194	10.3	Clear
4:07	2	1B.30	593	0.440	2.77	189	10.3	
9:20	3	1350	5.92	0.429	2.82	187	10.7	
4:38	4	<u> 13.33</u>	5.93	0.438	2.69	188	10.7	
10:13	512	13-106	592	0.417	2.73	[87	10.8	
						<u>-</u> -		
rging Equipm	ent:Port./Dec	i. Bladder P	ump) Sam	oling Equipment_	Horiba U22	Sample Int	ake Depth:	
emarks: _		·						
								
							Day	dood 00/00/00

PO Box 305

Well No.	BXS~	-2	Location	Arlington			Date 7-1	2-04
Sample N	0,		Field Pers	connel/Company	Jim Clawson	n / Mary La	rson J.H. Ba	
Sample Time	e (2400 hours)	11:40	Instrumen	t Calibration Date			,	
Well Condition	on Poor Se	atisfactory) N	ew (If poor	r, explain)				
Field Conditi	ons/Weather	75	Pt. 6	Loud u				
Equipment D	econtamination	Liquinox,			d D.I. Water Ri	nse.		
Casing Diam			<u> </u>					
(Circle One	e) 4"		Casing \	/olume (gallon	s/ft) for: 2"=0.1	63; 4°=0.65	3; 6"=1.47	
(2)	Other		net prop	vvaler Column er purge volun	Height by app	ropriate nun	nber above to)
	04101		ger brob	or purge voluit	10.			
Depth of W	/ell (feet):	45.	40		Sheen / LNAF	L / DNAPL	nresent [,]	
Depth to W	ater (feet):	37.	69		Other rema		procont.	
Water Colu	ımn (feet):	7.	71					
Casing Vol	ume (galions):],	25		10 bour	1 10/A	7-7-0	1.
	Purge Volun		3.7	7			- (- (-()	
	je Volume (g			1				
•								
Time	Cumulative		рН	Conductivity	Dissolved	EH	Turbidity	Odor/Color/
2400 hrs	Volume (gal)	(℃)		ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
11:03	0	Carrier State of Control			January Carpetter St.			Purge Start
11.11		13.40	5.92	868	1.44	52_	5.8	clear
21:20	3	13.43	5.92		1.31	46	8.1	
11:30	3	13.48	5 78	(28)	1.20	42	10.3	
11:40	4	13.51	5.96	. 874	1.52	30	5.3	· .
					,			
						· · · · · · · · · · · · · · · · · · ·		
								
								
				`				
	-							
 -								
								
ırging Equipm	ent:Port. Dec) Bladder P	ump Samp	oling Equipment_	Horiba U22	Sample Int	ake Depth:	1
emarks;								
							Do.	deed 00/06/09

PO Box 305

Well No.	BXS-	3	Location	Arlington		7.1.	Date 7~	17 -174
Sample N			Field Pers	sonnel/Company	Jim Clawson	1 / Mary Lai	rson J.H. Ba	xter
Sample Time	e (2400 hours)	13:15		t Calibration Date				
Well Condition	on Poor Sa	tisfactory N	ew (If poo	r, explain)				
Field Conditi	ons/Weather	80	o PH.	cloody w	ith Sani			
Equipment D	econtamination	Liquinox,	Hexane,	Methanol, and	d D.I. Water Ri	nse.		
Casing Diam	eter:					······································		
(Clipile One	4* Other		Multiply	/olume (gallor Water Column er purge volun	ns/ft) for: 2"=0.1 Height by app ne.	63; 4"=0.65 ropriate nun	3; 6"=1.47 nber above to	•
Depth of W	/ell (feet):	44,	5		Sheen / LNAF	L / DNAPI	nrecent	
	ater (feet):	33,	าไ		Other rema		prodent	
Water Colu		10.	41	V ,				
	ume (gallons): 1.5	70		Media	1 0000	3 7-7-0	d
_	Purge Volum)	INTERNAL	0.0-1	<u> </u>	4
	je Volume (g							
		·						······································
Time	Cumulative	TEMP	pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color
2400 hrs	Volume (gal)	(℃)		ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
12.30	0	د د د د د د د د د د د د د د د د د د د						Purge Start
12.29		13.85	5.88	.898	0.49	36	le.0	Closer
12.38	غ	13.81	6,00	.901	0.53	24	64	arthu.
12:46	_3	13.79	losDO	.921	0.46	16	7.1	Sal
12:50	4	13.73	5.97	.927	0.44	10	7.7	Oaksig.
13:15	5.1	1376	6,02	9210	0.46	le	7.0	
							···	
								· · · · · · · · · · · · · · · · · · ·
								····

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<u> </u>					L			
rging Equipm	ent:Port. / Dec	i. Bladder P	ump) Sam	pling Equipment_	Horiba U22	Sample Int	ake Depth:	
emarks:						,		
								
							Rov	ised 02/06/03

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	BX5-4	Ø	Location	Arlington			Date 1-1	
Sample No.					Jim Clawson /		on J.M. Dax	re.
Sample Time (2400 hours)	0:15	Instrument C	allbration Date	7-12-06	<u> </u>		
Well Condition		stactory New		explain)				
Field Condition	s/Weather	75	clea	<u> </u>				
Equipment Dec	contamination	Liquinox, H	exane, M	ethanol, and	D.I. Water Rin	se.		
			<u> </u>					
Casing Dlamet	er:		Onning M	dumo (aallone	s/ft) for: 2°=0.16	3: 4"=0.653	6"=1.47	
(Circle One)			Casing vo	nume (ganon: Ister Column	Height by appro	priate numb	per above to	
(2')	4"			r purge volum		•		
6	Other		Ser broke					
Depth of W	ell (feet):	47,4	10		Sheen / LNAPI	_/DNAPL p	resent:	
Depth to Wa		15.	27_		Other rema	rks:		
Water Colu		32.	18					7
	ıme (gallons)): 5 .	24		Methane	0.000	7-7-0	4
Calculated I	Purge Volum	e (gallons):	15.	73				
	e Volume (g							
, torsair ala						EU T	Turbidity	Odor/Color/
Time	Cumulative	TEMP	pН	Conductivity	Dissolved	EH MV	(NTU)	Remarks
2400 hrs	Volume (gal)	(℃)		ms/cm 25°C	A COUNTY OF STREET STREET STREET, NO. 1975			Purge Start
8:38	0		And the second s	and the second state of the second se		16	9.7	Stixut
4:33		10.23	4.20	0.222	0.52	45	8.9	CYCK
8.21	4	10.68	4.74	-58	0.40	-57-	8.1	Clear
9:11	7_	10.17	15.0	1717	0.42	-105	8.6	
9:34	10	10.17	7.15	12110		92	8,8	
9:52	13_	10-22	7.30	1316	0.41	-95	8.7	
10:15	110	10.57	7.38	1216	0.41		<u> </u>	
								
	<u> </u>			<u></u>				
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			<u> </u>					
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	<u> </u>		 					
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						D	ntoko Dorthi	
Purging Equip	men Port. / D	ed Bladder	Pump)Sa	mpling Equipmen	nt Horiba U22	sample i	ntake Depth:	
Remarks:	(X) 1) n	0 13 XD	<u>~\bar{\bar{\bar{\bar{\bar{\bar{\bar{</u>	10,30	>			
	-						F	Revised 02/06/03

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	BX5	-5	Location	Arlington			Date 7	-13-04
Sample N	10.		Field Pe	rsonnel/Company	Jim Clawso	n / Mary La	rson J.H. Ba	ayter
Sample Tirr	ne (2400 hours)	11:30		ent Calibration Dat	e			AARO)
Well Condit	ion Poor S	Satisfactory N	lew (If po	or, explain)			·	
5	tions/Weather	<u> </u>						
Equipment I	Decontaminatio	n Liquinox	, Hexane,	. Methanol, an	d D.I. Water R	inse.		
Casing Diam			0					
(Circle On	e) 4"		Casing Multiple	Volume (galioi	ns/ft) for: 2"=0.	163; 4"=0.65	53; 6"=1.47	
6*	Other		aet proi	per purge volur	n Height by app	ropriate nui	nber above to)
			g p	purgo roidi				
Depth of V	Vell (feet):	-			Sheen / LNAF	L/DNAPL	present:	·
Depth to W	/ater (feet):				Other rema		-	
Water Colu			*		Fie	Eld BL	ANTE	
	iume (gallon:						-114	
		ne (gallons):	·					
Actual Purç	ge Volume (ç	gallons):					į.	
Time	Cumulative	TEMP		1				
2400 hrs	Volume (gal)		pН	Conductivity ms/cm 25°C	Dissolved	EH	Turbidity	Odor/Color.
	0	75/4 (E.S. 1975)		THIS CITY 23 C	Oxygen (mg/L)	MV	(NTU)	Remarks
								Purge Start
		19						
	•							
			,		-			
			-					
'					•			
<u> </u>								
<u> </u>								
ging Equipme	ent: <u>Port. / Dec</u>	I. Bladder Pr	ump_Same	oling Equipment_	Horiba 1122	Samula I	ka Dant-	
marks;				S	I WING OZZ	Sample Inta	ке перті:	
aina,		-						
				****			De. 4	and pairsons
							HeVI	sed 02/06/03

	Well Numb	er Water Leve	Bottom	Comments	Pum
2"	BXN-1	51.31	58.18'		
2"	BXN-2	47.68	57.24'		
2"	BXN-3	49 15	58.66'		
2"	BXN-4	46.82	51.74'		
	BXN-5	TO: OCL	Dup BXN-1		ļ
	BXN-6		Blank	Landfill Requirements	ļ
2"	BXS-1	* 21 1 -		180	<u></u>
2"	BXS-2	* 36.65	47.90'	Top of Pomp	X
2"	BXS-3	JX-16	45.40'	Pump raised out of ground 1 1/2'	X
2"	BXS-4	35.83	44.15'		X
	BXS-5	14.98	47.40'		
·	BXS-6		Blank		
			Dup BXS-4	Landfill Requirements	
4"	MW-1	26.41	41.02'		
4"	MW-2	45.24	51.23'		
4"	MW-3	42.85	51.23 51.96'		X
2"	MW-4	13.56	41.92'		X
2"	HCMW-5	28.76	35.43'		
2"	HCMW-6	43.42	51.10'		X
2"	HCMW-7	44.87	55.08'		Χ
	MW-A		Dup MW-15		
	MW-B		Blank	Permit Requirements	
2"	1414/40		DIATIK		
2"	MW-10	3685	45.58'		
4"	MW-11	22.75	38'		
4"	MW-12		39.85'	NAPL	
2"	MW-13		37.19'	NAPL	
2"	MW-14	30.60	38'		
	MW-15	40.62	50.30'		
2"	MW-16	43.40			
2"	MW-17	42 42	52.65'		
2"	MW-18	42.00	55.00'		
		43.18	53.83'		

Depths Taken 10-5-04

PO Box 305

Well No.	BXS-		Location	Arlington			Date /6-	12-04
Sample N			Field Per	sonnel/Company	Jim Clawso	n / Mary La	Irson J.H. Ba	
Sample Tim	e (2400 hours)	10:15		nt Calibration Date	· 10-12-		10011 O.11. Da	YIGI
Well Conditi	ion Poor 🥃	atisfactory		ır, explain)		<u> </u>		· · · · · · · · · · · · · · · · · · ·
	ions/Weather	51	o° do	ridu.		"		
Equipment [Decontamination	Liquinox	, Hexane,	Methanol, an	d D.I. Water R	inse.		
	 							· · · · · · · · · · · · · · · · · · ·
Casing Diam							→	
(Circle One	9) 4"		Casing \	√olume (gallor	ns/ft) for: 2 =0.	163; 4"=0.6	53 ; 6" ⊨1.47	
6"	Other		aet pron	er purge volum	h Height by app	propriate nu	mber above to)
			got prop	or parge voidi	n g ,			
Depth of W	Vell (feet):	71.	7.90		Sheen / LNA	PI / DNAPI	Dresent:	
	/ater (feet):	3	0:65		Other rem		present.	
Water Colu	ımn (feet):	11.	25		1	and.		 , , ,
Casing Vol	lume (gallons	s): 1,	% 3			·		
Calculated	Purge Volun	ne (gallons)	550	5			,	
Actual Purg	ge Volume (g	galions):						· · · · · · · · · · · · · · · · · · ·
Time	10. mars de il					i,		
2400 hrs	Cumulative Volume (gal)	4	pН	Conductivity	Dissolved	EH	Turbidity	Odor/Color
9:33				ms/cm 25°C	Oxygen (mg/L)	MV	(NTU)	Remarks
9:41	i							Purge Star
9:45	à	12.10	(2.37	0563	9.63	141	344	clear
9:50	3	13.109	(0.110	6.509	8:45	145_	109.0	
10:00	4	1515	5.99	0.496	4.71 3.32	145	166	
10:04	5	13:66	500	0.45		148	12	
10:10	6,60	13:14	6.01	0478	3.75	148	124	
			(a'U)	0418	3.3/o	148	13.8	
								
	******	7						
		"						
raina Easia—	onti Dort	Del						
	ent. FUIT. Dec	u. Bladder P	ump Samp	oling Equipment_	Horiba U22	Sample in	lake Depth:	
emarks:								
		-						
· · · · · · · · · · · · · · · · · · ·							Revi	sed 02/06/03

PO Box 305

Well No.	3x5-6	<i></i>	Location	Arlington			Data (A	11
Sample N	lo.			sonnel/Company	Jim Clawso	n / Mary I a	Date (D-	11-04
Sample Tim	e (2400 hours)	14:00		nt Calibration Da	·	1-04	13011 0.11, Da	1XIEI
Well Conditi	on Poor 🔇	atisfactory)		or, explain)	- po-e			
	ions/Weather	65	clece	C .			W	
Equipment D	Decontamination	Liquinox	, Hexane,	Methanol, ar	d D.I. Water R	inse.		····
						,		
Casing Diam		1	.			**************************************		
(Circle One	3) A*	1	Casing Multiply	Volume (gallo	ns/ft) for: 2"=0.	163; 4*=0.6	53; 6"=1.47	
6"	Other	}	aet prop	er purge volu er purge volu	n Height by app	propriate nui	mber above to) '
			3 F P	or pargo void				
Depth of W		40	5.40		Sheen / LNA	PL / DNAPL	Dragent:	·····
	/ater (feet):		3.710		Other rem		present.	.,
Water Colu			04		1			
Casing Vol	ume (gallons	3):	08					
Calculated	Purge Volun	ne (gallons)	_3.5	5				
Actual Purg	je Volume (g	jallons):						······································
Time	Cumulative	75.45						· · · · · · · · · · · · · · · · · · ·
2400 hrs	Volume (gal)	TEMP (°C)	pH	Conductivity	Dissolved	EH	Turbidity	Odor/Color
12:55	0			ms/cm 25°C		MV	J (NTU)	Remarks
13:14	1		GIO					Purge Start
13:33	3	14 17	6,23	0.857	3.63	=7	-4.3	
13:50	3	14.48	6.11	0.832	8.29	(c_	20.0	ļ
13:55	3.35	1448	6.11	0.534	10.99		999.0	
		1-7-7-0	CE, 11	0.834	10.12		737.0	
		-						·
								
						 -		
								
								
aina Fauloma	ent-Port Do-)Blenn				<u></u>		
	AUTO DEC	.√olauder P	ump_Samp	ling Equipment_	Horiba U22	Sample Int	ake Depth:	
marks: _								
	· · · · · · · · · · · · · · · · · · ·						Revi	sed 02/06/03

PO Box 305

Well No.	PXS-	<u> </u>	Location		sing rici	a rom		
Sample N	lo.			Arlington ersonnel/Company	lim Clause	- / P.S	Date 10_	1-04
Sample Tim	e (2400 hours)	1205		ent Calibration Da		on / Mary La	arson J.H. B	axter
Well Conditi				or, explain)	10-4-	04		
Field Conditi	ions/Weather	ld		d.				
Equipment 0	econtaminatio	Liquinox	, Hexane,	Methanol, an	d D.I. Water F	linea	· · · · · · · · · · · · · · · · · · ·	
						111186,		
Casing Diam (Circle One		1					· · · · · · · · · · · · · · · · · · ·	
(2")	9) 4"		Casing	Volume (gallo	ns/ft) for: 2"=0.	163; 4"=0.6	53; 6"=1.47	
6"	Other		iviumpiy	oer purge volui	n Height by api	propriate nu	mber above to	o
			94.6	sor purge volu	iie.			
Depth of W		_44	15		Sheen / LNA	PI / DNAPI	Drecont:	
Depth to W	ater (feet):	36	83		Other rem	arks	present.	
Water Colu		<u> </u>	3 5∼		1			
Casing Vol	ume (galion:	s): {	310					
Calculated	Purge Volur	ne (gallons)	: <u>4.0</u>	37				
Actual Purg	e Volume (g	gallons):						
Time	Cumulative	TEMP	n nU					
2400 hrs	Volume (gal)	(°C)	рĤ	Conductivity ms/cm 25°C	Dissolved	EH	Turbidity	Odor/Color.
1/33	0				Oxygen (mg/L)		(NTU)	Remarks
138		13,68	6.30	1.948	6.65			Purge Start
141	2	13.63	6.18	ंशंप	1133	72-3	93.4	C/EAR
145	3	13,72	6.14	1950	3,44	-10	201	
159	E	13,82	6.16	1,949	3.06	224	996,0	
					.,,,,,,	3/	77/10	
								
				· · ·				
 -								
				<u>-</u>				
jing Equipme	nt:Port./ Ded) Bladder Pı	ump Samp	oling Equipment_	Horiba U22	Sample Inte	ka Denth	
narks:			· · · · · · · · · · · · · · · · · · ·				wa nahiii"	
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							1075	222 05100103

PO Box 305

Well No. 3x5-4 Sample No.	Location Arlingto	11300 17	ii
Sample Time (2400 hours) 16:	Field Personnel/Compa	Date /(-11-CX
Well Condition Poor Satisfact	- The same of the	ate 10-11-04	paxter
Field Conditions/Weather	(poor, explain)		
Equipment Decontamination Liqu	a) down		
Equipment Decontamination Liqu	mox, nexane, wethanol, a	nd D.I. Water Rinse.	
Casing Diameter:			
(Circle One)	Casing Volume (galle	ons/ft) for: 2"=0.163; 4"=0.653; 6"=1.47	
6" Other	Multiply Water Colum	лізлі) for: 2"=0.163; 4"=0.653; 6"=1.47 in Height by appropriate number above t me.	
	get proper purge volu	me.	0
Depth of Well (feet):	47.40		
Depth to Water (feet):	14.98	Sheen / LNAPL / DNAPL present:	
Vater Column (feet):	32.45	Other remarks:	
asing Volume (gallone):			
alculated Purge Volume (gall	ons): 15.85		.
ctual Purge Volume (gallons):	Jis O'-)		
Time In			
2400 hrs lui	, Fry Conductivity	Dissolved FH T.	
(:40 0 個網 網網	ms/cm 25°C	Owner i Lindidity	Odor/Co
C.412 / 11/1			Remar
1:02 4 10.8	1 2 2 2 2		Purge S
7 100	7	483 1-186 300	Maari
-45 10 10x		489 1-196 12.5	ODOR
1.64 13 110.81		5.10 1-197 60	
10.8		4 67 -198 13,5	
	7 10,005	4.57 -198 3.5	
			·
Equipment Port. Ded. Bladder	Pump Sampling Equipment L	priba U22 Sample Intoka David	
ks: Dup BXS-1	e 11:00	Sample Intake Depth:]
	1. W		

PO Box 305

Arlington, WA 98223 (360) 435-2146 FAX (360) 435-3035

Well No.	BXS-	6	Location	Arlington			, T	
Sample N				rsonnel/Company	lies Claves		Date //)	12-04
Sample Tim	e (2400 hours)	11:00		ent Calibration Date		on / Mary La	arson J.H. B	axter
Well Conditi	ion Poor S			or, explain)	<u> </u>			
Fleid Condit	ions/Weather		(11 po	or, explain				
Equipment D	Decontaminatio	n Liquinox.	. Hexane	Methanol, an	d D I Water 5			
			,	methanor, an	u D.I. Water H	inse.		
Casing Diam								
(Circle One	∍)	. [Casing	Volume (gallor	ns/ft) for: 2"=0.	163: 4" =0 6	53· 6"_1 A7	
2"	4*		Munipiy	water Column	i Height by and	propriate nu	oo, o = 1.47 mber above to	•
6"	Other		get prop	er purge volun	ne.		or above to	•
Depth of W	/ell /foot\:	ــــــــــــــــــــــــــــــــــــــ			,			
	/ater (feet):	****			Sheen / LNA	PL / DNAPL	present:	
Water Colu					Other rem	arks:		
				<u>. </u>				
Calculated	ume (gallon:	s):						
Actual Dura	rurge volur	ne (galions):			Field	Blau	K	
notual ruly	e Volume (ç	galions):			٠,٠		7	
Time	Cumulative	TEMP	pН	Conductivity				
2400 hrs	Volume (gai)		J P	ms/cm 25°C	Dissolved	EH	Turbidity	Odor/Color
	0				Oxygen (mg/L)	MV	(NTU)	Remarks
			- Tarrest Military Control	water-programment of the control of	KISTO THE THE PUBLICATION OF THE PROPERTY OF THE PUBLICATION OF THE PU			Purge Start
				 				
				 				
			-					
								
								
ging Equipmer	nt: <u>Port. / Ded</u>	. Bladder Pu	mp Samp	ling Equipment_	Horiba U22	Sample Inte	Jan Barah	
marks:					72.	Sample Inte	rke Depth:	
								
				· · · · · · · · · · · · · · · · · · ·				
illarks,							Revis	sed 02/06/0

Appendix B

Chain of Custody Records and Laboratory Reports



Columbia
Analytical
Sometime No. 2 2 3.4.04 CHAIN OF CUSTODY

F.) .e.	*	
		K2469
	 SR#:_	1011

Services INC. An Employee - Owned Company 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 PAGE OF COC #	
PROJECT NAME + H FRILLE CO - ACTUALOS	
PROJECT NUMBER:	
PROJECT NUMBER CANAFILL WELLS - BXS PROJECT MANAGER Many - Larson COMPANYADDRESS COMPANYADDRESS PROJECT NUMBER PROJECT NU	
PROJECT NUMBER GAZRII WEIS - BXS PROJECT MANAGER GAZRII WEIS - BXS COMPANY/ADDRESS COMPANY/ADDRESS CITY/STATE/ZIP AN UNCHON , WA 90233 FEMAN ADDRESS FOR STATE ST	
PO Box 305 \[\frac{1}{8} \left\	
TO Box 305 CITY/STATE/ZIP A LINGTON, UA 70333 E-MAIL ADDRESS E-MAIL ADDRESS FINAL ADDRESS	
PROJECT MANAGEM CONTROL COMPANY/ADDRESS COMPANY/ADDRESS CITY/STATE/ZIP ALLUSTON LAM TO 33 E-MAIL ADDRESS SAMPLER'S SIGNATURE SAMPLER'S	
PHONE # 3 100 475 346 500 475 305 E SOUTH STORY SAMPLER'S SIGNATURE SAMPLER'S SIGNATURE SAMPLE I.D. DATE TIME LAB I.D. MATRIX PROPERTY OF SAMPLE I.D. DATE TIME TIME TIME TIME TIME TIME TIME TI	
SAMPLER'S SIGNATURE SAMPLER'S SIGNATURE	_
SAMPLE I.D. DATE TIME LAB I.D. MATRIX > 100 SECOLO CELEGO CE	š
PROJECT MANAGEN MG 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
BXS 5 210-04 13:30 14 1 XXXXXX	
BXS 6 21004 12:07 H	
	m.c.,
INVOICE INFORMATION Circle which metals are to be analyzed:	
P.O. #	
I. Routine Report: Method Bill To: Haran Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg	- 1
Blank, Surrogate, as required Dissolved Metals AI (As Sb (Ba) Be B Ca (Cd) Co Cr (Cu) Fe) Pb Mg (Mn) Mo (Ni) K Ag Na Se Sr TI Sn V (Zp) Hs	J
"I Banad Our MC MCD as CHARLE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)	
required SPECIAL INSTRUCTIONS/COMMENTS:	
(includes all raw data) Standard (10-15 working days) All Bird Change	04
_ V. EDD Marylee Larson	
Requested Report Date	
RELINQUISHED BY: RECEIVED BY: RECEIVED BY: RECEIVED BY:	
Signature Date/Time Signature Date/Time Signature Date/Time	



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. illace

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.
- 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.
- 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 clution 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.

Client:

J.H. Baxter & Company

Project: Sample Matrix:

Arlington Landfill Wells

Water

Service Request No.: Date Received:

K2400974

2/11/04

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

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.

Enw Date 3/2/04

Approved by

Columbia Analytical Services INC.

CHAIN OF CUSTODY

SR#:	Kar	100974	
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An Employee - Owned Company	1	317 South 1:	3th Ave. • K	lelso, WA	98626	° (360)	577-7222	2 • (800) 695-72	222x07	• FA)	X (360)	636-1	068		PAGI	*** **********************************	<u> </u>	OF		L	CC	C #	THE TOTAL SHEET AND THE STREET	,
PROJECT NAME TO PROJECT NUMBER	itera	\$ C 62 -	Mina	400			7	7	7 /	1	7	7	7	10	7/	7	7	7	7	7	7	7	nangeneralessa.	7 7	7
PROJECT MANAGER		<u> </u>		Many Laborator Andrews State of Many	CHICAGO PARAMETER	/	1.	1/5	BTEX]	/ /	D1882	/ ,	BISTAN	/	/ /	/	/ ,	CO.	h	206[]	/ ,	1 cd	'//	/
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REPORT REQUIREM	ENTS	P.O. #	ICE INFOR	MAIJON	V.	<u>Circle v</u>	vhich met	tals are to	be ana	ilyzed:		•													
I. Routine Report: N		Вііі То:	H Bax	ev-		Total	l Metals:	Al As	Sb B	а Ве	B Ca	Cd	Co C	Or Ou	Fe	Pb M	g Mr	n Mo	Ni I	K Ag	Na	Se Si	· TI S	in V Zn H	dg
Blank, Surrogate, required	as		508: 10	- Paner		Dissolve	d Metals)	AI (ĀS)	Sb(B	a) Be	B Ca	(Cd)	Co (or Ou	(Fe)	Pb N	lg (M	n) Ma	(Ni)	K Ag	Na	Se S	r TI S	in VZD I	Hg
II. Report Dup., MS,	MSD de	TO THE PROPERTY OF	<u>ere or</u>	and the same of th	40	*INDIC	CATE ST	ATE H	YDROC	ARBO	N PR	OCE	DURE	: AK	CA			RTHW				SERVICE EN EL PERSONNEL		LE ONE)	***************************************
required	WOD as		OUND REC		ENTS	SPECI	AL INST	FRUCTI	ONS/C	OMM	ENTS:							·		on Amazol Mar School		nek kirokonek a skon	One whole and observed one	A CONTROL OF THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED ADDRESS OF THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED AND	Na Communication
III. Data Validation Re	eport	24 h		48 hr.																				Em	ای
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OBBERNYN FRYS STRINGTON AND GROUD GROUD GROUP WAR WATER TO THE FOR THE PROTECTION AND THE SERVICE SERVICE AND EMPIRED BATTERS	CARRAC MIRITANIC (SING MORE LI I DEGRESSE LA CARRACTE	Red	quested Rep	ort Date					O		420		Order Services												
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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

	n	RAME	706		
	Pro	oject/ClientWork Order K240	17-		
	Co	poler received on 2/4/04 by by			
	1.	Were custody seals on outside of coolers?	611	Y	(N)
		If yes, how many and where?	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	-	
Ē	2.	Were seals intact and signature & date correct?			—— <u>N</u> I
	3.	Is the shipper's airbill available and filed? If no, record airbill number:		√	- N
	4.	COC#		•	111
		Temperature of cooler(s) upon receipt: 3.2		-	
		Temperature Blank: 4.8			
	5.	Were custody papers properly filled out (ink, signed, etc.)?		0	N
	6.	Type of packing material present MBM	·		
	7.	Did all bottles arrive in good condition (unbroken)?		6	N
	8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?		Ø	N
	9.	Did all bottle labels and tags agree with custody papers?		Q	N
	10.	Were the correct types of bottles used for the tests indicated?		(RO	N
	11.	Were all of the preserved bottles received at the lab with the appropriate pH?		B	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?		Ø	N
	14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?		Y	N?
	15.	Was C12/Res negative?		¥	N
	Exp	plain any discrepancies:			
	RES	SOLUTION:		· · · · · · · · · · · · · · · · · · ·	
	Sam	nples that required preservation or received out of temperature:			
	<u> </u>				

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
			•		·	
•						
			<u> </u>			
			·			<u> </u>
						····

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

Chemical Oxygen Demand

Analysis Method: 410.2

Test Notes:

Units: mg/L (ppm)

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells .'roject Number: BXS-WELLS-Landfill

ample Matrix :

WATER

Service Request: K2400974

Date Collected: 02/10/04 Date Received: 02/11/04

Total Coliform

Analysis Method: SM 9223 B est Notes:

Units: MPN/100ml

Basis: NA

ample Name	Lab Code K2400974-001	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
PX2 6	K2400974-002 K2400974-003	i	1 1 1	1 1 1	02/11/04 02/11/04 02/11/04	1 ND ND	

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: K2400974

Date Collected: 02/10/04 Date Received: 02/11/04

Tannin and Lignin

Analysis Method: SM 5550 B

Test Notes:

Units: mg/L (ppm)

Basis: NA

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

SM

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name: Project Number:

Arlington Landfill Wells 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)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4 3XS 5 9XS 6 Method Blank	K2400974-001 K2400974-002 K2400974-003 K2400974-MB	0.5 0.5 0.5 0.5	0.07 0.07 0.07 0.07	1 1 1 1	02/13/04 02/13/04 02/13/04 02/13/04	1.0 1.0 0.9 ND	110003

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)

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name : Project Number :

Arlington Landfill Wells BXS-WELLS-Landfill

Sample Matrix:

WATER

Service Request: K2400974

Date Collected: 02/10/04

Date Received: 02/11/04

pН

Analysis Method: 150.1

Test Notes:

Units: pH UNITS

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	
3XS 6	K2400974-003	-	- ·	1	02/11/04	8.00	

Analytical Report

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells

Sample Matrix:

Project Number: BXS-WELLS-Landfill

WATER

Service Request: K2400974

Date Collected: 02/10/04 Date Received: 02/11/04

Conductivity

Analysis Method: 120.1

Test Notes:

Units: uMhos/cm

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

Analytical Report

client:

J.H. Baxter & Company

oject 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

Solids, Total Dissolved (TDS).

alysis Method: 160.1

Test Notes:

Units: mg/L (ppm)

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

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)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS 4	K2400974-001	0.2	0.04	prove	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	

Analytical Report

(ent:

J.H. Baxter & Company

P vject Name:

Arlington Landfill Wells

Project Number: BXS-WELLS-Landfill 5 Inple Matrix:

WATER

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

Date Received: 02/11/04

Sulfate

4 ylysis Method: 300.0

rest Notes:

Units: mg/L (ppm)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3XS 4 3 5 3YS 6 Aethod Blank	K2400974-001 K2400974-002 K2400974-003 K2400974-MB	0.2 0.2 0.2 0.2	0.04 0.04 0.04 0.04	1 1 1 1	02/11/04 02/11/04 02/11/04 02/11/04	1.3 ND 1.3 ND	

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

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	K2400974-001	0.2	0.02	. 1	02/19/04	0.06	ĭ
BXS 5	K2400974-002	0.2	0.02	1	02/19/04	ND	
BXS 6	K2400974-003	0.2	0.02	To see	02/19/04	0.06	
Method Blank	K2400974-MB	0.2	0.02	1	02/19/04	0.06.	J



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 Ed Wallace

Project Chemist

EW/cb

Page 1 of

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2400974

Project No.: BXS-WELLS-Landfill

Date Collected: 02/10/04

Project Name: Arlington Landfill Wells

Date Received: 02/11/04

Matrix:

WATER

Units: pG/L

Basis:

Sample Name: BXS 4

Lab Code: K2400974-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	1.0	lυ	
Barium	6010B	5.0	2.0	1 1	2/19/04	2/23/04	2.0	โบ	
Cadmium	6010B	5.0	2.0	1 1	2/19/04	2/23/04	2.0	Tu	· ·
Copper	6010B	10.0	8.0	1 1	2/19/04	2/23/04	8.0	-	
Iron	6010B	20.0	4.0	1 1	2/19/04	2/23/04:	4.0		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	0.6	8 - (- Miles and a second
Nickel	6010B	20.0	3.0	1	2/19/04	2/23/04	3.0	,	
Zinc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0		***************************************

% Solids: 0.0

Comments:

00057

-1-

INORGANIC ANALYSIS DATA SHEET

J.H. Baxter & Company

Project No.: BXS-WELLS-Landfill

Service Request: K2400974

Date Collected: 02/10/04

Project Name: Arlington Landfill Wells

Date Received: 02/11/04

NA

Matrix:

WATER

Units: µG/L

Basis:

Sample Name: BXS 5

Lab Code: K2400974-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	0
Arsenic	7060A	5.0	1.0	1	2/19/04				L
Barium	6010B	5.0		-		2/23/04	4.9	В	
Cadmium			2.0	1	2/19/04	2/23/04	29.1		
	6010B	5.0	2.0	1	2/19/04	2/23/04			
Copper	6010B	10.0	8.0	1 1	2/19/04		2.0	ן ט	1
Iron	6010B	20.0		+		2/23/04	8.0	Ū	
Mangana			4.0	1	2/19/04	2/23/04	48.1		
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04			
Nickel	6010B	20.0	3.0	1 -			115		
Zinc	6010B			 	2/19/04	2/23/04	3.0	U	
	0010B	10.0	2.0	1	2/19/04	2/23/04	2.0		

% Solids: 0.0

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

5· _	Analysis			1		ED Code: K24			THE RESERVE
Analyte	Method	MRL	MDL	Dil.	Date Extracted	Date		T	T
Arsenic	7060A	5.0			Excracted	Analyzed	Result	lc	
Barium	6010B	5.0	1.0	1	2/19/04	2/23/04			L×
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	5.0	В	
opper	6010B		2.0	1	2/19/04	2/23/04	28.3		NAMES OF TAXABLE PARTY.
ron	6010B	10.0	8.0	1	2/19/04	2/23/04	2.0	U	***************************************
langanese	6010B	20.0	4.0	1	2/19/04	2/23/04	8.0	υĺ	
ickel	6010B	5.0	0.6	1	2/19/04	CHICAGO CONTRACTOR CON	41.4	The state of the s	Carlotte Street
inc	6010B	20.0	3.0	1	2/19/04	2/23/04	113	1	T- OCC MIND
	I DATOR	10.0	2.0	1	2/19/04	2/23/04	3.0	υİ	
				-	-///	2/23/04	2.0	υŤ	-

Solids: 0.0

mments:

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

Am = 1	Analysis	-	T				400974-MB
Analyte	Method	MRL	MDL	Dil.	Date	Date	
Arsenic	7060A	5.0			Extracted	Analyzed	B
Barium Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	Result C
Copper	6010B	5.0	2.0	1	2/19/04	2/23/04	1.0 0
ron	6010B	10.0	8.0		2/19/04	2/23/04	2.0 U
langanese	6010B	20.0	4.0	1 1	2/19/04	2/23/04	2.0 0
ickel	6010B	5.0	0.6	1	2/19/04	2/23/04	8.0 U 4.0 U
inc	6010B	20.0	3.0	1	2/19/04 2/19/04	2/23/04	0.6 0
		10.0	2.0	1	2/19/04	2/23/04	3.0 0
						2/23/04	2.0 0

-ids: 0.0

ments:

Analytical Services NC.
An Employee - Owned Company

An Employee - Dwned Company	5DD Vac 1317 South 13th Ave. • Kelso WA	CHAIN OF CUSTODY	Reed 3.80	30#: LL 10(3)
PROJECT NUMBER PROJECT NUMBER PROJECT MANAGER COMPANY/ADDRESS CITY/STATE/FIP E-MAIL ADDRESS	Wills Large	98626 • (360) 577-7222 • (800) 695-72222x07 • FAX (36) White the state of the stat	551AD	OF_5_COC#
L. Ishing J. Land	BLU CBS 3035 E TIME LAB I.D. MATRIX / CX 7:30 John 1	MUMBER OF CONTAINERS Somious IN CONTAINERS S	Character Sing Control of Solution of Solu	
REPORT REQUIREMENTS	INVOICE INFORMATION			
I. Routine Report: Method Blank, Surrogate, as required II. Report Dup., MS, MSD as required III. Data Validation Report	P.O. # BIII TO: SHIFTEN LOZGO PO BOX (0197) EUGCNE, ON STAN TURNAROUND REQUIREMENT 24 hr. 48 hr.	*[0.10]	JRE: AK CA WI NORTH	(CITCLE UNE)
(includes all raw data) IV. CLP Deliverable Report V. EDD RELINQUISHED BY:	5 Day Standard (10-15 working days) Provide FAX Results Requested Report Date	Manyleelarson		alidated in 3 coolers
1711	H 13:00 May Significant	RELIN 2/3/64/000 Date/Time Signature Firm Firm	Date/Time	RECEIVED BY: Signature Date/Time



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.

Col Wallace Ed Wallace

Project Chemist

EW/jeb

: Kathy Gunderson, Premier Corp.

Page 1 of

NEI AD Accordited

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

GCGas 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 MRI. 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. #
- The analyte was found in the associated method blank at a level that is significant relative to the sample result. В Ε
- 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.
- The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL. В Ε
- The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- The duplicate injection precision was not met. M
- The Matrix Spike sample recovery is not within control limits. See case narrative. N
- The reported value was determined by the Method of Standard Additions (MSA). S
- The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. U
- The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike
- 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 tentatively identified compound, a suspected aldol-condensation product. A
- В 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.
- Е 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.
- 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.
- 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.

Client:

J.H. Baxter & Company

Project:

Arlington Landfill Wells

Sample Matrix: Water Service Request No.:

K2401057

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 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

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.

EMW Date 3/4/04

Approved by

Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

			C00	ici Neceipt and Pres	servation For	rm			
	oject/Client		rra_	and the second s			105	7	
Co	poler received onZ	113/04	an	d opened on Z /(3/	Work Order	by //		_	
1.	Were custody seals of	n outside of	coolers?			.oy		MACCO (mag)	
	If yes, how many	and where	?	3F			61	1 6) _{r-}
2.	Were seals intact and	signature &	date corre	ct?			,		
3,	Is the shipper's airbi	l available a	and filed?	If no, record airbill numb				Ŷ) N
4.	COC#			may record anom mumo	er:			Y	N
	Temperature of coole Temperature Blank:	er(s) upon re	ceipt:	4.5	19	2.0		-	
5.	Were custody papers I	oroneriv fills	ed out (inte			2.6		-	
6.	Type of packing mater	ial present	a out (nik,	signed, etc.)?				- (7)	N
7.	Did all bottles arrive in	good cond	ition (unbro	2ken)?					**
8.	Were all bottle labels of	complete (i.e	analveie r	JACII) ((B)	N
9.	Did all bottle labels an	d tags agree	with custo	dy papers?				(a)	N
10.	Were the correct types	of bottles u	sed for the	tests indicate to				(Y)	N
11.	Were all of the preserv	ed bottles re	ccived at t	he lab with the appropria					N
12.	Were VOA vials checl	ted for absen	nce of air h	ubbles, and if present, no	te pH?			Y	N
13.	Did the bottles original	e from CAS	/K or a bra	uch laboratore	ted below?			Y	N
14.	Are CWA Microbiolog	y samples re	eceived wir	h >1/2 the 24hr. hold tim				(Y)	N
15.	Was C12/Res negative	?		> 1/2 tile 24fir. nold tim	te remaining from	n collection?		T	N
	ain any discrepancies							Ť	N
									*
RESO	LUTION:								
<u>Sampi</u>	es that required prese	rvation or	received o	ut of temperature:					-
		1	I						
·	Sample ID	Reagent	Volume	5 -4 05		Rec'd out of		. Observation	
				Lot Number	Bottle Type	Temperature	Initials		
		1			1				- N

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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

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

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

рΗ

Analysis Method: 150.1

Test Notes:

Units: pH UNITS

Sample Name BXS-2	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-3	K2401057-001 K2401057-002	for Gal	-	Perent seems	02/13/04 02/13/04	0.57	

Analytical Report

Client:

J.H. Baxter & Company

Project Name : Project Number :

Arlington Landfill Wells 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

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2	K2401057-001	2	0.2	1 1	02/19/04	736	J
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	

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)

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

Analytical Report

Client:

J.H. Baxter & Company Arlington Landfill Wells

Project Name : 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)

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells

Project Number: BXS-WELLS-Landfill Sample Matrix:

WATER

Service Request: K2401057

Date Collected: 02/12/04

Date Received: 02/13/04

Tannin and Lignin

Units: mg/L (ppm)

Basis: NA

Analysis Method: SM 5550 B

Test Notes:

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	Name of the state	02/21/04	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: K2401057

Date Collected: 02/12/04

Date Received: 02/13/04

Sulfate

Analysis Method: 300.0

Test Notes:

Units: mg/L (ppm)

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

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)

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

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)

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	J
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	

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

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-2	K2401057-001	0.2	0.02	1000d	02/19/04	0.10	J
BXS-3	K2401057-002	0.2	0.02	. Week	02/19/04	0.08	and a second
Method Blank	K2401057-MB	0.2	0.02	December	02/19/04	0.06	and dissert

Analytical Report

Client:

J.H. Baxter & Company

Project Name: Project Number:

Arlington Landfill Wells 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)

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

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2401057

Project No.: BXS-WELLS-Landfill

Date Collected: 02/12/04

Project Name: Arlington Landfill Wells

Date Received: 02/13/04

Matrix:

WATER

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	С	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	<u> </u>	,
Cadmium	6010B	5.0	2.0	1	2/19/04	2/23/04	2.0	U	
Copper	6010B	10.0	8.0	1 4	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	В	***************************************

% Solids: 0.0

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2401057

Project No.: BXS-WELLS-Landfill

Date Collected: 02/12/04

Project Name: Arlington Landfill Wells

Date Received: 02/13/04

Matrix:

WATER

Units: 'µG/L

Basis: NA

Sample Name: BXS-3

Lab Code: K2401057-002 DISS

Analyte	Analysis Method	MRL	WDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04	3.0	В	
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	<u> </u>
Copper	6010B	10.0	8.0	1 1	2/19/04	2/23/04	8.0		
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04	2950	0 1	
Manganese	6010B	5.0	0.6	1	2/19/04	2/23/04	15700		
Nickel	6010B	20.0	3.0	1 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

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2401057

Project No.: BXS-WELLS-Landfill

Date Collected:

Project Name: Arlington Landfill Wells

Date Received:

Matrix:

WATER

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	l Q
Arsenic	7060A	5.0	1.0	1	2/19/04	2/23/04		ļ	
Barium	6010B	5.0	2.0	1	Annual Control of the		1.0	U	Control
Cadmium	6010B	5.0	*	-	2/19/04	2/23/04	2.0	U	
The second secon		Contract Con	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	· ·	j
Iron	6010B	20.0	4.0	1	2/19/04	2/23/04		-	Parameter Control
Manganese	6010B	5.0	0.6	1	Contraction of the Contraction o		4.0	U	
Nickel	6010B		The same of the sa		2/19/04	2/23/04	0.6	ט	
Zinc		20.0	3.0	1 4	2/19/04	2/23/04	3.0	77	
41nc	6010B	10.0	2.0	1	2/19/04	2/23/04	2.0	-	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P

% Solids: 0.0



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CHAIN OF CUSTODY For ed 3-12-04

SR#:	1240	218
		T

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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

Project Chemist

EW/JEB

Page 1 of 302

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.
- The analyte was found in the associated method blank at a level that is significant relative to the sample result. B
- The result is an estimate amount because the value exceeded the instrument calibration range. E
- The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL. J
- The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. U
- 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. #
- The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL. В
- The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. E
- M The duplicate injection precision was not met.
- The Matrix Spike sample recovery is not within control limits. See case narrative. N
- The reported value was determined by the Method of Standard Additions (MSA). S
- The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. U
- The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike W
- The MRL/MDL has been elevated due to a matrix interference. i
- 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 tentatively identified compound, a suspected aidol-condensation product. A
- The analyte was found in the associated method blank at a level that is significant relative to the sample result. B 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.
- 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.
- 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).
- The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- The MRL/MDL has been elevated due to a chromatographic interference.
- 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.
- 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.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Client:

J.H. Baxter & Company Arlington Landfill Wells

Project: Sample Matrix:

Water

Service Request No.:

K2401212

Date Received:

2/19/04

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

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.

Emw Date 3/10/04

Approved by

Services INC. CITAIN OF CUSTODY 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 An Employee - Owned Compan CONTAINERS 40x 1650 [] NUMBER OF C TIME LAB I.D. MATRIX REMARKS INVOICE INFORMATION REPORT REQUIREMENTS Circle which metals are to be analyzed: P.O. # K. I. Routine Report: Method Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Blank, Surrogate, as required Dissolved Metals) Al AS Sb (Ba) Be B Ca (Co) Co Cr (Cu) Fe) Pb Mg (Min) Mo (NI) K Ag Na Se Sr TI Sn V (Zn) Hg ____ II. Report Dup., MS, MSD as *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: TURNAROUND REQUIREMENTS required SPECIAL INSTRUCTIONS/COMMENTS: (CIRCLE ONE) ___ 24 hr. ____III. Data Validation Report _5 Day (includes all raw data) Standard (10-15 working days) __IV. CLP Deliverable Report Afth Brethn thomas Marybelarson Provide FAX Results ___ V. EDD Requested Report Sate FLINQUISHED BY:

RELINQUISHED BY:

Date/Time

Firm

Signature

Printed Name

RECEIVED BY:

Date/Time

Signature

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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form Project/Client Work Order K2 Cooler received on 2 and opened on 2.19-02 Were custody seals on outside of coolers? 1. Front If yes, how many and where?_ Were seals intact and signature & date correct? 2. Is the shipper's airbill available and filed? If no, record airbill number:_ 3. 4. COC# Temperature of cooler(s) upon receipt: Temperature Blank: Were custody papers properly filled out (ink, signed, etc.)? 5. Type of packing material present ICE, Mesh 5 Ceves 6. N Did all bottles arrive in good condition (unbroken)? 7. Were all bottle labels complete (i.e analysis, preservation, etc.)? 8. N Did all bottle labels and tags agree with custody papers? 9. N Were the correct types of bottles used for the tests indicated? 10. N Were all of the preserved bottles received at the lab with the appropriate pH? 11. N Were VOA vials checked for absence of air bubbles, and if present, noted below? 12. N Did the bottles originate from CAS/K or a branch laboratory? 13. Y Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? 14. N Y Was C12/Res negative? Explain any discrepancies:_ N RESOLUTION: Samples that required preservation or received out of temperature:

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

Chemical Oxygen Demand

Analysis Method: 410.2

Test Notes:

Units: mg/L (ppm)

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

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)

Sample Name			Dilution	Date		D. 1
	Lab Code	MRL	Factor	Analyzed	Result	Result Notes
BXS-1 Method Blank	K2401212-001 K2401212-MB	5	1	02/25/04 02/25/04	202 ND	110103

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

Conductivity

Analysis Method: 120.1

Test Notes:

Units: uMhos/cm

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

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)

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

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

Chloride

Analysis Method: 300.0

Test Notes:

Units: mg/L (ppm)

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

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

Sulfate

Analysis Method: 300.0

Test Notes:

Units: mg/L (ppm)

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

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

Units: mg/L (ppm)

Basis: NA

Analysis Method: 353.2

Test Notes:

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name: Project Number:

Arlington Landfill Wells

Sample Matrix :

BXS-WELLS-Landfill

WATER

Service Request: K2401212

Date Collected: 02/18/04 Date Received: 02/19/04

Total Coliform

Analysis Method: SM 9223 B

Test Notes:

Units: MPN/100ml

Cample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result
TXS-1	K2401212-001	1	1	02/19/04	25	Notes
					23	х

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)

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name : Project Number :

Arlington Landfill Wells BXS-WELLS-Landfill

Sample Matrix:

WATER

Service Request: K2401212

Date Collected: 02/18/04 Date Received: 02/19/04

pН

Analysis Method: 150.1

Test Notes:

Units: pH UNITS

Basis: NA

Sample Name

Lab Code

MRL

Dilution Factor

Date Analyzed

Result

Result Notes

BXS-I

K2401212-001

-

02/19/04

6.22

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	С	o
Arsenic	7060A	0.005	1 1	2/25/04	0/07/		200	L
Barium	6010B	0.01		The state of the s	2/25/04	0.005	U	
Cadmium	6010B	The second secon	4	2/25/04	2/26/04	0.01		
Copper	The state of the s	0.005	1 1	2/25/04	2/26/04	0.005	TT	_
Company of the Compan	6010B	0.01	1 1	2/25/04	2/26/04	Total Control of the Party of t		-
Iron	6010B	0.02	1	2/25/04	The same of the sa	0.01	U	
Manganese	6010B	0.005	4	COCCOSION CONTRACTOR OF THE CO	2/26/04	0.02	υ	
Nickel	6010B	0.02		2/25/04	2/26/04	0.277		-
Zinc		The state of the s	1	2/25/04	2/26/04	0.02	υĺ	
The second secon	6010B	0.01	1	2/25/04	2/26/04	0:01	U	Section 1999

% 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:

Service Request: K2401212

Date Collected:

Date Received:

Units: MG/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2401212-MB

Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	С	Q
7060A	0.005	1	2/25/04	2/25/04			
6010B	0.01	1				•	<u> </u>
6010B		 			0,01	ט	
		1	2/25/04	2/26/04	0.005	U	
	0.01	1 1	2/25/04	2/26/04			
6010B	0.02	1					
6010B	0:005				0.02	ט	
		1	2/25/04	2/26/04	0.005	U	
6010B	0.02	1	2/25/04	2/26/04			
6010B	0.01	1				υl	
	7060A 6010B 6010B 6010B 6010B 6010B	7060A 0.005 6010B 0.01 6010B 0.005 6010B 0.01 6010B 0.02 6010B 0.005 6010B 0.005	Method MRL Factor 7060A 0.005 1 6010B 0.01 1 6010B 0.005 1 6010B 0.01 1 6010B 0.02 1 6010B 0.005 1 6010B 0.005 1 6010B 0.02 1	Method MRL Factor Extracted 7060A 0.005 1 2/25/04 6010B 0.01 1 2/25/04 6010B 0.005 1 2/25/04 6010B 0.01 1 2/25/04 6010B 0.02 1 2/25/04 6010B 0.005 1 2/25/04 6010B 0.005 1 2/25/04 6010B 0.02 1 2/25/04	Method MRL Factor Extracted Analyzed 7060A 0.005 1 2/25/04 2/25/04 6010B 0.01 1 2/25/04 2/26/04 6010B 0.005 1 2/25/04 2/26/04 6010B 0.01 1 2/25/04 2/26/04 6010B 0.02 1 2/25/04 2/26/04 6010B 0.005 1 2/25/04 2/26/04 6010B 0.02 1 2/25/04 2/26/04 6010B 0.02 1 2/25/04 2/26/04	Method MRL Factor Extracted Analyzed Result 7060A 0.005 1 2/25/04 2/25/04 0.005 6010B 0.01 1 2/25/04 2/26/04 0.01 6010B 0.005 1 2/25/04 2/26/04 0.005 6010B 0.01 1 2/25/04 2/26/04 0.01 6010B 0.02 1 2/25/04 2/26/04 0.02 6010B 0.02 1 2/25/04 2/26/04 0.005 6010B 0.02 1 2/25/04 2/26/04 0.02 6010B 0.01 1 2/25/04 2/26/04 0.02	Method MRL Factor Extracted Analyzed Result C 7060A 0.005 1 2/25/04 2/25/04 0.005 U 6010B 0.01 1 2/25/04 2/26/04 0.01 U 6010B 0.005 1 2/25/04 2/26/04 0.005 U 6010B 0.01 1 2/25/04 2/26/04 0.01 U 6010B 0.02 1 2/25/04 2/26/04 0.02 U 6010B 0.005 1 2/25/04 2/26/04 0.005 U 6010B 0.02 1 2/25/04 2/26/04 0.005 U 6010B 0.02 1 2/25/04 2/26/04 0.005 U

} Solids:

Comments:

Columbia Analytical				Ch	ΗAI	N ()F	CI	JS	TC)D	Y					,	8		SR	#:	1/12	240	1980	*
Services INC. I Employee - Owned Company 13	317 South 13th	Ave. • Ke	lso, WA	98626	(360)	577-72	22 • (8	800) 69	5-722	2x07	• FAX	(360)	636-10	368	F	PAGE			OF	*************************	1	_ co	C #		5
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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

Page 1 of

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.

Client:

J.H. Baxter & Company

Project:

Arlington Plant Landfill Wells

Sample Matrix:

Water

Service Request No.:

Date Received:

K2401980 3/18/04

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 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.

EURW Date 4/1/04

Approved by

Columbia Analytical Services Inc.
Cooler Receipt and Preservation Form

	All L. L.	
Proj	ect/Client Work Order K240 /710	
Coo	oler received on 3/18/04 and opened on 3/18/04 by A	
1.	Were custody seals on outside of coolers? If yes, how many and where?	N
2.	Were seals intact and signature & date correct?	N
3.	Is the shipper's airbill available and filed? If no, record airbill number:	N
4.	COC#	
	Temperature of cooler(s) upon receipt: Temperature Blank:	
5.	Were custody papers properly filled out (ink, signed, etc.)?	N
6.	Type of packing material present	
7.	Did all bottles arrive in good condition (unbroken)?	N
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?	N
9.	Did all bottle labels and tags agree with custody papers?	N
10.	Were the correct types of bottles used for the tests indicated?	N
11.	Were all of the preserved bottles received at the lab with the appropriate pH?	-N
12.	Were VOA vials checked for absence of air bubbles, and if present, noted below?	<u>−N</u>
13.	Did the bottles originate from CAS/K or a branch laboratory?	N
14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	N
15.	Was C12/Res negative?	_N
Ex	plain any discrepancies:	
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זק	ESOLUTION:	
<u>Sa</u>	amples that required preservation or received out of temperature:	
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	Sample ID Reagent Volume Lot Number Bottle Type Temperature Initials	
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Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
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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

Units: MPN/100ml Basis: NA

Test Notes:

Sample Name	Lab Code	MRL		Extracted	Date Analyzed	Time Test Started		Result	Result Notes
BXN-2	K2401980-001	Menne	1	NA	3/18/04	1515	hrs	687	
BXN-5	K2401980-002	general	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	tones.	1	NA	3/18/04	1515	hrs	ND	
BXS-3	K2401980-005		j	NA	3/18/04	1515	hrs	ND	

SM

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

Approved By:

LA/052595

Date: 3/3//07/

01980WET.PQ1 - Sample 3/31/04

Page No.

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Service Request #: 1980	
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An Employee · Owned Company 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577 7220 • (200) - (200)	SR#:	K240288U
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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

Page 1 of HV



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.

A Wallace

Project Chemist

EW/cb

Page 1 of

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.

Client:

J.H. Baxter & Company

Landfill Wells

Service Request No.:

K2402880

Project: Sample Matrix:

Water

Date Received:

4/21/04

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

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 alle Aprello

Date 5/1/04

T C m 1
Analytical Services INC.
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CHAIN UF CUSTOUT

SR#: K240'0880

An Employee - Owned Company		1317 South 1	3th Ave. • K	elso, WA	98626	• (360	0) 577-7	222 •	(800)	695-72	22x07	• FA	X (360)	636-1	1068		PAG	Ę		_ OF	:	<u></u>	_ cc	C #	
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Blank, Surrogate, required	as	POF	30× (D)	GZ,		Dissolv	ed Metal	s:)Ai	As) s	Sb (Ba	Ве	B Ca	(ca)	Co C	or (Gu	Fe	Pb M	o Mr	om G	(Ni) k	C A a	No. 0		TI C	v Zn Hg
		Eure	he lox	974	6	*INDI	CATE S	STATI	E HYI	DROC	ARRO	N PR	OCED	I IBE:	AK	$\stackrel{\smile}{\simeq}$							30 31		
II. Report Dup., MS, required	MSD as	TURNAR	OUND REQ	UIREME	NTS		IAL IN						OOLD	OIIL.	. AIX	.07	VVI	NOF	11////	EST (OTHE	H;		(CIRCI	E ONE)
III. Data Validation Re		24 h		_48 hr.																					
(includes all raw d		5 Da	У		j	4 1						_													
IV. CLP Deliverable F	i f		, dard (10-15 v		lays)	A	$+ h_1$	R	19-1	Aur	P	ho	PUT	25											
V. EDD	ispoit	Prov	ide FAX Resi	uits		-	•	1	1_	11)	٠. د													
		Reg	uested Repo	rt Date				. /	VOI	4m 21	ll	GY:	307		,										
RELINQUISH	ED BY:		1			N/FD =	11/-			$\stackrel{\smile}{+}$			·												
Mary Columbia	١ ـ	48:00	In	ואציייי.	nece; , , £	IVED E	4/4/4] eTI A	152/	ul		•	RELII	NQUIS	SHED	BY:						REC	EIVEC	BY:	
Signalub Haran 4	ate/Jime	1	Signati	10 2	ux.	_ Da			/07		Signa	ture			Data	/Time			_	Non-A					
Printed Name	irm -XX	Y CY	Printed		luke	- <u>C</u> Fir	te/Time			- 1	_			·					1	Signatu				Date/Tin	ne
						0.403	111			ł	LUNIE	d Nan	Π Θ		Firm	1			Ϊ́́P	rinted	Name	`			

Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

		Cor	HET TECH	APP STATE I A DO CO.					
D ,	ect/Client	ter		Work	Order K240_	285 C			
Proje	ect/Chent	20/-1	_	d on <u> </u>	bv	Polacle			
Cool	er received on	<u>и оч</u> а	nd opene	d on	V)			6	B.T
1.	wastody seals on outsi	de of coolers	?	1 1 cida					N
	astody seals on outsi	where?	1-10	mr, 1-8100		(Y	N
2.	Wer seals intact and signal	ture & date co	rrect?		Out. Mana d			Y	N
3.	Were seals intact and signalis the shipper's airbill avai	lable and filed	l? If no, re	cord airbill number:	Tigrano	6	•	*	22
4.	Carlo Carlo								
	Temperature of cooler(s) 1	ipon receipt:	épiconimite	<u>5.[</u>					
	Temperature Blank:	1 (*11 - 3 mars)						¥	N
5.	Were cust dy papers property Type king material p	rly filled out	(IIIK, SIGIIC	ice in back					
6.	Did Troutes arrive in go	od condition (unbroken)	7					N
7.	Were all bottle labels com	nlete (i.e anal	ysis, preser	vation, etc.)?				Ø	N
8. 9.	Did all bottle labels and ta							(D)	N
10.	Were the correct types of	bottles used f	or the tests	indicated?				(A)	V.
11.	Were all of the preserved	bottles receiv	ed at the la	b with the appropriate p	H?			v_	k
12.	Were VOA vials checked	for absence of	of air bubb	les, and if present, noted	below?				N ⁷
13	Did the bottles originate	from CAS/K	or a branch	laboratory?		allection?		Y	O
14		samples recei	ved with >	1/2 the 24hr. hold time re	maning nom o	Olloction.		Y	- Iv
15								, , , , , , , , , , , , , , , , , , ,	
E	cplain any discrepancies:_								
				3					
						· · · · · · · · · · · · · · · · · · ·			
ס	ESOLUTION:					· · · · · · · · · · · · · · · · · · ·			
<u>S</u>	amples that required pres	ervation or re	eceived of	it of temperature.					****
					Bottle Type	Rec'd out of Temperature	Initials		
***	Sample ID	Reagent	Volume	Lot Number	Dorme i Ahe	5 Sharkens states at			
-									

Juundia anali i ilah beryiceb, 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

Conductivity

Analysis Method 120.1

Test Notes:

Units: uMhos/cm

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3	K2402880-001	2	1	04/24/04	511	
dXN-6	K2402880-002	2	1	04/24/04	ND	
3XN-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	

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

Nitrate+Nitrite as Nitrogen

Units: mg/L (ppm)

Basis: NA

Analysis Method 353.2

Test Notes:

Danis Din AVIII.

			Dilution	Date		Result
Sample Name	Lab Code	MRL	Factor	Analyzed	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	9	04/30/04	ND	
BXS-3	K2402880-004	0.2	· <u>1</u>	04/30/04	ND	
Method Blank	K2402880-MB	0.2	Ĩ	04/30/04	ND	

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)

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
3XN-3 BXN-6 BXN-2 3XS-3 Method Blank	K2402880-001 K2402880-002 K2402880-003 K2402880-004 K2402880-MB	1.0 0.2 0.2 0.2 0.2	5 1 1 2	04/22/04 04/22/04 04/22/04 04/22/04 04/22/04	8.8 ND ND ND ND	110003

Analytical Report

Client:

Project Name:

J.H. Baxter & Company Arlington Landfill W

Project Number: BXN-WELLS-Landfill

Sample Matrix:

WATER

Service Request: K2402880

Date Collected: 04/20/04

Date Received: 04/21/04

Chloride

Analysis Method 300.0

Test Notes:

Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3 BXN-6 BXN-2 BXS-3 Method Blank	K2402880-001 K2402880-002 K2402880-003 K2402880-004 K2402880-MB	1.0 0.2 1.0 0.2	5 1 5	04/22/04 04/22/04 04/22/04 04/22/04	7.8 ND 4.6 3.1	,
	UNI-NOO7047	0.2	1	04/22/04	ND	

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

Tannin and Lignin

Analysis Method SM 5550 B

'est Notes:

Units: mg/L (ppm)

Basis: NA

ample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
JXN-3	K2402880-001	1.0	. 5	04/23/04	9.6	
PXN-6	K2402880-002	0.2	1	04/23/04	ND	
BXN-2	K2402880-003	0.2	1	04/23/04	1.8	
XS-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.

CULUIVIDIA AIVAL LICAL SERVICES, 117C.

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

Solids, Total Dissolved (TDS)

Analysis Method 160.1

Test Notes:

Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3 BXN-6 BXN-2 BXS-3 Method Blank	K2402880-001 K2402880-002 K2402880-003 K2402880-004 K2402880-MB	5 5 5 5	1 1 1	04/23/04 04/23/04 04/23/04 04/23/04	364 ND 492 512	140562
		J	1	04/23/04	ND	

Analytical Report

Client:

J.H. Baxter & Company Arlington Landfill W

Project Name:

Sample Matrix:

Project Number: BXN-WELLS-Landfill

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)

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

Culuividia aival I iical der Viced, iivc.

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)

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXN-3 BXN-6 BXN-2 BXS-3 Method Blank	K2402880-001 K2402880-002 K2402880-003 K2402880-004 K2402880-MB	0.5 0.5 0.5 0.5	1 1 1 1	04/27/04 04/27/04 04/27/04 04/27/04 04/27/04	10.5 ND 15.0 24.8 ND	110000

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:

Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
¥2402880_001	. 5	1	04/28/04	33	
	5	1	04/28/04	ND	
	5	1	04/28/04	37	
	. 5	1	04/28/04	65	
K2402880-MB	5	. 1	04/28/04	ND	
	K2402880-001 K2402880-002 K2402880-003 K2402880-004	K2402880-001 5 K2402880-002 5 K2402880-003 5 K2402880-004 5	Lab Code MRL Factor K2402880-001 5 1 K2402880-002 5 1 K2402880-003 5 1 K2402880-004 5 1	Lab Code MRL Factor Analyzed K2402880-001 5 1 04/28/04 K2402880-002 5 1 04/28/04 K2402880-003 5 1 04/28/04 K2402880-004 5 1 04/28/04	Lab Code MRL Factor Analyzed Result K2402880-001 5 1 04/28/04 33 K2402880-002 5 1 04/28/04 ND K2402880-003 5 1 04/28/04 37 K2402880-004 5 1 04/28/04 65 MRL 04/28/04 05 04/28/04 ND

CULTURING MINME LICHE SERVICES, HVC.

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

pН

Analysis Method 150.1

Test Notes:

Units: pH UNITS

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

Analytical Report

Client:

J.H. Baxter & Company

Project:

Arlington Landfill Wells/BXN-WELLS-Landfill

Sample Matrix:

Service Request: K2402880

Date Collected: 4/20/2004 Date Received: 4/21/2004

Coliform, Total

Prep Method:

NONE

Analysis Method:

SM 9221B

Units: MPN/100ml Basis: NA

Test Notes:

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

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

- pproved By:

052595

02880WET.ay1 - Sample 5/6/2004

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402880

Project No.: BXN-WELLS-Landfill

Date Collected: 04/20/04

Project Name: Arlington Landfill Wells

Date Received: 04/21/04

Matrix:

WATER

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		-	
Barium	6010B	5.0	1 1	5/3/04		15.5		
Cadmium	6010B	5.0	1	September 1990 Commence of the september 1990 Commence of the	5/4/04	60.3		
Copper	6010B	10		5/3/04	5/4/04	5.0	U	-
Iron		No. of the last of	1 1	5/3/04	5/4/04	10	U	Annual Control of the
Normalista since a second seco	6010B	20	1	5/3/04	5/4/04	23200		Andrews
Manganese	6010B	5.0	1	5/3/04	5/4/04	The second second second second		NAME OF THE OWNER, WHEN
Nickel	6010B	20	1 1	5/3/04	The Contract of the Contract o	3640		
Zinc	6010B	10			5/4/04	31.4	despera	
				5/3/04	5/4/04	10	U	Month of the

% Solids: 0.0

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402880

Project No.: BXN-WELLS-Landfill

Date Collected: 04/20/04

Project Name: Arlington Landfill Wells

Date Received: 04/21/04

Matrix:

WATER

Units: μG/L

Basis:

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			
Barium	6010B	5.0	1 1	5/3/04		5.0		
Cadmium	6010B	5.0			5/4/04	5.0	ט	<u>.</u>
Copper	6010B		1	5/3/04	5/4/04	5.0	ט	
Iron		10	1	5/3/04	5/4/04	10	U	
	6010B	20	1	5/3/04	5/4/04	20		
Manganese	6010B	5.0	1	5/3/04	5/4/04		_ 1	
Nickel	6010B	20	1 1	5/3/04		5.0		
Zinc			 		5/4/04	20	ט	
	6010B	10	1 1	5/3/04	5/4/04	10	11 T	

Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402880

Project No.: BXN-WELLS-Landfill

Date Collected: 04/20/04

Project Name: Arlington Landfill Wells

Date Received: 04/21/04

Matrix:

WATER

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	С	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	Ū	
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	4-4	5/3/04	5/4/04	10	บ	
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

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402880

Project No.: BXN-WELLS-Landfill

Date Collected: 04/20/04

Project Name: Arlington Landfill Wells

Date Received: 04/21/04

Matrix:

WATER

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	С	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	<u> </u>	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	<u> </u>	
Copper	6010B	10	1	5/3/04	5/4/04	10	<u>. </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	TT	

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402880

Project No.: BXN-WELLS-Landfill

Date Collected:

Project Name: Arlington Landfill Wells

Date Received:

Matrix:

WATER

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	TT	
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0		
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	-	
Copper	6010B	10	1.	5/3/04	5/4/04	Name of Street, or other Designation of the Street, or other Desig	ซ	
Iron	6010B	20	1	5/3/04	5/4/04	20		
Manganese	6010B	5.0	1 1	5/3/04	5/4/04	5.0		-
Nickel	6010B	20	4-1	5/3/04	5/4/04	20		STATISTICS OF THE PARTY.
Zinc	6010B	10	1	5/3/04	5/4/04	10		***************************************

% Solids: 0.0

Services INC.	ED	D N	عدا		Ĺ	.7.	11. 4	J	, (۔ ن	<u>.</u> د	ـ ن	<i>)</i> ,								S	R#:_		2402	44	
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PROJECT NUMBER O 1/5	ZA-XT	92+C0	· · · · · ·					I^{-}	7	\mathcal{T}	7	7	7	7	7	0/	7	7	7	7	7	7			7 7	
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PHONS# 1172 0116		FAX	. ://		/	WIBER OF C		οδ/ * δ	Hydrocas (2000)	S. 0	Oll & Gr. OScreen (FIO)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Pesticides Cons	12 E	PALLE TOTA 8151M	8310 \ SM. 5	Cyan Delow Opsolva	/ *				/>	14 C/4/2	} /	′ /	
PHONS# 219 - 435 - 214	6	1360	D- 435-	3030	<u>-</u>	## / J	00		58/3			2 Z G				8			FR.		1 020 5 / F		J	/	/	
SAMPLE I.D.	DATE	TIME	1 1 45 15	1040			emili 630		\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	9/8				S Lag				د (6	ş/,	3	科		/ -	
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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

Project Chemist

EW/jeb

Page 1 of <u>35</u>6

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

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.
- 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 clution 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.

Client: Project: J.H. Baxter & Company

Sample Matrix:

Arlington Landfill Wells

Water

Service Request No.: Date Received:

K2402941 4/22/04

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 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.

EMW Date 5/12/04

Columbia Analytical	
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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

	Cooler Receipt and Preservation Form
Pro	oject/Client Work Order K240 2941
Co	oler received on 4-02-04 and opened on 4-22-04 by
1.	Were custody seals on outside of coolers?
	If yes, how many and where?
2.	Were seals intact and signature & date correct?
3.	Is the shipper's airbill available and filed? If no, record airbill number:N
4.	COC#
	Temperature of cooler(s) upon receipt:
	Temperature Blank:
5.	Were custody papers properly filled out (ink, signed, etc.)?
6.	Type of packing material present
7.	Did all bottles arrive in good condition (unbroken)?
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?
9.	Did all bottle labels and tags agree with custody papers?
10.	Were the correct types of bottles used for the tests indicated?
11.	Were all of the preserved bottles received at the lab with the appropriate pH?
12.	Were VOA vials checked for absence of air bubbles, and if present, noted below?
13.	Did the bottles originate from CAS/K or a branch laboratory?
14.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?
15.	Was C12/Res negative?
Exp	ain any discrepancies: N
 -	
RES	OLUTION:
Sam	ples that required preservation or received out of temperature:
<u></u>	

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: 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

beed beed	Analyzed 04/23/04 04/23/04 04/23/04	0.5 0.5 ND	Notes
	Amond formed formers	1 04/23/04	04/23/04 0.5

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: 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	

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)

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

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)

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

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

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

Analytical Report

Client:

J.H. Baxter & Company

Project Name : Project Number:

Arlington Landfill Wells 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)

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	

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

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 Method Blank K2402941-MB	2 2	0.7 0.7	therei	04/29/04 04/29/04	94 ND		

SM

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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)

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

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)

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	9	04/23/04	ND	

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)

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	

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

Basis: NA

Analysis Method: 150.1

Test Notes:

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-4 BXS-6	K2402941-001 K2402941-002	es 60	es Est	quosi pass	04/22/04 04/22/04	7.91 7.92	

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)

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

Analytical Report

Client:

J.H. Baxter & Company

Project:

Arlington Landfill Wells/BXS-WELLS-Landfill

Date Collected: 04/21/04

Service Request: K2402941

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		Dilution Factor		Date Analyzed	Time Test Started		Result	Result Notes
BXS-4	K2402941-001	2	the second secon	NA	04/22/04	1645	hrs	ND	X
BXS-6	K2402941-002	2		NA	04/22/04	1645	hrs	ND	X

SM

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

Approved By: MT FM	Date:	5/7/04
1A/052595		

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402941

Project No.: BXS-WELLS-Landfill

Date Collected: 04/21/04

Project Name: Arlington Landfill Wells

Date Received: 04/22/04

Matrix:

Units: µG/L

Basis: NA

WATER

Sample Name: BXS-4

Lab Code: K2402941-001 DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.6		<u> </u>
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	<u></u>
Copper	6010B	10	1	5/3/04	5/4/04	10		
Iron	6010B	20	1	5/3/04	5/4/04	42.4		
Manganese	6010B	5.0	1	5/3/04	5/4/04	110		<u> </u>
Nickel	6010B	20	1	5/3/04	5/4/04	20	ט	<u></u>
Zinc	6010B	10	1	5/3/04	5/4/04	10		

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402941

Project No.: BXS-WELLS-Landfill

Date Collected: 04/21/04

Project Name: Arlington Landfill Wells

Date Received: 04/22/04

Matrix:

WATER

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	С	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	1	
Cadmium	6010B	5.0	1	5/3/04	5/4/04	5.0	ĺυ	
Copper	6010B	10	1	5/3/04	5/4/04	10	lυ	
Iron	6010B	20	1	5/3/04	5/4/04	90.6		
Manganese	6010B	5.0	1	5/3/04	5/4/04	111	9 1000 000000	
Nickel	6010B	20	Ť I	5/3/04	5/4/04	20	§	
Zinc	6010B	10	1	5/3/04	5/4/04	10	g	

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402941

Project No.: BXS-WELLS-Landfill

Date Collected:

Project Name: Arlington Landfill Wells

Date Received:

Units: µG/L

NA

Basis:

Matrix:

WATER

Lab Code: K2402941-MB

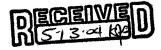
Sample Name: Method Blank

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04	5.0	Ū	
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	Ū	
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	Ū	
Nickel	6010B	20	1	5/3/04	5/4/04	20	ט	
Zinc	6010B	10	1	5/3/04	5/4/04	10	ט	

% Solids: 0.0

Columbia Analytical Services Mc	ED	D h	عالا)H/															Ç	SR#:		V :	24024	<i>390</i>
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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.

Wallace

Ed Wallace

Project Chemist

EW/jeb

Page 1 of $\frac{\mathcal{W}}{\mathcal{W}}$

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 Parasis Visit

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

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.
- 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 tingerprint 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 tingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic tingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the clution pattern does not match the calibration standard.
- Z The chromatographic tingerprint does not resemble a petroleum product.

Client:

J.H. Baxter & Company

Project: Sample Matrix: Arlington Landfill Wells

Water

Service Request No.: Date Received:

K2402990

4/23/04

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 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.

EmW Date 5/12/04



CHAIN OF CUSTODY

SR#: 12402490

 ∞

An Employee - Owned Company	1	317 South 10	3th Ave. • K	elso, WA	98626	• (360)	577-722	22 • (80	0) 695-7	222x07	. • FA	X (360)	636-1	1068		PAG	E	<u> </u>	_ OF	:_3	<u>_</u>	_ cc)C #_	
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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

•	ject/Client H Baxter Work Order K240 2990
Coc	oler received on 43-04 and opened on 423-04 by bu
general g	Were custody seals on outside of coolers? If yes, how many and where? 2 SideS
2.	Were seals intact and signature & date correct?
3.	Is the shipper's airbill available and filed? If no, record airbill number:
4.	COC#
	Temperature of cooler(s) upon receipt: 4.3 Temperature Blank: 4.2
5.	Were custody papers properly filled out (ink, signed, etc.)?
6.	Type of packing material present ICE, at MCLS
7.	Did all bottles arrive in good condition (unbroken)?
8.	Were all bottle labels complete (i.e analysis, preservation, etc.)?
9.	Did all bottle labels and tags agree with custody papers?
10.	N. N.
11.	Were all of the preserved bottles received at the lab with the appropriate pur
12.	Were VOA vials checked for absence of six hubbles, and if present and it is
13.	Did the bottles originate from CAS/K or a branch laboratory?
14.	Are CWA Microbiology samples received with >1/2 the 24hr hold time remaining from the company of
15.	Was C12/Res negative?
Expl	ain any discrepancies:
RES	OLUTION:
Samj	ples that required preservation or received out of temperature:

	Sample ID	Reagent	Volume	Lot Number	Bottle Type	Hec d out of Temperature	Initials
and the Contract							
			•				
- more a controllar							
-					**************************************		

Client:

Test Notes:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells Project Number: BXS-WELLS/-Landfill

Sample Matrix:

Analysis Method SM 2320B

WATER

Service Request: K2402990

Date Collected: 04/22/04 Date Received: 04/23/04

Bicarbonate as CaCO3

Units: mg/L (ppm)

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	

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells

Sample Matrix:

Project Number: BXS-WELLS/-Landfill

WATER

Service Request: K2402990 Date Collected: 04/22/04

Date Received: 04/23/04

Chloride

Analysis Method 300.0

Test Notes:

Units: mg/L (ppm)

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	

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 BXS-5	K2402990-001 K2402990-002	0.2 0.2	2 1	04/26/04 04/26/04	10.5 ND	
Method Blank	K2402990-MB	0.2	1	04/26/04	ND	

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

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-5 Method Blank	K2402990-001 K2402990-002 K2402990-MB	2 2 2	1 1	04/24/04 04/24/04 04/24/04	295 ND ND	

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

pН

Analysis Method 150.1

Test Notes:

Units: pH UNITS

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1 BXS-5	K2402990-001 K2402990-002	. .	1 1	04/23/04 04/23/04	6.14 5.65	

Client:

Project Name:

J.H. Baxter & Company Arlington Landfill W Project Number: BXS-WELLS-Landfill

Sample Matrix:

Water

Service Request: K2402990 Date Collected: 04/22/04

Date Received: 04/23/04

Solids, Total Dissolved (TDS)

Analysis Method 160.1

Test Notes:

Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1 BXS-5 Method Blank	K2402990-001 K2402990-002 K2402990-MB	5 5 5	1	04/27/04 04/27/04 04/27/04	226 ND ND	

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

Units: mg/L (ppm)

Basis: NA

Analysis Method 410.2

Test Notes:

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	

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

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 BXS-5 Method Blank	K2402990-001 K2402990-002 K2402990-MB	0.05 0.05 0.05	1 1	04/26/04 04/26/04 04/26/04	ND ND ND	

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

Units: mg/L (ppm)

Basis: NA

Analysis Method 353.2

Test Notes:

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	1 1 1 1 1 1 1

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.

Client:

J.H. Baxter & Company

∠roject Name:

Arlington Landfill W

"roject Number: BXS-WELLS-Landfill

Sample Matrix:

WATER

Service Request: K2402990

Date Collected: 04/22/04

Date Received: 04/23/04

Carbon, Total Organic

Units: mg/L (ppm)

Basis: NA

analysis Method 415.1

Test Notes:

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
7XS-1	K2402990-001	0.5	. 1	05/04/04	4.6	
BXS-5	K2402990-002	0.5	1	05/04/04	ND	
fethod Blank	K2402990-MB	0.5	1	05/04/04	ND	

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:

Test Notes:

NONE

Analysis Method:

SM 9221B

Units: MPN/100ml

Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor		Date Analyzed	Time Test Started		Result	Result Notes
BXS-1 BXS-5	K2402990-001 K2402990-002	2 2	1	NA NA	4/23/2004 4/23/2004	1630 1630	hrs. hrs	ND ND	X

SM

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

Approved By:

LA/052595

EMW Date: 5/12/04

DU DESTINUTE LESSENS PROCESSED AND FOLLA

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2402990

Project No.: BXS-WELLS-Landfill

Date Collected: 04/22/04

Project Name: Arlington Labdfill Wells

Date Received: 04/23/04

Matrix:

WATER

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	С	Q
Arsenic	7060A	5.0	1	5/3/04	5/4/04		<u> </u>	<u> </u>
Barium	6010B	5.0	1 1	5/3/04		5.0	ן ט	<u> </u>
Cadmium	6010B	5.0	1 1		5/4/04	19.9		
Copper	6010B	10		5/3/04	5/4/04	5.0	ט	
Iron	6010B		<u> </u>	5/3/04	5/4/04	10	ט	
Manganasa		20	1	5/3/04	5/4/04	20	U	
Manganese	6010B	5.0	1	5/3/04	5/4/04	144	İΤ	
Nickel	6010B	20	1	5/3/04	5/4/04	20	 	
Zinc	6010B	10	1	5/3/04	5/4/04	33.0		

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J. H. Baxter & Company

Service Request: K2402990

Project No.: BXS-WELLS-Landfill

Date Collected: 04/22/04

Project Name: Arlington Labdfill Wells

Date Received: 04/23/04

Matrix:

WATER

Units: µG/L

Basis: NA

Sample Name: BXS-5

Lab Code: K2402990-002 DISS

Analyte	Analysis Method	MRI	Dilution Factor	Date Extracted	Date Analyzed	Result	C	ō
Arsenic	7060A	5.0	1	5/3/04	5/4/04	F 6	-	-
Barium	6010B	5.0	1	5/3/04	5/4/04	5.0	iii.	-
Cadmium	6010B	5.0	1 1	5/3/04	5/4/04	5.0	A contractors	
Copper	6010B	10	1	5/3/04	5/4/04	5.0	Profession	-
Iron	6010B	20		5/3/04	I .	10		ļ
Manganese	6010B	5.0	1	5/3/04	5/4/04	20	a in	
Nickel	6010B	20		5/3/04	5/4/04	5.0		
Zinc	6010B	10		5/3/04	5/4/04	20	-	
		- 4		5/3/04	5/4/04	10	U	

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Project No.: BXS-WELLS-Landfill

Service Request: K2402990

Project Name: Arlington Labdfill Wells

Date Collected:

Sample Name: Method Blank

Date Received:

Units: μG/L

Basis: NA

Matrix:

WATER

Lab Code: K2402990-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result		
Arsenic	7060A	5.0		F /2/24		Tresult.	C	Ω
Barium	6010B	5.0		5/3/04	5/4/04	5.0	Ü	
Cadmium	6010B	5.0	 	5/3/04	5/4/04	5.0	ĪΤ	
Copper	6010B		11	5/3/04	5/4/04	5.0		<u></u>
Iron		10	1	5/3/04	5/4/04			<u> </u>
	6010B	20	1	5/3/04		10		
Manganese	6010B	5.0	1		5/4/04	20	ט	
Nickel	6010B	20	 	5/3/04	5/4/04	5.0	U	
Zinc	6010B		 	5/3/04	5/4/04	20		
	1 0010B	10	1 1	5/3/04	5/4/04	10		

% Solids: 0.0

An Employee · Juned Company PROJECT NAME PROJECT NUMBER PROJECT MANAGER	2 · (800) 695-7222x07 · FAX (360) 636-1068 PAGE	SR#:(740)5102
COMPANY/ADDRESS AGO LOS LOS AGOS AGOS AGOS AGOS AGOS AGOS AGOS AG	920 900 00 00 00 00 00 00 00 00 00 00 00 0	1 40 x 100 x
SAMPLERS SIGNATURE SAMPLERS SIGNATURE SAMPLERS SIGNATURE SAMPLE TIME LAB I.D. MATRIX SAMPLE TO LAB I.	10 10 10 10 10 10 10 10	HEMARKS
BX5-4 7-12-04 10:16 3 BX5-4 7-12-04 10:16 3 BX5-6 7-12-04 10:30 3		TIL MARIAS
		9
REPORT REQUIREMENTS J. Routine Report: Method Blank, Surrogate, as required INVOICE INFORMATION P.O. # Bill To: THROUGH Metals: AI Dissolved Metals: AI Dissolved Metals: AI	As Sh Do D. D.	
II. Report Dup., MS, MSD as TURNA DOLLAR	AS SD BA BE B CA CD CO CT CU FE PD Mg M AS SD BA BE B CA CD CO CT CU FE PD Mg M HYDROCARBON PROCEDURE: AK CA WI NOF CTIONS/COMMENTS:	n Mo Ni K Ag Na Se Sr Ti Sn v Zn Hg n Mo Ni K Ag Na Se Sr Ti Sn v Zn Hg RTHWEST OTHER: (CIRCLE ONE)
V. EDD Standard (10-15 working days) Provide FAX Results Requested Report Day Report Day Report Day Report Day Provide FAX Results	Hunthomas evyleelarson	abdated
Printed Name RECEIVED BY: 5/3/04 Printed Name RECEIVED BY: 5/3/04 Printed Name RECEIVED BY: 5/3/04 Printed Name Printed Name	RELINQUISHED BY: Signature Date/Time	RECEIVED BY: Signature Date/Time
	Frinted Name Firm	Printed Name





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

Page 1 of <u>33</u>

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 Oualifiers

- # 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.
- 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 cluting in approximately the correct carbon range, but the clution 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

Project:

Arlington Landfill Wells

Sample Matrix:

Water

Service Request No.:

K2405102

Date Received:

7/13/04

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

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.

EMW	Date	7	1/2	9/0	4
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Approved by

Columbia Analytical Services INC.	CHAIN OF CUSTODY 8th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 PAGE	SR#: (2405102-
PROJECT NAME PROJECT NUMBER PROJECT MANAGER COMPANY/ADDRESS CITY/STATE/ZIP E-MAIL ADDRESS	See Segral BIEX CINE See Segral BIEX CINE See Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE Segral BIEX CINE SEGRAL BIESTA CONTRACTOR BIESTA CONTRACTOR BIES	
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		co
I. Routine Report: Method Blank, Surrogate, as required	Circle which metals are to be analyzed: Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb M Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb M *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI DUND REQUIREMENTS SPECIAL INSTRUCTIONS/COMMENTS:	ng (Mn) Mo (Ni) K Ag Na Se Sr TI Sn V (Zn) Hg

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II. Report Dup., MS, required	MSD as	***************************************	OUND REC	-	-	*INDICAT ŠPECIAL	INSTR	UCTION	NS/COM	MENTS	ROCED :	OURE:	_AK	CA	WI	NOF	THWE	EST (OTHE	R:	NAMES OF THE PROPERTY OF THE P	(CIR	OLE ON	A CONTROL MANAGEMENT AND A CONTROL OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT OF THE ACT
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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

PC	EI	/
	_	

Proie	ct/Client Work Order K240 5707	•	
	er received on <u>Fishou</u> and opened on <u>Fishou</u> by <u>Fishou</u>		
1.	Merconstody seals on outside of coolers? If yes, how many and where?	(2)	N
2.	were custody seals intact?	Θ	
3.	Were signature and date present on the custody seals?		N
4.	Is the shipper's airbill available and filed? If no, record airbill number:	Y	Ø
	COC# Temperature of cooler(s) upon receipt: 3.2		
400	Tomperature Blank:	Y	
2	were samples hand delivered on the same day as collection?	v O	N
6.	Were custody papers properly filled out (ink, signed, etc.)?		14
7.	Type of packing material present jul water in bugs bugs	Ø	N
8.	Did all bottles arrive in good condition (unbroken)?	Ø	N
9.	Were all bottle labels complete (i.e analysis, preservation, etc.)?	SD SD	N
10.	Did all bottle labels and tags agree with custody papers?	Ø	
11.	Were the correct types of bottles used for the tests indicated?	_	N
12.	Were all of the preserved bottles received at the lab with the appropriate pH?	Ø	N
13.	Were VOA vials checked for absence of air bubbles, and if present, noted below?		N
14.	Did the bottles originate from CAS/K or a branch laboratory?	. 🐠	N
15.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	_ Y	N
16.	Was C12/Res negative?	¥_	—-N-
	plain any discrepancies:		
RE	SOLUTION:		<u>,</u>
	mples that required preservation or received out of temperature:		
<u>5a</u>		 1	
	Rec'd out of		

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
				<u> </u>		<u> </u>
						·
						<u> </u>

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

Chloride

Analysis Method 300.0

Test Notes:

Units: mg/L (ppm)

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	

Culuividia anal i fical der viced, inc.

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

Γest Notes:

Units: mg/L (ppm)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
.3XS-2	K2405102-001	0.2	0.18	2	07/14/04	ND	
PXS-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	
3XS-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	

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

Units: mg/L (ppm)

Basis: NA

Analysis Method 410.2

Test Notes:

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	

Culuividia anali iical services, inc.

Analytical Report

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells _'roject Number: BXS-WELLS/-Landfill

ample Matrix:

WATER

Service Request: K2405102

Date Collected: 07/12/04

Date Received: 07/13/04

Conductivity

Analysis Method 120.1

₁'est Notes:

Units: uMhos/cm

∍ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-2د	K2405102-001	2	0.2	1	07/17/04	681	
TXS-3	K2405102-002	2	0.2	1	07/17/04	739	
BXS-4	K2405102-003	2	0.2	1	07/17/04	171	
XS-6	K2405102-004	2	0.2	1	07/17/04	168	
'Iethod Blank	K2405102-MB	2	0.2	1	07/17/04	ND	

CULUIVIDIA AIVALIIICAL DERVICED, IIVC.

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)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2 BXS-3 BXS-4 BXS-6 Method Blank	K2405102-001 K2405102-002 K2405102-003 K2405102-004 K2405102-MB	0.05 0.05 0.05 0.05 0.05	0.03 0.03 0.03 0.03 0.03	1 1 1	07/14/04 07/14/04 07/14/04 07/14/04 07/14/04	0.06 0.13 0.50 0.47 ND	

CULUMBIA ANALY HICAL SERVICES, INC.

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)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-2 BXS-3 BXS-4 BXS-6 Method Blank	K2405102-001 K2405102-002 K2405102-003 K2405102-004 K2405102-MB	0.2 0.2 0.2 0.2 0.2	0.02 0.02 0.02 0.02 0.02	1 1 1 1	07/15/04 07/15/04 07/15/04 07/15/04 07/15/04	ND ND 0.05 0.05	J J

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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

pН

Analysis Method 150.1

Test Notes:

Units: pH UNITS

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		100	1	07/13/04	8.01	

CULUIVIBIA AMALI HICAL SERVICES, INC.

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

Tannin and Lignin

Units: mg/L (ppm)

Basis: NA

Analysis Method SM 5550 B

Γest Notes:

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
∂XS-2	K2405102-001	0.2	0.07	1	07/26/04	ND	
3XS-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	
3XS-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	

Culumbia analy 11 cal services, inc.

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

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	9	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	yars.	07/14/04	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

_lient:

J.H. Baxter & Company

"roject Name:

Arlington Landfill Wells

Project Number: BXS-WELLS-Landfill

_ample Matrix:

WATER

Service Request: K2405102

Date Collected: 07/12/04

Date Received: 07/13/04

Carbon, Total Organic

Units: mg/L (ppm)

Basis: NA

\nalysis Method 415.1

Test Notes:

				Dilution	Date		Result
Sample Name	Lab Code	MRL	MDL	Factor	Analyzed	Result	Notes
BXS-2	K2405102-001	0.5	0.07	1	07/15/04	15.0	
XS-3	K2405102-002	0.5	0.07	1	07/15/04	23.6	
RXS-4	K2405102-003	0.5	0.07	1	07/15/04	0.9	
дXS-6	K2405102-004	0.5	0.07	1	07/16/04	1.0	
fethod 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	

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INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405102

Project No.: BXS-WELLS-Landfill

Date Collected: 07/12/04

Project Name: Arlington Landfill Wells

Date Received: 07/13/04

Matrix:

WATER

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	0.004		ļ
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.001	B Marine	
Cadmium	6010B	0.005	0.005	1	7/20/04	7/23/04	0.055		
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.005	i Paramentane	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.004	U	
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.75		
Nickel	6010B	0.02	0.02		7/20/04		1.420	-	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.05	G	

% Solids: 0.0

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INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405102

Project No.: BXS-WELLS-Landfill

Date Collected: 07/12/04

Project Name: Arlington Landfill Wells

Date Received: 07/13/04

Matrix:

WATER

Units: MG/L

Basis: NA

Sample Name: BXS-3

Lab Code: K2405102-002 DISS

Analyte	Analysis Method	MRL	MOL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	0.005	0.001	1 7	7/20/04				_ ~
Barium	6010B	0.005				7/22/04	0.003	В	
Cadmium	6010B		0.002	1	7/20/04	7/23/04	0.054		
		0.005	0.005	1	7/20/04	7/23/04	0.006		
Copper	6010B	0.010	0.004	1	7/20/04				
Iron	6010B	0.02	0.02			7/23/04	0.005	В	
Manganese	6010B				7/20/04	7/23/04	4.29		
Nickel		0.050	0.020	10	7/20/04	7/28/04	18.2		
	6010B	0.02	0.02	1	7/20/04				
Zinc	6010B	0.010	0.002			7/23/04	0.02	ע	
	<u> </u>	3.310	0.002	1	7/20/04	7/23/04	0.021	T	~

Solids: 0.0

-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	С	
Arsenic	7060A	0.005	0.001	1 1	7/00/01				¥
Barium	6010B	Ü.005	-	<u> </u>	7/20/04	7/22/04	0.005		
Cadmium	6010B	COOK IN NOON WAS AND ADDRESS OF THE PARTY OF	0.002	1	7/20/04	7/23/04	0.031		-
Copper		0.005	0.005	1	7/20/04	7/23/04	0.005		-
Commence of the Commence of th	6010B	0.010	0.004	1	7/20/04	7/23/04			
ron	6010B	0.02	0.02	1			0.005	В	
langanese	6010B	0.005			7/20/04	7/23/04	0.06		THE PERSON NAMED IN
lickel	6010B		0.002	1	7/20/04	7/23/04	0.189	-	Sand Sand S
inc		0.02	0.02	1	7/20/04	7/23/04	Land Control of the C		Series Coppe
ILIIC	6010B	0.010	0.002	1	7/20/04	Secretary and the second	0.02		
	The state of the s	-	***************************************		1/20/04	7/23/04	0.004	R	

% Solids: 0.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405102

Project No.: BXS-WELLS-Landfill

Date Collected: 07/12/04

Project Name: Arlington Landfill Wells

Date Received: 07/13/04

Matrix:

WATER

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	С	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	ט	
Copper	6010B	0.010	0.004	1	7/20/04	7/23/04	0.006		
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	ŢŢ	
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.007		

* Solids: 0.0

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405102

Project No.: BXS-WELLS-Landfill

Date Collected:

Project Name: Arlington Landfill Wells

Date Received:

Matrix:

WATER

Units: MG/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2405102-MB

Nn a laut -	Analysis			D: 1	Date	Date			
Analyte	Method	MRL	MDL	Dil.	Extracted	Analyzed	Result	C	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04		ļ	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.001	5	
Cadmium	6010B	0.005	0.005		7/20/04		0.002	2	
Copper	6010B	0.010	0.004		7/20/04	7/23/04	0.005	8	
Iron	6010B	0.02	0.02	1	7/20/04	7/23/04	0.004		
Manganese	6010B	0.005	0.002	-	The state of the s	7/23/04	0.02	ប	
Nickel	6010B	0.02	0.002		7/20/04	7/23/04	0.005		
Zinc	6010B	0.010			7/20/04	7/23/04	0.02	U	
THE RESERVE OF THE PERSON NAMED AND ADDRESS OF THE PERSON NAME	1 202 1	V.VIV	0.002		7/20/04	7/23/04	0.002	υl	OCCUPATION AND ADDRESS OF THE PARTY OF THE P

% Solids: 0.0

Comments:

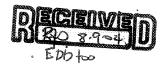
An Employee - Owned Company	EDD here 1317 South 13th Ave. · Ke		IAIN OF C			PAGE_	1	SR#: (240 2 coc#	15162
PROJECT NUMBER PROJECT MANAGER AUT FOR THE PROJECT MANAGE	12/15 12/15 12/2011 12/2011 12/2015 13/2018 13/2018 13/2018 13/2018	Maga Sec	9,34		1 101	Pelion) Oissolved	8-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	10×1650 506 11 11 11 11 11 11 11 11 11 11 11 11 11	REMARKS
REPORT REQUIREMENTS 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	tobox 1077	PERCO DISTRIBUTION OF THE PROPERTY OF THE PROP	Total Metals: AI As Sb ssolved Metals: AI As Sb NDICATE STATE HYDR PECIAL INSTRUCTIONS	Ba Be B Ca Cd Ba Be B Ca Cd OCARBON PROCEI	Co Cr Cu Fe Pi	b Mg Mn WI NORT	Mo(Ni)K A	g Na Se Sr TI S IER:(CIRC	n V Zn Hg n V Zn Hg LE ONE)
RELINQUISHED BY:	Requested Report	RECEIVE	PBY: 9/	·	NQUISHED BY:		Signature	RECEIVED BY:	

Printed Name

Signature

Date/Time





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

Project Chemist

EW/jeb

Page 1 of <u>293</u>

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.

MDLMethod 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.

Enw Date 8/5/04

Approved by_

Columbia Analytical Services MC.
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CHAIN OF CUSTODY

SR#: (2405162+

PAGE 1317 South 13th Ave. * Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 An Employee - Owned Company 87514[] | NUMBER OF CONTAINERS REMARKS DATE TIME LAB I.D. MATRIX 17-13-14 11:30 INVOICE INFORMATION Circle which metals are to be analyzed: REPORT REQUIREMENTS P.O. # 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 1. Routine Report: Method Blank, Surrogate, as 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 required *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE) II. Report Dup., MS, MSD as TURNAROUND REQUIREMENTS SPECIAL INSTRUCTIONS/COMMENTS: required 24 hr. ____48 hr. __ III. Data Validation Report (includes all raw data) Standard (10-15 working days) Attn: Rootwithomas NavyleeLavEon __ IV. CLP Deliverable Report Provide FAX Results V. EDD Requested Report Date RELINQUISHED BY: RELINQUISHED BY: RECEIVED BY: Signature Date/Time Signature Date/Time Printed Name Printed Name

Co Co

olumbia Analytical Services Inc. ooler Receipt and Preservation Form	PC	<u></u>
Work Order K240_	5162	

Project/Client Work Order K240 5/62		
Toject/Chem Al 10		
Cooler received on 914 ou and opened on 914 ou by 7 skawe		
Were custody seals on outside of coolers? If yes, how many and where? How, Iside	(Y)	N
11 905, 110 11 11 11 11	\mathbf{Q}	N ·
2. were custody seals intact?	\odot	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:		
D. Baerhaldshift		
Lemperature of cooler(s) upon receipt:		
emperature Blank:	Y	10
Were samples hand delivered on the same day as collection?	(E)	N
6. Nere custody papers properly filled out (ink, signed, etc.)?	Œ	
7. Type of packing material present lookill-glipulls	&	N
8. Did all bottles arrive in good condition (unbroken)?	Ø	N
9. Were all bottle labels complete (i.e analysis, preservation, etc.)?	©	N
10. Did all bottle labels and tags agree with custody papers?	Ø	N
11. Were the correct types of bottles used for the tests indicated?	Ø	N
12. Were all of the preserved bottles received at the lab with the appropriate pH?		N
13. Were VOA vials checked for absence of air bubbles, and if present, noted below?	©	
14. Did the bottles originate from CAS/K or a branch laboratory?	⊘	. N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?		NI.
16. Was C12/Res negative?		N
Explain any discrepancies:		
	<u> </u>	
RESOLUTION:		
Samples that required preservation or received out of temperature:		
Rec'd out of Temperature Initia	ls	

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
- Campie is						
		 				
		<u> </u>				
						
		 				
*					 	



Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells

Sample Matrix:

Project Number: BXS-WELLS/-Landfill 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)

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	

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)

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	

Client:

J.H. Baxter & Company Arlington Landfill Wells

Project Name:

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)

Sample Name	Lab Code	MRL	RAWOU	Dilution	Date		Result
BXS-1 BXS-5 Method Blank	K2405162-001 K2405162-002 K2405162-MB	5	MDL 3 3 3	Factor 1 1 1	Analyzed 07/15/04 07/15/04 07/15/04	Result 14 ND ND	Notes

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

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	11000
BXS-5	K2405162-002	2	0.2	1	07/17/04	ND	
Method Blank	K2405162-MB	2	0.2	1	07/17/04	ND	

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

Ammonia as Nitrogen

Analysis Method 350.1

Test Notes:

Units: mg/L (ppm)

Sample Name BXS-1	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-5 Method Blank	K2405162-001 K2405162-002 K2405162-MB	0.05 0.05 0.05	0.03 0.03 0.03	1 1	07/22/04 07/22/04 07/22/04	ND ND ND	1408©2

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

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
3XS-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

Client:

J.H. Baxter & Company

Project Name: Arlington Landfill Well
Project Number: BXS-WELLS/-Landfill Arlington Landfill Wells

Sample Matrix:

WATER

Service Request: K2405162 Date Collected: 07/13/04

Date Received: 07/14/04

pН

Analysis Method 150.1

Test Notes:

Units: pH UNITS

Sample Name	Lab Code	RETT	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-5	K2405162-001 K2405162-002	©	-	Person jump	07/14/04 07/14/04	6.28 5.78	

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 BXS-1 BXS-5 Method Blank	Lab Code K2405162-001 K2405162-002 K2405162-MB	0.2	MDL 0.07 0.07 0.07	Dilution Factor 1 1 1	Date Analyzed 07/26/04 07/26/04 07/26/04	Result 0.3 0.14 ND	Result Notes
					97720707	ND	

SM

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

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

Solids, Total Dissolved (TDS)

Analysis Method 160.1

Test Notes:

Units: mg/L (ppm)

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	

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

Units: mg/L (ppm)

Basis: NA

Analysis Method 415.1

Test Notes:

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
9XS-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	

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405162

Project No.: BXS-WELLS-Landfill

Date Collected: 07/13/04

Project Name: Arlington Landfill Wells

Date Received: 07/14/04

Matrix:

WATER

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	П	
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	TT	1
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.326		<u> </u>
Nickel	6010B	0.02	0.02	1	7/20/04	7/23/04	0.02		1
Zinc	6010B	0.010	0.002	1	7/20/04	7/23/04	0.024		and a second

% Solids: 0.0

Comments:

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2405162

Project No.: BXS-WELLS-Landfill

Date Collected: 07/13/04

Project Name: Arlington Landfill Wells

Date Received: 07/14/04

Matrix:

WATER

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	С	Q
Arsenic	7060A	0.005	0.001	1	7/20/04	7/22/04	0.001	Ū	
Barium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	Ū	
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	ĺ
Manganese	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	ט	
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	0.009		

% Solids: 0.0

Comments:

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

_	Analysis			T				O STATE OF THE PARTY OF THE PAR	Section (Section)
Analyte	Method	MRL	MDL	Dil.	Date Extracted	Date			The second second
Arsenic	7060A	0.005	0.001			Analyzed	Result	C	Q
Barium	6010B	0.005	THE REAL PROPERTY AND ADDRESS OF THE PARTY AND	1	7/20/04	7/22/04	0.001	U	
Cadmium	6010B	0.005	0.002	1	7/20/04	7/23/04	0.002	5	
Copper	6010B	0.010	0.005	1	7/20/04	7/23/04	The state of the s	. 4	-
ron	6010B	Constitution of the last of th	0.004	1	7/20/04	7/23/04	0.005		e de la companya de l
langanese	6010B	0.02	0.02	1	7/20/04	7/23/04	0.004	g	
ickel	6010B	0.005	0.002	1	7/20/04	7/23/04	0.02	U	
inc		0.02	0.02	1	7/20/04	7/23/04	0.005	and and	
	6010B	0.010	0.002	1	7/20/04		0.02	_ 8	
				-	./ 20/04	7/23/04	0.002	υT	STATE OF THE PARTY.

Solids: 0.0

omments:



11525 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: 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:

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
	TOTAL COLIFORM	<2	per 100mL	ko	SM9221 B	,
2	Fecal Coliform	<2	per 100mL		SM9221 E	
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NOTES:

If the result is Unsatisfactory a repeat sample is required for Public Water Systems, Private individuals should investigate the cause of the unsatisfactory

If E. Coll or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT_ST



11525 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: 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	A	NACTION .	CORRECTION
	TOTAL COLIFORM	4	per 100mL	Analyst ko	METHOD	COMMENT
	Fecal Coliform	<2	per 100mL	KO .	SM9221 B SM9221 E	
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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:



11525 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: 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:

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:

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mp

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM Fecal Coliform	14 <2	per 100mL per 100mL	ko	SM9221 B SM9221 E	
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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.



11525 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: 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:

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OOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
	TOTAL COLIFORM Fecal Coliform	23 <2	per 100mL per 100mL	ko	SM9221 B SM9221 E	
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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. Coll or Fecal Colliform are present in sample do not drink the water until it is properly treated.

Comments:



11525 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: 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:

DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1 2	TOTAL COLIFORM Fecal Coliform	<2 <2	per 100mL per 100mL	ko	SM9221 B SM9221 E	
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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



11525 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: 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:

	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	23	per 100mL	ko	SM9221 B	
2	Fecal Coliform	<2	per 100mL		SM9221 E	
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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. Coll or Fecal Coliform are present in sample do not drink the water until it is properly treated.

Comments:

FORM: BACT ST



11525 Knudson Rd. Burlington, WA 98233 (800) 755-9295 (360) 757-1400 - FAX (3 9221E

(360) 757-1400 - FAX (360) 757-1402

Collect Date	Collect Time	Sample ID/Bottle Num									
7-13-04	10:15	1040 002 245									
Group Type	Public System ID	County									
NIA	N/A N/A SNO										
System Name											
J. H. Beeck	roco Monto	nig Well									
Sample Location / Field II	.	Telephone Number									
Adligation	BX5-1	360435-2146									
Sample Collected By	10.0										
Maylee											
Treated Before	Chlorine Resid	lual									
	Free										
Untreated											
Send Report To											
J H Baxter Compa P O Box 305	iny										
Arlington, WA 98	223										
	Attn: Mary	elarson									
Paid By (Same as above											
JH. Baxter	100 77										
	2 97440										
	Ann Thomas										
Type of Sample											
	le Total Colife										
	er (P/A) (Default method is (Colilert)									
1 —	Request Method:										
Raw Source											
	leterotrophic Plate Count de (previous sample informa	ation needed)									
Lab #:	Date:										
	Contract Deliver Demile										
 	tary Service/Building Permit										
Building Pem		·									
· —	ction/Repairs (P/A) er (Pond, Lake, River, etc.)										
D Binnelida/Con											
Other (Speci	ry) Landfell W	outonie,									
FAX Number: 3leC											
	04-5801										
Received by	//13	/2004 Time									
Commenter	11642										



11525 Knudson Rd. Burlington, WA 98233

(800) 755-9295

(360) 757-1400 - FAX (360) 757-1492

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		Sample ID/Bottle Num
Collect Date	Collect Time	BXS-2
7-12-04	11:40	060 003.2371
Group Type	Public System ID	County
d) 1A	N/A	NA
System Name		
T.H. Boxt	ev+co	
Sample Location / Field I	D	Telephone Number
Artheston I	3×5-2.	B60435-2146
Sample Collected By	,	
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Treated	Chlorine Re	
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Send Report To		
J H Baxter Comp	pany	
P O Box 305	18777 18777	
Arlington, WA 9	AHn: Maryl pove if blank) AH	ee lavsora
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T. H. Boute	M	Thomas
PO BOX 10	かれて	
Expers,	DR-9746	
Tuno of Sample	ŧ.	
Compliance Sa	imple Total Colr	HONNS
Drinking V	Vater (P/A) (Default method	d is Colliert)
	ial Request Method:	
	ce Number: S or Heterotrophic Plate Cou	ını
Standard	ample (previous sample in	formation needed)
Lab#:		
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Ĭ.	Sanitary Service/Building F	And the second s
	Permit (P/A)	e de la Colonia
L New Co	nstruction/Repairs (P/A) Water (Pond, Lake, River	, etc.)
TSÍ cares (Specify (SUNCIFE)	MONTONIA
	360 4350-3038	
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Received t	04-5749	7/12/2004
	•	1551
e-mmenis		1 1 000



Burlington, WA 98233 (800) 755-9295

(360) 757-1400 - FAX (360) 757-1402

Collect Date	Collect Time	Sample ID/Bottle Num							
7-12-04	13:15	1046 003 248							
Group Type	Public System ID	County							
NIA NIA NIA									
System Name									
J. H. Per	terfco								
Sample Location / Field ID	1	Telephone Number							
Alueton	<u>B</u> xs-3	360-435-246							
Sample Collected By	arson								
☐ Treated	Chlorine Resid	iual							
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Send Report To									
J H Baxter Compai P O Box 305	ny								
Arlington, WA 982	23 Attn: Mary	laren.							
Paid By (Same as above									
J. H. Barder		: Rue Ann							
PO BOX 10T		thomas							
Eugene, ox	297440								
Type of Sample	•								
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·	(P/A) (Default method is 0	Colilert)							
) <u></u>	quest Method:								
Raw Source Nu									
1	terotrophic Plate Count e (previous sample informa	ation needed)							
Lab #:		i i							
	ry Service/Building Permi								
Building Permit									
1	ion/Repairs (P/A) (Pond, Lake, River, etc.)								
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Other (Specify) Lendtell M	outorie							
FAX Number: 360	435-3035								
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	V	DateTime							
Received by	04-5749	711212004							
Comments:	11	559							



11525 Knudson Rd.

Burlington, WA 98233
(800) 755-9295

(360) 757-1400 - FAX (360) 757-1402

Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	10:15	BX5-4
Group Type	Public System ID	County /040 002
NIA	WA	NIA 341
System Name		
J.4. Bar	0 + CO	Bx5-4
Sample Location / Field II	0	Telephone Number
Alwator		360435-2046
Sample Collected By		
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J H Baxter Compa	any	1 12 C C C C C C C C C C C C C C C C C C
P O Box 305	777	
Arlington, WA 98	223 Attn: Way	Llavan.
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1 32/2/1/ 1/	ハフソフ	Thomas
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Type of Sample		
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Special I	Request Method:	
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Received by	04-5749	7/12/2004
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11525 Knudson Rd. Burlington, WA 98233 (800) 755-9295

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(360) 757-1400 - FAX (360) 757-1402

Collect Date	Collect Time	Sample ID/Bottle Num
7-13-04	11:30	BXS-5
Group Type	Public System ID	County
NIA	NA	Suo
System Name		
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Sample Location / Field I		Telephone Number
Arlivator		3100 435-2146
Sample Collected By	1 C 2 M	
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Treated	Chlorine Resi	dual
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Untreated		
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J H Baxter Comp	any	
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Estere, o	1297440 AHV	RieAnithorias
Type of Sample	``	
Compliance Sam	ple Total Colif	DAMZ
Drinking Wa	ter (P/A) (Default method is	Colilert)
1 <u></u>	Request Method:	
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	Heterotrophic Plate Count nple (previous sample inform	nation needed)
Lab #:	5-1	
		-14
<u> </u>	nitary Service/Building Perr	nπ
Building Pe		
	ruction/Repairs (P/A) ater (Pond, Lake, River, etc	.)
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Other (Spe	ecify) Lavotelly	Montonia
FAX Number: 34	0 435-3035	
Received by		Date/Time
		3/2004
Comments:	116/2	



11525 Knudson Rd.

Burlington, WA 98233 (800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

	The state of the s	
Collect Date	Collect Time	Sample ID/Bottle Num
7-12-04	10:30	1040 002 246
Group Type	Public System ID	County
NIA	NA	NA
System Name		
THRactor	for BX	5.6
Sample Location / Field II	The second secon	Telephone Number
Allusion		360-435-2146
Sample Collected By	1:100	•
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Untreated	Free	
Send Report To		particular de la company
J H Baxter Compa	any	CO STANIAN I TO CO
P O Box 305	777	
Arlington, WA 98	Atm: Nova	gleelaser
Paid By (Same as abo	is to be made.)	_
J.H. Boster	of co Attn:	
POBOX 107	77	Thomas
Eugene, O	R 9746	
Type of Sample		_
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Drinking Wa	ter (P/A) (Default method is	Collert)
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Lab #:	The state of the s	
Investigative/Sa	nitary Service/Building Perr	nit
☐ Building Pe	ermit (P/A)	School 11 second School 12 second School
☐ New Const	ruction/Repairs (P/A)	
1	ater (Pond, Lake, River, etc	Special and the second
Biosolids/C		Montonia
	City)	
FAX Number: 30	0436-3035	_
_		Date/Time
Received by		
Comments:	04-5749 4 4 E C	7/12/2004
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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.

Vallace

Ed Wallace

Project Chemist

EW/jeb

Page 1 of 347

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.

Client:

J.H. Baxter & Company

Project:

Arlington Landfill Wells

Sample Matrix: Water

Service Request No.:

K2408011

Date Received:

10/12/04

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

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.

Emw Date 11/4/04

Approved by

Analytical Services Inc.			CH	AIN OF C	JSTOD	Y				SŖ#	Ka	340801
An Employee - Owned Company	1317 South 13th Ave	. + Kelso, WA	98626 • (360) 577-7222 • (800) 69	5-7222x07 • FAX	K (360) 636-1068	PAG	E	0	F	COC	
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Firm

Printed Name

Cooler Receipt and Preservation Form

Cooler Receipt and Treser various Form		
Project/Client NW Box tex Work Order K240	7011	
Cooler received on 10 12/04 and opened on 10/12/04 by The	ack	
1 Were custody seals on outside of coolers?	Ţ	N
If yes, how many and where?		
2: Were custody seals intact?	Ŷ	N
3. Were signature and date present on the custody seals?	Œ	N
4. Is the shipper's airbill available and filed? If no, record airbill number:	· Q) N
5		
remperature of cooler(s) upon receipt: (°C)		
Temperature Blank: (°C) 3.0		
Were samples hand delivered on the same day as collection?	Y	T D
6. Were custody papers properly filled out (ink, signed, etc.)?	. 8	И
7. Type of packing material present QUP all - 1004 1 U	<u>-</u>	
8. Did all bottles arrive in good condition (unbroken)?	Œ	N
9. Were all bottle labels complete (i.e analysis, preservation, etc.)?	4	N
10. Did all bottle labels and tags agree with custody papers?	Œ	5 N
11. Were the correct types of bottles used for the tests indicated?	Q) N
12. Were all of the preserved bottles received at the lab with the appropriate pH?	· <u> </u>	D N
13. Were VOA vials checked for absence of air bubbles, and if present, noted below?	-}	N
14. Did the bottles originate from CAS/K or a branch laboratory?	O	Ď N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collections	on?	<u> </u>
16. Was C12/Res negative?	- '	N
Explain any discrepancies:		<u> </u>
		:
RESOLUTION:		
Samples that required preservation or received out of temperature:		

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
					-	
<u> </u>						
1						
				_	<u> </u>	
 				_		

Analytical Report

Client:

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells 'roject Number: BXS-WELLS/-Landfill

iample Matrix :

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Chloride

unalysis Method: 300.0

'est Notes:

Units: mg/L (ppm)

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-2	K2408011-001	0.2	0.06	2	10/16/04	2.2	
XS-3	K2408011-002	0.2	0.06	2	10/16/04	3.3	
XS-4	K2408011-003	0.2	0.06	2	10/16/04	0.8	
XS-6	K2408011-004	0.2	0.06	2	10/16/04	1.6	•
ethod Blank	K2408011-MB	0.2	0.03	ī	10/16/04	1.6 ND	

Analytical Report

J.H. Baxter & Company

Project Name:

Arlington Landfill Wells

' uple Matrix:

WATER

Service Request: K2408011 **Date Collected:** 10/11/04

Date Received: 10/12/04

Sulfate

Analysis Method: 300.0

t Notes:

Units: mg/L (ppm)

nple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3-2	K2408011-001	0.2	0.18	2	10/16/04	ND	
'``S-3	K2408011-002	0.2	0.18	2	10/16/04	ND	
1AS-4	K2408011-003	0.2	0.18	2	10/16/04	1.5	
3-6 ⁴~thod Blank	K2408011-004	0.2	0.18	. 2	10/16/04	1.4	
, non Diank	K2408011-MB	0.2	0.09	1	10/16/04	ND	

Analytical Report

lient:

J.H. Baxter & Company

roject Name:

Arlington Landfill Wells 'roject Number: BXS-WELLS/-Landfill

ample Matrix:

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Chemical Oxygen Demand

nalysis Method: 410.2

est Notes:

Units: mg/L (ppm)

ample 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	43 63	
XS-4	K2408011-003	5	3 .	quad	10/20/04	4	ì
XS-6	K2408011-004	5	3	1	10/20/04	3	ī
ethod Blank	K2408011-MB	5	3	Spanned	10/20/04	ND	. 2

CULUMBIA AMALI HUAL SERVICES, INC.

Analytical Report

Client:

J.H. Baxter & Company

... oject Name:

Arlington Landfill Wells

oject Number: BXS-WELLS/-Landfill

Sample Matrix:

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Conductivity

alysis Method 120.1

st Notes:

Units: uMhos/cm

mple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
- 'S-2	K2408011-001	2	0.2	1	10/13/04	819	
3XS-3	K2408011-002	2	0.2	1	10/13/04	933	
.S-4	K2408011-003	2	0.2	1	10/13/04	179	
S-6	K2408011-004	2	0.2	1	10/13/04	178	
viethod Blank	K2408011-MB	2	0.2	. • 1	10/13/04	ND	

Client: Project Name: J.H. Baxter & Company 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

Cest Notes:

Units: mg/L (ppm)

ample 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	19	10/13/04	0.12	
IXS-4	K2408011-003	0.05	0.03	1	10/13/04	0.53	
XS-6	K2408011-004	0.05	0.03	1	10/13/04	0.51	
fethod Blank	K2408011-MB	0.05	0.03	1	10/13/04	ND	

Liient:

J.H. Baxter & Company

oject Name:

Arlington Landfill Wells

P-oject Number: BXS-WELLS/-Landfill Sample Matrix:

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Nitrate+Nitrite as Nitrogen

Units: mg/L (ppm)

Basis: NA

alysis Method 353.2

Tast Notes:

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
⊃VS-2	K2408011-001	0.05	0.01	. 1	10/18/04	0.01	J
S-3مد	K2408011-002	0.05	0.01	1	10/18/04	0.01	J
S-4	K2408011-003	0.05	0.01	1	10/18/04	ND	
3XS-6	K2408011-004	0.05	0.01	1	10/18/04	ND	
thod Blank	K2408011-MB	0.05	0.01	1	10/18/04	ND	

Client: Project Name: J.H. Baxter & Company Arlington Landfill Wells

Project Number: BXS-WELLS/-Landfill

Sample Matrix:

WATER

Service Request: K2408011 Date Collected: 10/11/04

Date Received: 10/12/04

pН

Analysis Method 150.1

Test Notes:

Units: pH UNITS Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3XS-2	K2408011-001	-		pa sep	10/12/04	6.67	
3XS-3	K2408011-002	-		1	10/12/04	6.57	
3XS-4	K2408011-003	-	AND .	.1	10/12/04	7.96	
3XS-6	K2408011-004	em .		year.	10/12/04	7.97	. *

Analytical Report

Plient:

J.H. Baxter & Company

.. oject Name:

Arlington Landfill Wells

oject Number: BXS-WELLS/-Landfill Sample Matrix:

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Tannin and Lignin

alysis Method: SM 5550 B

it Notes:

Units: mg/L (ppm)

Basis: NA

uple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
S-2	K2408011-001	0.2	0.07	1 .	10/15/04	1.6	
IXS-3	K2408011-002	0.2	0.14	2	10/15/04	8.3	
S-4	K2408011-003	0.2	0.07	1	10/15/04	0.5	
' S-6	K2408011-004	0.2	0.07	1	10/15/04	0.4	
1ethod Blank	K2408011-MB	0.2	0.07	1	10/15/04	ND	

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

Columbia anal e elal denviced, enc.

Analytical Report

lient: roject Name: J.H. Baxter & Company

Arlington Landfill Wells roject Number: BXS-WELLS/-Landfill

ample Matrix:

Water

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Solids, Total Dissolved (TDS)

nalysis Method 160.1

est Notes:

Units: mg/L (ppm)

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	The state of the s	10/13/04	132	
lethod Blank	K2408011-MB	5	5	ì	10/13/04	ND	

Luent:

rest Notes:

J.H. Baxter & Company

ject Name:

Arlington Landfill Wells >-oject Number: BXS-WELLS/-Landfill

>ample Matrix:

alysis Method 415.1

WATER

Service Request: K2408011

Date Collected: 10/11/04

Date Received: 10/12/04

Carbon, Total Organic

Units: mg/L (ppm)

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3XS-2	K2408011-001	0.5	0.14	. 2	10/21/04	14.7	
S-3	K2408011-002	0.5	0.14	2	10/21/04	24.4	
S-4	K2408011-003	0.5	0.07	1	10/21/04	1.0	
3XS-6	K2408011-004	0.5	0.07	1	10/21/04	0.9	
hod Blank	K2408011-MB	0.5	0.07	1	10/21/04	ND	

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2408011

Project No.: BXS-WELLS-Landfill

Date Collected: 10/11/04

Project Name: Arlington Landfill Wells

Date Received: 10/12/04

Units: µG/L

Basis: NA

Matrix:

WATER

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	Table 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	Į.	10/25/04	10/27/04	7.0	ע	
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:

-1-

INORGANIC ANALYSIS DATA SHEET

Jlient:

J.H. Baxter & Company

Service Request: K2408011

∠roject No.: BXS-WELLS-Landfill

Date Collected: 10/11/04

Project Name: Arlington Landfill Wells

Date Received: 10/12/04

.4atrix:

WATER

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	С	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	4.4	В	
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	Ū	
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	В	

Solids: 0.0

omments:

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2408011

Project No.: BXS-WELLS-Landfill

Date Collected: 10/11/04

Project Name: Arlington Landfill Wells

Date Received: 10/12/04

Matrix:

WATER

Units: µG/L

Basis: NA

Sample Name: BXS-4

Lab Code: K2408011-003 DISS

Analyte	Analysis Method	MRL	MDL	Annicative controllers	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 1	10/25/04	10/27/04	7.0	an management	
Iron	6010B	20	10	1	10/25/04	10/27/04	40.3		1
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		

Solids: 0.0

:omments:

-1-

INORGANIC ANALYSIS DATA SHEET

lient:

J.H. Baxter & Company

Service Request: K2408011

roject No.: BXS-WELLS-Landfill

Date Collected: 10/11/04

roject Name: Arlington Landfill Wells

Date Received: 10/12/04

atrix:

WATER

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	С	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	บ	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	ָ	
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	i I	<u> </u>
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	3.0	U	<u> </u>
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	3.0		

Solids: 0.0

mments:

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2408011

Project No.: BXS-WELLS-Landfill

Date Collected:

Project Name: Arlington Landfill Wells

Date Received:

Units: µG/L

Matrix:

WATER

Basis: NA

Sample Name: Method Blank

Lab Code: K2408011-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ω
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	g	
Copper	6010B	10.0	7.0	1 1	10/25/04	10/26/04	7.0	·	
Iron	6010B	20	10	1	10/25/04	10/26/04	10		
Manganese	6010B	5.0	0.4	1	10/25/04	10/26/04	0.4		
Nickel	6010B	20.0	3.0	1	10/25/04	10/26/04	3.0		
Zinc	6010B	10.0	3.0	1 1	10/25/04	10/26/04	3.0		1

% Solids: 0.0

Comments:

Analytical Services Inc.	Re	ed 1	1.8.0	4	Ü	ηÞ	/IV	Ü		·U	5 T (UD	Y			I _	٧ 4	_		•*•	S	R#:		224	08663
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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

Page 1 of 441

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 ease 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.

Client:

J.H. Baxter & Company

Project:

Arlington Landfill Wells

Sample Matrix:

Water

Service Request No.:

Date Received:

K2408063

10/13/04

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

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.

Emw Date 11/4/24

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CHAIN OF CUSTODY



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WEST OTHER: (CIRCLE ONE)	CARBON PROCEDURE: AK CA WI NORTHI	MUICALE STATE HYDRO	OUND REQUIREMENTS	REPORT Dup., MS, MSD as II
NO (NI) K Ag Na Se Sr TI Sn V (Zn) Hg	BABBCA CO CO CO FO PD Mg (M) N	Dissolved Metals: At As Sb	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	and the second second
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Signal of the state of the stat				SAMPLER'S SIGNATURE
			JEVE-937	८% भार-एक १%
*Ox 1650 [] \$06[] \$06[]	Charles I Heart I See Is to Chom Charles I Heart I See Is to Charles I See Is to Charl	Seminofallie Of CONTAIN Seminofallie Of Ganics E 825 Gallie Of Ganics 827 Folialie Of Ganics 826 Hydrocarbons (*see 5.5) Gas Gas Good (*see 5.5)	feccionalization and a second contraction of the feet of the second contraction of the second co	E-WAIT VODHERS
	Sell Colomic C		THE PROPERTY AND ADDRESS OF THE PROPERTY OF TH	ONVERNIENTE ANIMATEN, U.M. 9
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			ANNOCE IN CITIES OF CHARLES IN COCKES OF EAT COCK MARK AND COME THE STATE OF THE COCKES OF CHARLES OF COCKES OF CHARLES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES OF COCKES	PROJECT MANAGEM MONTE CLEVENA
1 1 1 1 1 1 7 9	Ching of See list below Community of See list below Commun		THE PROPERTY OF THE PROPERTY O	2.11\co_3 117\Loo_1 Palemun Tollord
# 200				PROJECT NAME T. IL BOLD HOPE
OF 30 COC #	301-868 (360) XA3 • 70XSSST-	- (360) 577-7222 • (800) eae.	3th Ave. • Kelso, WA 98626	An Employee - Owned Company 1317 South 1

emiT\etaG

Cooler Receipt and Preservation Form

?roject/Client	J. H. Bacter		Wo:	rk Order K240	80	43		
Cooler received on	10/13/oy	_ and opened or	10/13/04	by	Bluis	4		
. Were custody sea	als on outside of cool	ers?					Ø	N
If yes, how r	nany and where?		front					
2. Were custody sea	als intact?		U				©	N
3. Were signature a	nd date present on the	e custody seals?			•		Ø	N
1. Is the shipper's a	airbill available and f	iled? If no, record	d airbill number:	·		÷	Y	(A)
5. CQC#								
Temperature o	f cooler(s) upon rece	eipt: (°C)	3.0					
Temperature B	slank: (°C)	e e	2.0					
.Were samples har	nd delivered on the sa	ıme day as collect	ion?				8	N
5. Were custody pa	pers properly filled o	ut (ink, signed, etc	c.)?				\bigcirc	N
7. Type of packing	material present		ill-1	may				
8. Did all bottles a	rrive in good condit	ion (unbroken)?				•	(N
9. Were all bottle la	abels complete (i.e an	alysis, preservatio	on, etc.)?	•			(3)	N
10. Did all bottle la	bels and tags agree w	ith custody paper	s?					N
11. Were the corre	ct types of bottles us	sed for the tests i	ndicated?				$\langle \mathfrak{D} \rangle$	N
12. Were all of the p	preserved bottles rece	ived at the lab wit	th the appropriate p	H?			Y	N
13. Were VOA vials	s checked for absence	of air bubbles, ar	nd if present, noted	below?			, Y	N
14. Did the bottles of	originate from CAS/K	or a branch labor	ratory?				0	N
15. Are CWA Mici	robiology samples re	ceived with >1/2	the 24hr. hold tin	ne remaining fr	om collection?		-PY	N
16. Was C12/Res no	egative?						4	N
Explain any discrep	ancies:				<u> </u>			
								
		· · · · · · · · · · · · · · · · · · ·						
						· · · · · · · · · · · · · · · · · · ·		
RESOLUTION:								-
Samples that require								
Sambies mar Jedini	ed preservation or r	eceived out of the	emperature:					
					Rec'd out of			
Sample ID	Reagent	Volume	Lot Number	Bottle Type	Temperature	Initials		
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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)

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
BXS-1 BXS-5 4ethod Blank	K2408063-001 K2408063-002 K2408063-MB	0.2 0.2 0.2	0.06 0.06 0.03	2 2 1	10/16/04 10/16/04 10/16/04	3.0 ND ND	

Analytical Report

C'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

Sulfate

Analysis Method: 300.0

st Notes:

Units: mg/L (ppm)

mple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
.S-I	K2408063-001	0.2	0.18	2	10/16/04	6.9	
22'S-5	K2408063-002	0.2	0.18	2	10/16/04	ND	
viethod 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

\nalysis Method: 410.2

est Notes:

Units: mg/L (ppm)

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-1 XS-5 lethod Blank	K2408063-001 K2408063-002 K2408063-MB	5 5 5	3 3 3	1 1	10/20/04 10/20/04 10/20/04	15 ND ND	

Analytical Report

Client:

J.H. Baxter & Company

oject Name:

Arlington Landfill Wells

oject Number: BXS-WELLS-Landfill Sample Matrix:

WATER

Service Request: K2408063

Date Collected: 10/12/04

Date Received: 10/13/04

Ammonia as Nitrogen

Lalysis Method: 350.1

st Notes:

Units: mg/L (ppm)

mple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
「~~S-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	
thod Blank	K2408063-MB	0.05	0.03	1	10/19/04	ND	

Analytical Report

Client: Project Name: J.H. Baxter & Company

Arlington Landfill Wells Project Number: BXS-WELLS-Landfill

Sample Matrix:

WATER

Service Request: K2408063

Date Collected: 10/12/04

Date Received: 10/13/04

pН

Analysis Method: 150.1

Test Notes:

Units: pH UNITS

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3XS-1 3XS-5	K2408063-001 K2408063-002	94 5h		1	10/13/04 10/13/04	6.26 6.50	

Analytical Report

Client:

J.H. Baxter & Company

rroject Name:

Arlington Landfill Wells

oject Number: BXS-WELLS-Landfill

Simple Matrix:

WATER

Service Request: K2408063

Date Collected: 10/12/04 Date Received: 10/13/04

Nitrate+Nitrite as Nitrogen

analysis Method: 353.2

st Notes:

Units: mg/L (ppm)

mple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
.S-1	K2408063-001	0.2	0.01	1	10/18/04	0.3	
°YS-5	K2408063-002	0.2	0.01	1	10/18/04	ND	
viethod Blank	K2408063-MB	0.2	0.01	1	10/18/04	ND	

Analytical Report

Client: Project Name:

J.H. Baxter & Company

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

Sample Name		Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
3XS-1 3XS-5 Aethod Blank	•	K2408063-001 K2408063-002 K2408063-MB	2 2 2	0.2 0.2 0.2	ar Bri	10/23/04 10/23/04 10/23/04	395 0.2 ND	J

Analytical Report

Cient:

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)

շաmple Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
'S-5 Wethod Blank	K2408063-001 K2408063-002 K2408063-MB	0.5 0.5 0.5	0.07 0.07 0.07	1 1 1	10/22/04 10/22/04 10/22/04	5.8 ND ND	

Analytical Report

Client: Project Name :

J.H. Baxter & Company

Project Number: BXS-WELLS-Landfill

Arlington Landfill Wells

Sample Matrix :

Water

Service Request: K2408063 Date Collected: 10/12/04

Date Received: 10/13/04

Solids, Total Dissolved (TDS)

\nalysis Method: 160.1

lest Notes:

Units: mg/L (ppm)

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
XS-1 XS-5 fethod Blank	K2408063-001 K2408063-002 K2408063-MB	5 5 5	5 5 5	1	10/15/04 10/15/04 10/15/04	262 ND ND	

Analytical Report

Client:

J.H. Baxter & Company

.oject Name:

Arlington Landfill Wells

oject Number: BXS-WELLS-Landfill Sample Matrix:

WATER

Service Request: K2408063

Date Collected: 10/12/04

Date Received: 10/13/04

Tannin and Lignin

. lalysis Method: SM 5550 B st Notes:

Units: mg/L (ppm)

Basis: NA

nple 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	J
BXS-5	K2408063-002	0.2	0.07	1	10/22/04	0.08	
thod 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.

CULUMBIA 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

Bicarbonate as CaCO3

Analysis Method: SM 2320B

Test Notes:

Units: mg/L (ppm)

Basis: NA

ample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed .	Result	Result Notes
IXS-1 IXS-5 fethod Blank	K2408063-001 K2408063-002 K2408063-MB	2 2 2	0.7 0.7 0.7	1	10/26/04 10/26/04 10/26/04	218 12 ND	

M

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

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

⊥ient:

J.H. Baxter & Company

Service Request: K2408063

roject No.: BXS-WELLS-Landfill

Date Collected: 10/12/04

Date Received: 10/13/04

'roject Name: Arlington Landfill Wells

Units: µG/L

latrix:

WATER

Basis: NA

Sample Name: BXS-1

Lab Code: K2408063-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	U	<u> </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	<u> </u>
	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	
	6010B	5.0	0.4	1	10/25/04	10/27/04	478		
Manganese Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	18.8	В	
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	9.9	В	

Solids: 0.0

comments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

J.H. Baxter & Company

Service Request: K2408063

Project No.: BXS-WELLS-Landfill

Date Collected: 10/12/04

Project Name: Arlington Landfill Wells

Date Received: 10/13/04

Matrix:

WATER

Units: µG/L

Basis: NA

Sample Name: BXS-5

Lab Code: K2408063-002 DISS

Analyte	Analysis Method	MRL	MOL	DIT.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1.0	1 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	8	
Cadmium	6010B	5.0	2.0	1	10/25/04	10/27/04	2.0	gamanan con	
Copper	6010B	10.0	7.0	1	10/25/04	10/27/04	7.0	*	
Iron	6010B	20	10	1	10/25/04	10/27/04	10	# *************	
Manganese	6010B	5.0	0.4	1 1	10/25/04	10/27/04	0.4		
Nickel	6010B	20.0	3.0	1	10/25/04	10/27/04	3.0		OANGOODA, AND
Zinc	6010B	10.0	3.0	1	10/25/04	10/27/04	3.0		

: Solids: 0.0

omments:

DISSOLVED METALS

-1-

INORGANIC ANALYSIS DATA SHEET

crient:

J.H. Baxter & Company

Service Request: K2408063

roject No.: BXS-WELLS-Landfill

Date Collected:

roject Name: Arlington Landfill Wells

Date Received:

matrix:

WATER

Units: µG/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2408063-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	7060A	5.0	1.0	1	10/25/04	10/27/04	1.0	บ	
Barium	6010B	5.0	0.7	1	10/25/04	10/26/04	0.7	ט	
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:



11525 Khudson Rd. Burlington, WA 98233 (800) 755-9295

(960) 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 Location: BXS-1

County; Sampled By:

Sample Purpose: Investigative or Other

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:

DOH#	PARAMETER	RESULT	UNITS	A	***************************************	* ************************************	
1	TOTAL COLIFORM	or all argument handgraphy is a range of a	per 100mL	Analyst	METHOD	COMMENT	
	44 L		per room.	ko	SM9221 B		PF T THE PARTY OF
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I. 58:	a section and desired enterprises a	* 0 5 feet tolken warmagen nego o-a - wages - o-a-a-a	-				

If the result is Unterlishedory a repeal sample is required for Public Water Systems. Private individuals around invostigate the cause of the unsatisfactory result and resemple.

B 은 Coll or Fecal Colliger are present in sample do not drink the water until it is properly treated

Commonis:



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	*	sk	SM9221 B		
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If the result is Unsatisfactory a rapeat sample is required for Pubbs Water Systems. Private inclividuals should investigate the course of the unsatisfactory result and resample.

If E. Cali or Facal Caliform are present in sample do not drink the water until it is properly treated

Comments:

FORM, BACT_BT



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 Recaived: 10/12/2004

Report Date: 10/15/2004

Field ID: BXS-3

Supervisor: 1

		PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT	
•	1	TOTAL COLIFORM	A P	per 100mL	sk	SM9221 B	ac activities # (, , , , , , , , , , , , , , , , , , ,
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N	OTES:						NEW EMBER	

If the result is Unsansfactory a repeat semple is required for Public Water Systems, Provide Individuals should investigate the cause of the unsatisfactory result and resample

If E. Coll or Facel Celiform are present in sample do not drink the water until it is properly treated.

Comments:



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: X5

PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
TOTAL COLIFORM	<2	per 100mL			
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	PARAMETER TOTAL COLIFORM	PARAMETER TOTAL COLIFORM RESULT -2	PARAMETER TOTAL COLIFORM <2 UNITS per 100mL	PARAMETER RESULT UNITS Analyst per 100mL Sk	A COMPANY THE PROPERTY AND PARTY AND

If the regult is Unsatisfactory a repeat sumple is required for Public Water Bystoms. Private individuals should investigate the cause of the unsatisfactory result and magnified

if E Coll or Focal Coliform any proport in sample do not drink the water until it is properly tracked

Commonis:

FORM BACT_ST



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

THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
1	TOTAL COLIFORM	<2	per 100mL	ko	METHOD SM9221 B	COMMENT
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if the result is Unselectory a rupost sample is required for Public Water Systems. Private individuals should investigate the cause of the unsensinglery result and resemble.

If E. Coll or Focal Coliform are present in sample do not dealt the water until it is properly treated

Comments:



11525 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: 04-9637

Project: Landfill Wells/Sno Co.

System Name:

System ID Number:

DOH Source Number: Sample Type:

Sample Purpose: Investigative or Other

County: Sampled By:

Sample Location: BXS-6

Repeat Sample Number:

Lab Number: 04619824

Collect Date: 10/11/2004 Date Received: 10/12/2004

Report Date: 10/15/2004

Field ID: BXS-8

Supervisor:

	DOH#	PARAMETER	RESULT	UNITS	Analyst	METHOD	COMMENT
l	1	TOTAL COLIFORM	2	per 100mL	Analyst sk	SM9221 B	· · · · · · · · · · · · · · · · · · ·
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N	OTES:						

If the result is Unsattsfactory a repeat sample is required for Public Water Systems Private Individuals should investigate the cause of the unsatisfactory result and resample.

If E. Coll or Fecal Colliform are present in sample do not drink the water until A is properly treated.

Comments:

FORM: BACT_ST

Appendix C

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

Field pH

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	7.91 7.9				Average m _o	e Concentratio	nc
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 Jul-03	6.96 6.33				X _{bar}	s²	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 Jul-03 Oct-03	6.52 6.25 6.07				X _{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	5.97 6.12				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

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)

Apr-03	191				Average Concenti	ration
Jul-03	193				m _o	
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)

Apr-03 Jul-03 Oct-03	899 945 945				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	808 869 883				X _{bar}	s²	s	t _{stat}
Feb-04	737	808	869	. 883	824	4444	67	4.75
Арг-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)

Apr-03 Jul-03	442 441				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

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 Jul-03	0.53 0.55				Average C m _o	oncentration
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 Jul-03 Oct-03	0,15 0.18 0,25				X _{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	0.025 0.02 0.025				X _{bar}	s²	s	t _{stat}
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 Jui-03	0.025 0.025				X _{bar}	s²	s	t _{stat}
Oct-03								
Feb-04	0.025	0.025	0.025		0.03	0.00	0.00	#DIV/0!
Арг-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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Chemical Oxygen Demand

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	2 2.5				Averag m _o	e Concentration
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)

Apr-03 Jul-03	59 56				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	40 37 36				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	16 14				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Chloride

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	2.1 1.8				Averag m _o	e Concentration
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 Jul-03	4				X _{bar}	s²	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 Jul-03 Oct-03	6 5.2 5				X _{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	4.9 4.8				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Nitrate + Nitrite as N

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	0.1 0.1				Average Concentration m _o
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)

Apr-03 Jul-03	0.1 0.1	·			X _{bar}	s²	s	t _{stat}
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)

Арг-03	0.1				, , , , , , , , , , , , , , , , , , ,	s²		
Jul-03	0.1				X _{bar}	5	S	τ _{stat}
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)

Apr-03 Jul-03 Oct-03	0.9 1.5				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Total Dissolved Solids

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	143 128				Averag m o	e Concent	ratio
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 Jul-03	524 592				X _{bar}	s²	s	t _{stat}
Oct-03	568							
Feb-04	404	524	592	568	522	6981	84	2.32
Арг-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 Jul-03 Oct-03	460 492 528				X _{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	236 245				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Sulfate

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	1.1 1.5			A	lverage Concer m o	ntratio
Oct-03	1 .					
Feb-04	1.3	1.1	1.5	1	1.23	
Арг-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 Jul-03	0.19 0.1				X _{bar}	s²	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 Jul-03	0.3 0.2				X _{bar}	s²	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 Jul-03 Oct-03	8.2 9.6				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Tannin and Lignin

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	0.6 0.3				Average Concentration m _o
Oct-03	0.5				
Feb-04	0.4	0.6	0.3	0.5	0.45
Арг-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 Jul-03	2.5 4.6				X _{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	2 1.5 1.9				X _{bar}	s²	`s	t _{stat}
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 Jul-03	0.3 0.2				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Total Organic Carbon

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03	1					Concentration
Jul-03	0.7				m _o	
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)

Apr-03 Jul-03	22.2				\mathbf{X}_{bar}	s²	s	t _{stat}
Oct-03	21.2							
Feb-04	19.7	22.2		21.2	21.03	1.58	1.26	8.08
Арг-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)

Apr-03 Jul-03	14.1				\mathbf{X}_{bar}	s²	s	t _{stat}
Oct-03	14.0	14.1		14.6	14,23	0.10	0.32	21.04
Feb-04	15	17.11	14.6	14	14.53	0.25	0.50	13.79
Apr-04 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)

Apr-03 Jul-03	5.9				\mathbf{X}_{bar}	s²	s	t _{stat}
Oct-03								
Feb-04	3.7	5.9			4.80	2.42	1.56	1.32
Арг-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:

Average Concentration

Sample variance

Sample Standard Deviation

Student's T-Test Statistic

Total Coliform

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	1 23				Average Concentration 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)

Apr-03 Jul-03	1				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	1 1600				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	1 30				X _{bar}	s²	s	t _{etat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Arsenic

$t_{stat} = \overline{X_{bar} - m_o/s/sqrt(n)}$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	5.2 6				Average m _o	Concentration
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)

Apr-03 Jul-03	4.6 2.5				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	1.2 2.5 2.5				X _{bar}	s²	S .	t _{stat}
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)

Apr-03 Jul-03	2.5 2.5				X _{bar}	s²	s	t _{stat}
Oct-03								
Feb-04	2.5	2.5	25		2.50	0.00	0.00	#DIV/0!
Арг-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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Barium

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

Critical Statistic t_c

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	29.1 32				Average Concentration m _o
Oct-03					
Feb-04	2.5	29.1	32		21.20
Арг-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)

Apr-03	54.4							
Jul-03	58.1				\mathbf{X}_{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	48.7 42.1				X _{bar}	s²	s	t _{stat}
Oct-03	47.8							
Feb-04	45	48.7	42.1	47.8	45.90	8.90	2.98	4.14
Арг-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)

Apr-03 Jul-03 Oct-03	20.3 18				X _{bar}	s²	s	t _{stat}
Feb-04	10	20.3	18		16.10	29.23	5.41	-0.47
Арг-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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Copper

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	5 5				Average m _o	e Concentration
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)

Apr-03 Jul-03	5 5				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	5 5 5				X _{bar}	s²	s	t _{stat}
Feb-04	5	5	5	5	5.00	0.00	0.00	#DIV/0!
Арг-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)

Apr-03 Jul-03	16.8 5				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Cadmium

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	2.5				Averag m _o	e Concentration
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)

Apr-03 Jul-03	2.5				X _{bar}	s²	s	t _{stat}
Oct-03	5							
Feb-04	2.5		2.5	5	3.33	2.08	1.44	0.29
Арг-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)

Apr-03 Jul-03	2.5				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	2.5				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Iron

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	40.8 53				Average m _o	Concentration
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 Jul-03	4280 3680		***		X _{bar}	s²	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 Jul-03 Oct-03	780 926 836				\mathbf{X}_{bar}	s²	s	t _{stat}
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 Jul-03 Oct-03	10 10				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

Sample Standard Deviation

t_{stat} Student's T-Test Statistic

Manganese

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples **n**

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03 Oct-03	118 115 115				Average Concentration m _o
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 Jul-03	17800 15900				\mathbf{X}_{bar}	s²	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 Jul-03 Oct-03	1560 1390 1580				X _{bar}	s²	S	t _{stat}
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 Jul-03	431 370				X _{bar}	s²	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

s² Sample variance

Sample Standard Deviation

stat Student's T-Test Statistic

Nickel

$t_{stat} = X_{bar} - m_o/s/sqrt(n)$

Number of Samples n

4

Critical Statistic tc

2.353

BXS-4

(Upgradient well)

Apr-03 Jul-03	10 10				Average m _o	e Concentra	ition
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)

Apr-03 Jul-03 Oct-03	22.9 18.5 33.3				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03 Oct-03	39 35.9 37.1				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	10 14.8				X _{bar}	s²	s	t _{stat}
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

s² Sample variance

s Sample Standard Deviation

t_{stat} Student's T-Test Statistic

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)

Apr-03 Jul-03	5 6			A	Nverage C m o	oncentrati	on
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)

Apr-03 Jul-03	14.5 5.8				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	5 9.9				X _{bar}	s²	s	t _{stat}
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)

Apr-03 Jul-03	36.1 26.2				X _{bar}	s²	s	t _{stat}
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:

C_{bar} Average Concentration

s² Sample variance

s Sample Standard Deviation

stat Student's T-Test Statistic