915043

APRIL 2001 GROUNDWATER SAMPLING EVENT

PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

APRIL 2001 GROUNDWATER SAMPLING EVENT

PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

AUGUST 2001
REF. NO. 1979 (34)
This report is printed on recycled paper.

Prepared by:
Conestoga-Rovers & Associates

651 Colby Drive
Waterloo, Ontario
Canada N2V 1C2

Office: 519•884•0510
Fax: 519•884•0525

TABLE OF CONTENTS

LIST OF FIGURES
(Following Text)

LIST OF TABLES
(Following Text)

LIST OF APPENDICES

1.0 INTRODUCTION

A proposal to sample groundwater for chemical analyses from selected perimeter wells at the Pfohl Brothers Landfill Site (Site) located in Cheektowaga, New York was submitted to the New York State Department of Environmental Conservation (NYSDEC) on March 8, 2001. The proposed sampling and analyses was approved on March 14, 2001. Following receipt of access permission, the wells were sampled from April 9 through 13, 2001.

This report presents the information collected during this sampling event, including a brief description of the activities conducted, the field parameters measured during well purging and sampling, hydraulic monitoring data, and a discussion of the analytical results, including comparisons to historical data where appropriate.

2.0 FIELD ACTIVITIES

The field activities conducted during the sampling event included:

i) monitoring well inspection and groundwater level measurements in all wells to be sampled; and

ii) purging and groundwater sample collection from the monitoring wells listed below.

Overburden Perimeter Wells: GW-1S, GW-3S, GW-7S, GW-8S, and GW-9S.

Bedrock Perimeter Wells: GW-1D, GW-3D, and GW-7D.

The following wells which were listed in the March 8 letter were not sampled for the reasons indicated:

i) well GW-8D - not currently installed; and

ii) wells GW-4S/4D - aboveground portions of the well (protective casing and well riser) are completely bent over, parallel to the ground.

Because wells GW-4S/4D are part of the long-term O&M monitoring network, they will be repaired or replaced, as determined necessary, when the other monitoring wells to be installed are installed.

Figure 2.1 shows the location of the wells listed above.

The above activities were performed in accordance with the March 8, 2001 document entitled "Pre-Construction, Groundwater Sampling Analysis, Pfohl Brothers Landfill Site" and the procedures specified in the Operation and Maintenance Plan, (O&M Plan), the Site Health and Safety Plan, and the Quality Assurance Project Plan, which are Sections 3, 5, and 7, respectively, of the Final (100%) Design Document, dated March 2001. Groundwater samples were collected for polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) analyses following the procedures in the letter to the NYSDEC dated December 14, 1994.

2.1 HYDRAULIC MONITORING

On April 9, 2001, prior to initiating purging, an inspection of the conditions of the wells and measurements of the depth of the bottom of the well and the depth to the static groundwater level were made in the 8 monitoring wells listed above.

Measurements were made using a pre-cleaned electronic water level tape. The tape was cleaned prior to use at each well following the procedure in Section 3.2.9 of the O&M Plan.

2.2 GROUNDWATER PURGING

Prior to collection of samples from a well, the water in that well was removed to assure the entry of fresh formation water into the well. Purging was completed using pumps for water withdrawal. The type of pump used at each well is stated in Table 2.1.

At 6 of the 8 wells sampled, dedicated equipment was used for purging. Due to the slow recovery at GW-7D and GW-1D, a 2-inch diameter Grundfos Redi-Flow pump was used for purging. Because the equipment was not dedicated to one well, this equipment was cleaned before initial use at each well.

Purging requirements for collection of groundwater samples are specified in the O&M Plan. At locations where PCDD/PCDF samples were to be collected, purging was continued until turbidity headings of <5 NTU were attained. Due to the slow recovery of the groundwater in GW-7D, the well was purged dry three times in two consecutive days and was allowed to recover overnight prior to collecting the groundwater samples on the third day. The PCDD/PCDF sample was collected first to minimize disturbance of the water column. No sediment was observed in the PCDD/PCDF sample.

All other wells where PCDD/PCDF samples were collected produced groundwater with a turbidity of <5 NTU after removal of 6 or fewer well volumes. At GW-7S, the well was purged dry three times over two consecutive days. The well recovered sufficiently to allow sample collection at the end of the second day. The PCDD/PCDF sample was collected first. The turbidity reading of this sample was 3.5 NTU. Table 2.1 summarizes the field measurements recorded during well purging and sampling.

2.3 GROUNDWATER SAMPLING

Following purging of the wells, the groundwater samples were collected. Table 2.2 lists the investigative and QA/QC samples collected, along with the applicable dates. All wells were sampled for VOCs, SVOCs, PCBs, metals, cyanide, and PCDD/PCDF.

Groundwater samples for VOC analysis were collected using well-dedicated bottom-loading disposable teflon bailers. A peristaltic pump was used to obtain the non-volatile samples at each overburden location through well-dedicated teflon tubing. Where PCDD/PCDF samples were collected and the water clarity met the <5 NTU criteria, the PCDD/PCDF samples were collected immediately after purging, before any other samples were collected.

All samples collected were shipped to the laboratories within 48-hours of the day of collection under Chain of Custody documentation in sealed coolers. Samples were stored and shipped using ice to maintain a low temperature. Severn Trent Laboratories of Pittsburg, Pennsylvania was the analytical laboratory for all samples except PCDD/PCDF. Alta Analytical Laboratories in El Dorado Hills, California performed the PCDD/PCDF analyses.

2.4 WASTE MATERIAL HANDLING

2.4.1 DECONTAMINATION FLUIDS

The only equipment which was not dedicated to a specific well were the water level measurement devices and the Grundfos Redi-Flow pumps. The Grundfos pumps were cleaned by using the protocol in Section A.7.0 of the O&M Plan. The solvent rinses were collected separately from the detergent wash water and water rinses and were allowed to evaporate from a five-gallon bucket. The water washes and water rinses were discharged to the ground in Area B in accordance with the approved plan. The water level measurement tape was cleaned per Section 3.2.9 of the O&M Plan. The detergent wash and deionized water rinses were collected in a five-gallon bucket and discharged to the ground in Area B. The groundwater removed during purging was discharged to the ground in Area B in accordance with the approved plan.

2.4.2 PPE, PLASTIC, AND WELL SAMPLING MATERIALS

All disposable PPE, Tyvek, plastic, paper, and glass were placed into a drum being used to contain spent PPE from the RA construction. The contents of this drum will be placed within the waste consolidation area of the Site during RA construction.

3.0 MONITORING DATA

Both hydraulic and water quality data were collected during this sampling event. The data are presented and discussed in the subsections which follow.

3.1 HYDRAULIC MONITORING DATA

Groundwater elevation data are presented in Table 3.1. The overburden groundwater elevations presented in Table 3.1 are consistent with those measured in December 1994.

3.2 ANALYTICAL DATA

The analytical data have been reviewed and a Data Quality Assessment and validation report has been prepared. The validation report is contained in Appendix A. Overall, the analytical data were usable.

All analytical data resulting from this sampling event are also presented in Attachment A. A summary of detected compounds for the overburden wells and bedrock wells are shown in Tables 3.2 and 3.3, respectively. Also shown on Tables 3.2 and 3.3 are the compounds detected in the samples collected during previous sampling events.

3.2.1 OVERBURDEN PERIMETER WELLS

3.2.1.1 VOLATILES

No volatile compounds were detected at or above the targeted quantitation levels in the December 1994 samples. Toluene was detected in the 1994 sample from well GW-5S below the targeted quantitation level at an estimated concentration of 3 µg/L.

The VOCs detected in the April 2001 overburden groundwater samples were:

Well	*Compound*	*Concentration (µg/L)*	*Class GA Criteria (µg/L)*
GW-3S	Acetone	2.0 J	50
	Benzene	0.88 J	1
	Toluene	4.3	5
	Trichloroethene	0.35 J	5
	Xylenes	3.1	5
GW-8S	Acetone	2.2 J	50

None of the detected compounds exceed Class GA groundwater criteria.

The April 2001 VOC results are consistent with the most recent previous analytical results shown in Table 3.2.

3.2.1.2 SVOCS AND PCBS

The primary SVOC of concern during the December 1994 sampling event and described in the December 1994 sampling event report was dibenzofuran. Thus, the SVOC discussion below focusses on this compound.

Dibenzofuran and PCBs were not detected at or above the targeted quantitation levels of 10 and 1.0 µg/L, respectively in the April 2001 samples. The April 2001 results are consistent with the December 1994 results at which time dibenzofuran and PCBs were also not detected. Aroclor-1221 was detected in the December 1994 sample from GW-15S at an estimated concentration of 1.4 µg/L. The Class GA concentration level is 0.09 µg/L. In the Round 2 sampling performed by the NYSDEC in December 1989, none of the aroclors were at or above 0.5 µg/L in well GW-15S except for Aroclor-1232 which was detected at an estimated concentration of 110 µg/L.

The above data show that the PCB concentrations in the overburden groundwater in the vicinity of GW-15S have decreased significantly since 1989. It is believed that one of the reasons for this decrease was the removal of the source of these chemicals by the excavation of soils and drums from the vicinity of GW-15S (i.e., Drum Cluster 11) during the Interim Remedial Measure which was performed in 1993 and 1994.

3.2.1.3 TOTAL METALS

The April 2001 total metals results shown in Table 3.2 are generally consistent with the most recent previous analytical results except for the following notable changes:

Well	*Parameter*	*Comment*
GW-1S	Sodium	Concentrations have increased from 110000 to 397000 µg/L (likely influence of road salt)
GW-3S	Iron (total)	Concentrations have increased from 140 to 1210 µg/L (this is still below the historic high of 7360 µg/L in 1989)
GW-8S	Aluminum	Concentrations have decreased from 3960 to ND8.9 µg/L
	Chromium	Concentrations have decreased from 21 to ND1.1 µg/L
	Lead	Concentrations have decreased from 9.6 to ND1.8 µg/L
	Sodium	concentrations have increased from 21500 to 60500 µg/L (likely influence of road salt)
GW-9S	Aluminum	Concentrations have decreased from 2120 to ND9.8 µg/L
	Lead	Concentrations have decreased from 10.4 to ND2.8 µg/L

3.2.1.4 PCDD/PCDF

No PCDD/PCDF congeners were detected at or above the targeted quantitation levels in the December 1994 samples except 1,2,3,4,6,7,8-Hp CDD at a concentration of 3.4 picograms/liter (pg/L) in well GW-1S. The toxicity equivalent factor (TEF) for this congener is 0.01. The above concentration multiplied by the TEF is more than twenty times below the 0.7 pg/L level for 2,3,7,8-TCDD equivalents for Class GA groundwaters.

Because only one PCDD/PCDF isomer was detected in only one overburden well in December 1994, the April 2001 samples were solely analyzed for 2,3,7,8-TCDD and 2,3,7,8-TCDF. The results of the 2001 sampling show that these two congeners were not detected at concentrations varying from 0.501 to 1.49 pg/L and 1.26 to 2.36 pg/L,

respectively. These detection limits are similar to those obtained for the December 1994 samples demonstrating that no detectable concentrations of these two congeners exist.

It is noted that the 2,3,7,8-TCDD analytical results presented in Table 4-7 of the NYSDEC RI report were non-detect at levels ranging from 32,000 to 400,000 pg/L for the 5 overburden perimeter wells. Thus, a direct comparison with the RI data is not possible.

3.2.2 BEDROCK PERIMETER WELLS

3.2.2.1 VOLATILES

No volatile compounds were detected in the December 1994 samples at or above the targeted quantitation levels except for vinyl chloride (6 µg/L) in well GW-5D. 1,2-dichloroethene was detected in the samples from wells GW-3D and GW-5D below the targeted quantitation levels at estimated concentrations of 1 and 2 µg/L, respectively.

The VOCs detected in the April 2001 bedrock groundwater samples were:

Well	*Compound*	*Concentration (µg/L)*	*Class GA Criteria (µg/L)*
GW-3D	Acetone	2.3 J	50
	Chlorobenzene	1.6	5
	1,2-Dichloroethene	2.9	5
	Vinyl Chloride	5.5	2

Only vinyl chloride was above the Class GA criterion.

The April 2001 VOC results are consistent with the previous analytical results shown in Table 3.3.

3.2.2.2 DIBENZOFURAN AND PCBS

Dibenzofuran and PCBs were not detected at or above the targeted quantitation levels of 10 and 1.0 µg/L respectively. The April 2001 analytical results are consistent with the previous analytical results shown in Table 3.3.

3.2.2.3 TOTAL METALS

The April 2001 total metals results shown in Table 3.3 were generally consistent with the previous analytical results except for the following notable changes:

Well	*Parameter*	*Comment*
GW-3D	Sodium	Concentrations have increased from 38000 to 198000 µg/L
GW-7D	Iron	Concentrations have increased from 58 to 3210 µg/L
	Lead	Concentrations have increased from ND 1 to 171 µg/L
	Zinc	Concentrations have increased from 21 to 131 µg/L

3.2.2.4 PCDD/PCDF

No PCDD/PCDF congeners were detected at or above the targeted quantitation levels in the December 1994 samples except 1,2,3,6,7,8-HxCDF and 1,2,3,4,6,7,8-HpCDF at concentrations of 1.9 and 3.1 pg/L, respectively, in well GW-1D. The TEFs for these congeners are 0.1 and 0.01, respectively. The above concentrations multiplied by the TEFs are more than three times below the 0.7 pg/L level for 2,3,7,8-TCDD for Class GA groundwaters.

The April 2001 samples were only analyzed for 2,3,7,8-TCDD and 2,3,7,8-TCDF. The two congeners were not detected at concentrations ranging from 0.513 to 1.45 pg/L and 1.08 to 3.02 pg/L, respectively. These detection limits are similar to those obtained for the December 1994 samples demonstrating that no detectable concentrations of these two congeners exist.

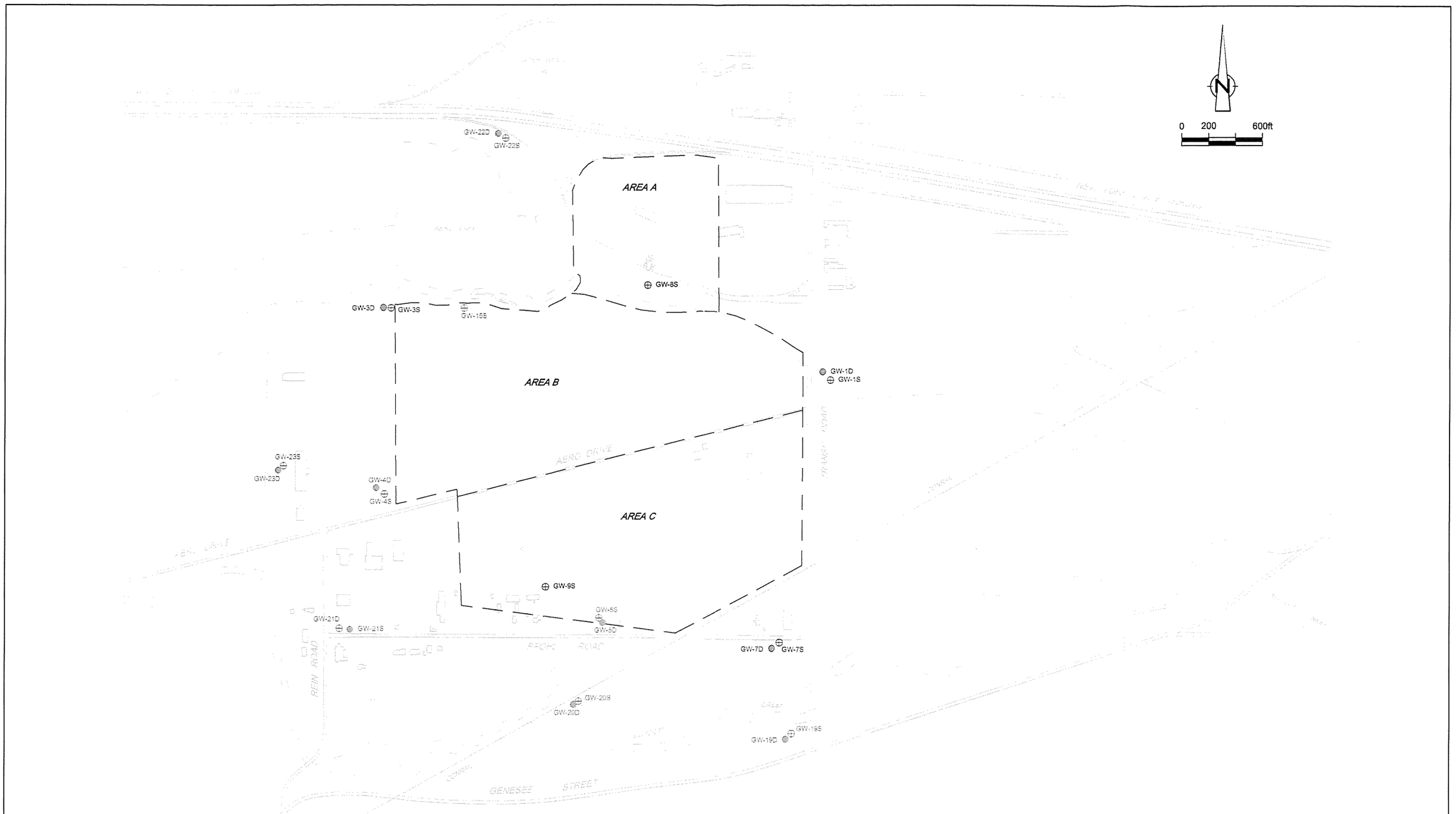
It is noted that 2,3,7,8-TCDD analytical results presented in Table 4-7 of the NYSDEC RI report were non-detect at levels ranging from 38,000 to 130,000 pg/L for the 5 bedrock perimeter wells. Thus, a direct comparison with the RI data is not possible.

3.3 SUMMARY

In general, the analytical results from the April 2001 Groundwater Sampling Event are consistent with previous analytical results.

The majority of the analytical results which are not consistent decreased in concentration with respect to previous results. A few metals (i.e., sodium, iron, zinc, and lead) increased in concentration, with zinc and lead notably increasing in only one well (i.e., GW-7D).

Dibenzofuran and PCBs were not detected at or above 10 and 1.0 µg/L, respectively. Also, 2,3,7,8-TCDD and 2,3,7,8-TCDF were not detected. A few PCDD/PCDF congeners were detected at very low level concentrations in December 1994. When all of the detected PCDD/PCDF congeners for the Site perimeter overburden and bedrock wells were multiplied by the appropriate TEFs, all of the equivalent concentrations were below the 0.7 pg/L level for 2,3,7,8-TCDD for Class GA groundwaters.



LEGEND

	RAILWAY TRACKS		WELL SAMPLED DECEMBER 1994 EVENT
⊕ GW-1S	OVERBURDEN WELL		WELL SAMPLED APRIL 2001 EVENT
● GW-1D	BEDROCK WELL		WELL SAMPLED BOTH EVENTS

figure 2.1

MONITORING WELL LOCATIONS
GROUNDWATER SAMPLING EVENTS
Pfhol Brothers Landfill, Cheektowaga, New York

01979-00(034)GN-WA003 JUL 30/2001

TABLES

TABLE 2.1

FIELD DATA SUMMARY
APRIL 2001 GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well Number	*Date*	*Well Volume (gallons)*	*Volume Purged (gallons)*	*Temp (°C)*	*pH*	*Conductivity (µS)*	*Turbidity (NTU)*	*Purging Method*	*Final Water Quality*	*Comments*
GW-1S	4/11/01	2.1	2.0	7.0	6.41	3240	42	Peristaltic Pump	• Clear, colorless, no sediments, no sheen, no odor.	• MS/MSD sample collected
			4.0	8.2	7.15	3270	22			
			6.0	7.0	6.97	3280	14.2			
			8.0	7.2	7.11	3000	9.7			
			10.0	7.4	7.10	3230	6.7			
			Final*	7.5	7.09	3250	3.8			
GW-1D	4/11/01	24.1	25	9.1	7.13	1100	4.5	Grundfos pump	• Clear, colorless, slight H_2S odor.	
			50	9.1	7.15	1300	1.9			
			75	9.3	7.17	1220	1.9			
			Final*	9.2	7.19	1290	2.3			
GW-3S	4/10/01	1.76	1.8	7.9	7.40	850	15.3	Peristaltic pump	• Clear, colorless, no sediments, no sheen, no odor.	• Well dry after second volume.
			3.6	7.6	6.98	840	2.4			
			5.0	7.2	7.29	800	2.6			
			Final*	7.3	7.47	770	1.2			
GW-3D	4/10/01	24.0	25	10.2	6.91	1890	3.0	Centrifugal pump	• Clear, colorless, no sediments, no sheen, no odor.	
			50	10.4	7.00	1860	0.4			
			75	10.3	7.19	1850	1.0			
			100	10.4	7.14	1850	11.4			
			125	10.3	7.20	1830	1.3			
			150	10.3	7.21	1850	0.8			
			Final*	10.3	6.95	1820	0.5			

Notes

* Values immediately prior to or during sample collection.
NM - Not Measured

TABLE 2.1

FIELD DATA SUMMARY
APRIL 2001 GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well Number	*Date*	*Well Volume (gallons)*	*Volume Purged (gallons)*	*Temp (°C)*	*pH*	*Conductivity (µS)*	*Turbidity (NTU)*	*Purging Method*	*Final Water Quality*	*Comments*
GW-7S	4/10/01	4.8	5.0	9.4	7.48	530	16	Peristaltic pump	• Cloudy, no odor, no sheen, few sediments.	• Well dry after second volume.
			9.0	NM	NM	NM	NM			
	4/11/01		8.0	9.8	7.30	580	49		• Cloudy, yellow/white	
			Final*	9.6	7.51	580	3.5		• Clear, colorless, no sheen, no odor, no sediments	
GW-7D	4/10/01	26	26	12.0	9.26	640	50	Grundfos pump	• Slightly cloudy, no sheen, no odor, no sediments.	• Well dry. Purged dry 3 times in 2 day period.
	4/11/01		2.0	10.8	9.56	660	28			• Well dry.
			2.0	10.7	9.95	660	28		• Slightly cloudy, colorless, slight H_2S odor	
	4/12/01	--	Final*	12.0	9.33	700	12.4		• Clear, colorless, slight H_2S odor	
GW-8S	4/10/01	1.8	2	6.7	7.19	1660	28	Peristaltic pump	• Clear, colorless, no sheen, no odor	
			3.6	6.9	7.28	1660	2.1			
			5.4	6.9	7.41	1720	0.9			
			7.2	6.8	7.42	1700	0.45			
			9.0	7.3	7.55	1760	0.15			
			Final*	7.6	7.58	1780	0.07			
GW-9S	4/10/01	1.46	1.5	8.3	6.93	1120	36	Peristaltic pump	• Clear, colorless, no sheen, no odor	• Duplicate samples collected.
			3.0	8.3	7.03	1170	2.3			
			4.5	8.3	7.06	1160	2.1			
			Final*	8.3	7.07	1170	2.5			

Notes

* Values immediately prior to or during sample collection.
NM - Not Measured

TABLE 2.2

SAMPLE KEY
APRIL 2001 GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Sample Number	*Sample Location*	*Sample Date*	*Analytical Requirements/Comments*	
Overburden Perimeter Wells				
W-1979-0401-006	GW-1S	4/11/01	See Note 1.	MS/MSD
W-1979-0401-005	GW-3S	4/10/01	See Note 1	
W-1979-0401-008	GW-7S	4/11/01	See Note 1.	
W-1979-0401-001	GW-8S	4/10/01	See Note 1.	
W-1769-041001-02	GW-9S	4/10/01	See Note 1.	
W-1769-041001-03	GW-9S	4/10/01	See Note 1.	Duplicate of GW-9S
Bedrock Perimeter Wells				
W-1979-0401-007	GW-1D	4/11/01	See Note 1.	
W-1979-0401-004	GW-3D	4/10/01	See Note 1	
W-1979-0401-009	GW-7D	4/12/01	See Note 1	
Miscellaneous Samples				
Trip Blank		4/10/01	VOCs	
Trip Blank		4/11/01	VOCs	
Trip Blank		4/12/01	VOCs	

Note:

1. VOCs, SVOCs, PCBs, Total Metals, Cyanide, 2,3,7,8-TCDD, and 2,3,7,8-TCDF.

TABLE 3.1

GROUNDWATER ELEVATIONS
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NEW YORK

Well Number	Elevation of Bottom of Well (ft. AMSL)	Top of InsideCasing Elevation (1) (ft. AMSL)	December 13, 1994		April 10 to 12, 2001	
			Depth to Water (ft. BTOC)	Groundwater Elevation (ft. AMSL)	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. AMSL)
Overburden						
GW-1S	681.1	695.95	2.74	693.21	2.22	693.73
GW-3S	680.3	693.29	2.28	691.01	2.01	691.28
GW-4S	674.8	692.72	2.44	690.28	NM	
GW-5S	669.3	696.14	3.23	692.91	NM	
GW-7S	664.2	698.73	5.56	693.17	4.85	693.88
GW-8S	681.4	696.57	NM	NM	4.40	692.17
GW-9S	685.1	701.46	NM	NM	6.47	694.99
GW-19S	680.7	700.58	11.36	689.22	NM	
GW-20S	676.6	700.3	12.3	688.00	NM	
GW-21S	682.6	697.46	3.72	693.74	NM	
GW-22S	685.4	698.66	10.91	687.75	NM	
GW-23S	680.4	694.25	3.88	690.37	NM	
GW-15S (2)	684.0	699.26	6.60	692.66	NM	
Bedrock						
GW-1D	655.1	695.86	1.92	693.94	2.39	693.47
GW-3D	656.3	693.28	1.60	691.68	1.62	691.66
GW-4D	647.9	692.75	11.73	681.02	NM	
GW-5D	656.1	696.06	4.31	691.75	NM	
GW-7D	638.9	699.19	19.56	679.63	21.15	678.04
GW-19D	649.4	700.17	7.39	692.78	NM	
GW-20D	645.9	700.52	8.13	692.39	NM	
GW-21D	657.5	697.46	8.86	688.60	NM	
GW-22D	658.5	697.57	5.35	692.22	NM	
GW-23D	645.4	694.50	3.11	691.39	NM	

Notes:

(1) Top of casing elevations obtained from Camp, Dresser & Mckee, Inc.
(2) Groundwater level obtained on December 16, 1994.
NM Not Measured.

TABLE 3.2

SUMMARY OF DETECTED PARAMETERS
OVERBURDEN PERIMETER WELLS
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well:	GW1S	GW1S	(Dup of GW1S)	GW1S-93	GW1S-01	GW1S-02	GW3S	GW3S	GW3S-93	GW3S-01	GW3S-02	GW4S	GW4S-93	GW4S-01	GW4S-02
Sampling Date:	*4/11/01*	*12/20/94*	*12/20/94*	*02/93*	*10/89 to 12/89*		*4/10/01*	*12/20/94*	*02/93*	*10/89 to 12/89*		*12/19/94*	*02/93*	*10/89 to 12/89*	
TCL Volatiles µg/L															
Acetone	ND 10	ND 10	R	ND 5	NA	NA	2.0 J	ND 10	ND 5	NA	NA	ND 10	ND 5	NA	NA
Benzene	ND 1.0	ND 0.7	ND 0.7	ND 5	ND 2.0	ND 2.0	0.88 J	ND 0.7	ND 5	ND 2.0	26.0 J	ND 0.7	ND 5	ND 2.0	ND 2.0
Chlorobenzene	ND 1.0	ND 5	ND 5		ND 3.7	ND 3.7	ND 1.0	ND 5		ND 3.7	ND 3.7	ND 5		ND 3.7	ND 3.7
1,2-Dichloroethene	ND 1.0	ND 5	ND 5	ND 5	NA	NA	ND 1.0	ND 5		NA	NA	ND 5		NA	NA
Toluene	ND 1.0	ND 5	ND 5		ND 3.0	ND 3.0	4.3	ND 5	ND 5	ND 3.0	41.0 J	ND 5	ND 5	ND 3.0	ND 3.0
Trichloroethene	ND 1.0	ND 10	ND 10		ND 1.4	ND 1.4	0.35 J	ND 10		ND 1.4	ND 1.4	ND 10		ND 1.4	ND 1.4
Vinyl Chloride	ND 2.0	ND 5	ND 5		ND 20	ND 20	ND 2.0	ND 5		ND 20	ND 20	ND 5		ND 20	ND 20
Xylenes	ND 1.0	ND 5	ND 5		ND 3.0	ND 3.0	3.1	ND 5		ND 3.0	ND 3.0	ND 5		ND 3.0	ND 3.0
PCBs µg/L															
Not Detected	ND 1.0	ND 0.10	ND 0.10	ND 0.5	ND 0.5	ND 0.5	ND 1.0	ND 0.10	ND 0.5	ND 10	ND 0.5	ND 0.10	ND 0.5	ND 0.5	ND 0.5
Metals µg/L															
Aluminum	ND 22	ND 39	ND 28	NA	97.6 B	1210	ND 13	ND 21	NA	4460	653	ND 65	NA	1050	106 B
Arsenic	ND 2.0	ND 2.8	ND 3.2	ND 10	6.2 B	5.10 BJ	2.1	ND 2.8	ND 10	3.90 B	2.30 B	ND 4.1	ND 10	2.50 B	3.50 B
Barium	44	NA	NA		78 B	107 BJ	81	NA		80 B	838 J	NA		62 B	74 B
Calcium	208000	170000	171000	NA	213000	257000	65500	71000		80700	64600	35000	NA	39100	34100
Chromium	1.7	ND 0.3	ND 0.3	ND 10	3.1 B	15 J	ND 1.1	ND 0.3	ND 10	21.20 J	4.90 BJ	ND 0.83	ND 10	6.80 B	ND 1.0
Iron	6070	4500	4200	NA	5070	9120	1210	140	NA	7360	1160	320	NA	1720	269
Iron (soluble)	NA	4000	4,200	NA	NA	NA	NA	61	NA	NA	NA	150	NA	NA	NA
Lead	ND 2.0	ND 1.2	1.2	12	2.80 B	4.70	ND 1.8	ND 1.2	10	11.30	R	ND 1.2	15	2.30 B	3.50 J
Magnesium	35600	33000	31600	NA	41700	56500	46800	53000	NA	44600	48100	23000	NA	29500	20400
Manganese	851	570	620	NA	1580	1390 J	219	290	NA	1620	580 J	270	NA	591	263 J
Manganese (soluble)	NA	570	550	NA	NA	NA	NA	270	NA	NA	NA	330	NA	NA	NA
Nickel	ND7.9	NA	NA		14 B	ND 23	ND 7.9	NA		27 B	ND 20	NA		28 B	ND 20
Potassium	ND 1750	2400	2400	NA	1800	2050 BJ	1570	3000	NA	3860 B	2280 B	2100	NA	1330 B	933 B
Sodium	397000	110000	118000	NA	70100	86000	13900	16000	NA	22400	12700	23000	NA	19400	18900
Boron	NA	53	53	NA	NA	NA	NA	75	NA	NA	NA	140	NA	NA	NA
Titanium	NA	ND 0.6	ND 0.6	NA	NA	NA	NA	ND 0.6	NA	NA	NA	NDN 0.8	NA	NA	NA
Molybdenum	NA	ND 3.0	ND 4.1	NA	NA	NA	NA	29	NA	NA	NA	110	NA	NA	NA
Vanadium	ND 4.1	ND 0.6	ND 0.6	NA	ND 3.2	ND 4.0	ND 4.1	ND 0.6	NA	8.4 B	ND 1.0	NDN 0.8	NA	ND 3.2	4.1 B
Zinc	ND 16	ND 3.0	ND 4.1	NA	12 B	38 J	133	29	NA	52	R	110	NA	R	12 BJ
PCDD/PCDF pg/L															
1,2,3,4,6,7,8-HpCDD	NA	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed.
ND - Not detected at or above the associated value.
B - Compound detected in the blank.
J - Associated value is an estimation.
R - Data Rejected.

TABLE 3.2

SUMMARY OF DETECTED PARAMETERS
OVERBURDEN PERIMETER WELLS
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well:	GW5S	GW5S-93	GW5S-01	GW5S-02	GW7S	GW7S	GW7S-93	GW7S-01	GW7S-02	GW8S	GW8S-01	GW8S-02	GW9S	GW9S-01	GW9S-02	GW15S	GW15S-02
Sampling Date:	12/20/94	02/93	10/89 to 12/89		4/11/01	12/19/94	02/93	10/89 to 12/89		4/10/01	10/89 to 12/89		4/10/01	10/89 to 12/89		12/16/94	12/89
TCL Volatiles µg/L																	
Acetone	R	ND 5	NA	NA	ND 10	ND 10	ND 5	NA	NA	2.2 J	NA	NA	ND 10	NA	NA	NA	
Benzene	ND 0.7	ND 5	ND 2.0	NA	ND 1.0	ND 0.7	ND 5	ND 2.0	ND 2.0	ND 1.0	ND 2.0	ND 2.0	ND 1.0	ND 2.0	2.8 J	NA	
Chlorobenzene	ND 5		ND 3.7	NA	ND 1.0	ND 5		ND 3.7	ND 3.7	ND 1.0	ND 3.0	ND 3.0	ND 1.0	ND 3.0	ND 3.0	NA	
1,2-Dichloroethene	ND 5		NA	NA	ND 1.0	ND 5		NA	NA	ND 1.0	NA	NA	ND 1.0	NA	NA	NA	
Toluene	3 J	ND 5	ND 3.0	NA	ND 1.0	ND 5	ND 5	ND 3.0	ND 3.0	ND 1.0	ND 3.0	ND 3.0	ND 1.0	ND 3.0	4.1 J	NA	
Trichloroethene	ND 10		ND 1.4	NA	ND 1.0	ND 10		ND 1.4	ND 1.4	ND 1.0	ND 1.4	ND 1.4	ND 1.0	ND 1.4	ND 1.4	NA	
Vinyl Chloride	ND 5		ND 20	NA	ND 2.0	ND 5		ND 20	ND 20	ND 2.0	ND 20	ND 20	ND 2.0	ND 20	ND 20	NA	
Xylenes	ND 5		ND 3.0	NA	ND 1.0	ND 5		ND 3.0	ND 3.0	ND 1.0	ND 3.0	ND 3.0	ND 1.0	ND 3.0	ND 3.0	NA	
PCBs µg/L																	
Not Detected	ND 0.10	ND 0.5	ND 0.5	ND 0.5	ND 1.0	ND 0.10	ND 0.5	ND 0.5	ND 0.5	ND 1.0	ND 0.5	ND 0.5	ND 1.0	ND 0.5	ND 0.5	1.4J (1)	110J (2)
Total Metals µg/L																	
Aluminum	ND 21	NA	59.50 B	521	149	490	NA	257	610	ND 8.9	3960	224	ND 9.8	2120	1850	NA	
Arsenic	ND 9	ND 10	9.80 B	10.10	ND 2.0	ND 2.4	ND 10	ND 1.9	2.6 B	4.4	2.7 B	ND 2.0	5.4	2.6 B	ND 2.0	NA	
Barium	NA		73 B	52 BJ	182	NA		332	277	138	141 B	102 B	236	271	269	NA	
Calcium	26000	NA	28200	28700	32800	36000	NA	46800	44200	159000	124000	117000	129000	15600	141000	NA	
Chromium	ND 0.3	ND 10	ND 3.0	10.80 J	1.8	13	42	ND 3.0	26.8 J	ND 1.1	21.1	10 B	1.7	8.7 B	4.6 B	NA	
Iron	640	NA	2370	2530	ND 172	1100	NA	429	1060	924	5650	327	13700	13200	7240	NA	
Iron (soluble)	430	NA	NA	NA	NA	ND 2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	ND 1.2	ND 5	ND 2.0	R	ND 3.1	2.6	7	4.40 B	R	ND 1.8	9.60	R	ND 2.8	10.4	6.0 J	NA	
Magnesium	22000	NA	20400	20300	25800	28000	NA	31500	31500	91300	61200	62900	40000	41400	45600	NA	
Manganese	280	NA	576	845 J	76	350	NA	62.1	248 J	121	520	341 J	1180	2280	1920 J	NA	
Manganese (soluble)	260	NA	NA	NA	NA	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	NA		ND 11	ND 20	ND 7.9	NA		12 B	ND 20	26	113	32.6 B	ND 7.9	20.5 B	24.9 B		
Potassium	1200	NA	761 B	926 B	ND 2450	4000	NA	1900	3090 B	1760	3100	1770	31000	42700	41700	NA	
Sodium	32000	NA	27700	27300	52800	47000	NA	24000	28500	60500	21500	35500	33300	30400	31400	NA	
Boron	260	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Titanium	ND 0.60	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Molybdenum	72	NA	NA	NA	NA	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vanadium	ND 0.60	NA	ND 3.2	2.8 B	6.5	11	NA	ND 3.2	ND 1.0	ND 4.1	7.4 B	8.1 B	4.9	3.5 B	8.1 B	NA	
Zinc	72	NA	13 B	R	ND 3.2	36	NA	11 B	R	ND 3.2	R	11.8 BJ	ND 4.2	R	31.7 J	NA	
PCDD/PCDF pg/L																	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			NA			NA	

Notes:

NA - Not analyzed.
ND - Not detected at or above the associated value.
B - Compound detected in the blank.
J - Associated value is an estimation.
R - Data Rejected.
(1) All aroclors were ND0.10 J µg/L except 1221 which was detected at an estimated concentration of 1.4 µg/L.
(2) All aroclors were ND0.5 µg/L except 1232 which was detected at an estimated concentration of 110 µg/L.

TABLE 3.3

SUMMARY OF DETECTED PARAMETERS
BEDROCK PERIMETER WELLS
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well:	GW1D	GW1D	GW27S (Dup of GW1D)	GW1D-93	GW1D-01	GW1D-02	GW3D	GW3D	GW3D-93	GW3D-01	GW3D-02
Sampling Date:	4/11/01	12/20/94	12/20/94	02/93	10/89 to 12/89		4/10/01	12/16/94	02/93	10/89 to 12/89	
TCL Volatiles µg/L											
Vinyl Chloride	ND 2.0	ND 5	ND 5	ND 5	ND 20	ND 20	5.5	ND 5	ND 5	ND 20.0	ND 20.0
Acetone	ND 10	ND 10	ND 10	ND 5	NA	NA	2.3 J	ND 10	ND 5	NA	NA
Carbon Disulfide	ND 1.0	R	R	ND 5	NA	NA	ND 1.0	R	ND 5	NA	NA
Chlorobenzene	ND 1.0	ND 5	ND 5		ND 3.7	ND 3.7	1.6	ND 5		ND 3.7	ND 3.7
1,2-Dichloroethene (total)	ND 1.0	ND 5	ND 5	ND 5	NA	NA	2.9	1 J	ND 5	NA	NA
Benzene	ND 1.0	ND 0.7	ND 0.7	ND 5	ND 2.0	23	ND 1.0	ND 0.7	ND 5	ND 2.0	23.0
Toluene	ND 1.0	ND 5 J	ND 5 J	ND 5	ND 3.0	3.0	ND 1.0	ND 5 J	ND 5	ND 3.0	3.0
TCL Semi-Volatiles µg/L											
1,4-Dichlorobenzene	ND 10	NA	NA		ND 10	ND 10	3.4 J	NA		ND 10	ND 10
PCBs µg/L											
Not Detected	ND 1.0	ND 0.10	ND 0.10	ND 0.5	ND 0.5	R	ND 1.0	ND 0.10	ND 0.5	ND 0.5	ND 0.5
Total Metals µg/L											
Aluminum	ND 24	13	18	NA	56.1 B	89 B	ND 8.6	14	NA	78.1 B	82.4 B
Antimony	ND 4.1	NA	NA		ND 53	35 BJ	ND 4.1	NA		ND 53	ND 24
Arsenic	ND 2.0	ND 1.2	ND 1.2	ND 10	3.9 B	ND 2.0	3.3	ND 1.2	ND 10	3.9 B	3.6 B
Barium	44	NA	NA		25 B	34 BJ	112	NA		65 B	82 BJ
Calcium	108000	97000	94000	NA	30300	70700	144000	89000	NA	90700	121000
Chromium	7	ND 5.1	ND 5.1	ND 10	5.6 B	2.4 BJ	1.3	ND 5.1	ND 10	131 J	36 J
Iron	314	272	310	NA	272	185	1360	910	NA	4510	2510
Lead	ND 2.2	ND 1.0	ND 1.0	ND 5	ND 2.0	ND 2.0	ND 1.8	ND 1.0	7	3.1 B	R
Magnesium	40300	41000	40000	NA	7180	26300	24300	17000	NA	17400	23100
Manganese	18	14	14	NA	5.9 B	R	533	390	NA	234	580 J
Nickel	ND 7.9	NA	NA		17 B	ND 20	ND 7.9	NA		52	39 B
Potassium	ND 2580	2400	2300	NA	5330	3000	3670	1600	NA	2670 B	3110 B
Sodium	42800	57000	55000	NA	38800	41400	198000	38000	NA	67900	85800
Vanadium	5.1	NA	NA		ND 3.2	ND 1.0	ND 4.1	NA		ND 3.2	ND 1.0
Zinc	ND 12	NA	NA		ND 10	1.1 B	ND 7.1	NA		11B	R
PCDD/PCDF pg/L											
1,2,3,6,7,8-HxCDF	NA	1.9	NA	NA	NA	NA		NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	3.1	NA	NA	NA	NA		NA	NA	NA	NA

Notes:

NA - Not analyzed.
ND - Not detected at or above the associated value.
B - Compound detected in the blank.
J - Associated value is an estimation.
R - Data Rejected.

TABLE 3.3

SUMMARY OF DETECTED PARAMETERS
BEDROCK PERIMETER WELLS
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK

Well:	*GW4D*	*GW4D-93*	*GW4D-01*	*GW4D-02*	*GW5D*	*GW5D-93*	*GW5D-01*	*GW5D-02*	*GW7D*	*GW7D*	*GW7D-93*	*GW7D-01*	*GW7D-02*
Sampling Date:	*12/28/94*	*02/93*	*10/89 to 12/89*		*12/16/94*	*02/93*	*10/89 to 12/89*		*4/12/01*	*12/20/94*	*02/93*	*10/89 to 12/89*	
TCL Volatiles µg/L													
Vinyl Chloride	ND 5 J	ND 5	ND 20	ND 20	6	NA	ND 20	ND 20	ND 2.0	ND 5	ND 5	ND 20	ND 20
Acetone	R	ND 5	NA	NA	ND 10	NA	NA	NA	ND 10	ND 10	ND 5	NA	NA
Carbon Disulfide	R	ND 5	NA	NA	R	NA	NA	NA	ND 1.0	R	ND 5	NA	NA
Chlorobenzene	ND 5 J		ND 3.7	ND 3.7	ND 5	NA	ND 3.7	ND 3.7	ND 1.0	ND 5		ND 3.7	ND 3.7
1,2-Dichloroethene (total)	ND 5 J	ND 5	NA	NA	2 J	NA	NA	NA	ND 1.0	ND 5	ND 5	NA	NA
Benzene	ND 0.7 J	ND 5	ND 2.0	ND 2.0	ND 0.7	NA	ND 2.0	ND 2.0	ND 1.0	ND 0.7	ND 5	ND 2.0	ND 2.0
Toluene	ND 5 J	ND 5	ND 3.0	ND 3.0	ND 5 J	NA	ND 3.0	ND 3.0	ND 1.0	ND 5 J	ND 5	ND 3.0	ND 3.0
TCL Semi-Volatiles µg/L													
1,4-Dichlorobenzene	NA		ND 10	ND 10	NA	NA	ND 10	ND10	ND 10	NA		ND 10	ND 10
PCBs µg/L													
Not Detected	ND 0.10	ND 0.5	ND 2.5	R	ND 0.10	NA	ND 0.5	ND 0.5	NA 1.0	ND 0.10	ND 0.5	ND 0.5	ND 0.5
Total Metals µg/L													
Aluminum	14	NA	146 B	316	7500	NA	108 B	234	369	90	NA	559	1590
Antimony	NA		ND 53	ND 24	NA		ND 53	ND 24	5.0	NA		ND 53	ND 24
Arsenic	11	ND 10	ND 1.9	ND 2.0	2.0	NA	4.7 B	3.0 B	2.8	ND 1.2	ND 10	ND 1.9	ND 2.0
Barium	NA		34 B	29 BJ	NA		174 B	240 J	75	NA		97 B	60 BJ
Calcium	600000	NA	55600	81000	36	NA	115000	138000	51400	70000	NA	244000	156000
Chromium	45	50	728 J	11.5 J	ND 5.1	NA	12	ND 1.0	7.9	ND 5.1	ND 10	5.6 BJ	18.4 J
Iron	17000	NA	2260	594	ND 2.7	NA	5270	1250	3210	58	NA	161	933
Lead	7.2	15.0	2.3 B	R	ND 1.0	NA	ND 2.0	ND 2.0	171	ND 1.0	ND 5	2.9 B	6.8
Magnesium	50000	NA	29500	34700	ND 9.0	NA	36800	44400	2740	1500	NA	156	1210 B
Manganese	270	NA	47.6	R	2.4	NA	82.7	124 J	25	1.8	NA	ND 0.50	R
Nickel	NA		198	30 B	NA		21 B	ND 20	13	NA		ND 11	ND 20
Potassium	4200	NA	15600	3350	180	NA	6700	12400	13600	14000	NA	23300	20800
Sodium	32000	NA	41100	34300	230	NA	131000	354000	72600	61000	NA	58000	55000
Vanadium	NA		6.8 B	1.4 B	NA		ND 3.2	ND 1.0	6	NA		ND 3.2	1.4 B
Zinc	NA		14 B	R	NA		128	2.1 B	131	NA		21	R
PCDD/PCDF pg/L													
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed.
ND - Not detected at or above the associated value.
B - Compound detected in the blank.
J - Associated value is an estimation.
R - Data Rejected.

APPENDICES

APPENDIX A

ANALYTICAL DATA ASSESSMENT AND VALIDATION

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

The following document details an assessment and validation of analytical results reported by Severn Trent Laboratories (STL) in Pittsburgh, Pennsylvania for water samples collected at the Pfohl Brothers Landfill site (Site) in Cheektowaga, New York and for dioxin/furan analyses performed by Alta Analytical Laboratories, Inc. (Alta) in El Dorado Hills, California. For sample identification, a sampling and analysis summary is presented in Table 1. A summary of the analytical data is presented in Table 2.

Samples were analyzed as specified in Table 1. A summary of the analytical methodology is presented in Table 4. Tentatively Identified Compounds (TICs) were reported for Methods 8260B and 8270C, and are summarized in Table 3.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "Final (100%) Design Quality Assurance Project Plan (QAPP) Remedial Action" (March 2001), and the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, EPA 540/R-94/012; and

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

These documents will be referred to as the "Guidelines" hereafter.

Full Analytical Services Protocol (ASP) Category B deliverables were provided by the laboratory for the analyses. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting QA/QC provided.

2.0 SAMPLE HOLDING TIMES

The QAPP-specified holding time criteria are summarized in Table 4.

All sample extractions and analyses were performed within the required holding times.

All samples were properly preserved and cooled to 4°C(±2°) after collection. All samples were received by the laboratory in good condition within two days of sample collection.

3.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS)TUNING AND MASS CALIBRATION - VOLATILES AND SEMI-VOLATILES

Prior to analysis, Gas Chromatograph/Mass Spectrometer (GC/MS) instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, Methods 8260B and 8270C require the analysis of the specific tuning compounds bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP), respectively. The resulting spectra must meet the criteria cited in the methods before analysis is initiated. Analysis of the tuning compound must then be repeated every twelve hours throughout sample analysis to ensure the continued optimization of the instrument.

All instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the volatile organic compound (VOC) and SVOC analyses periods. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.0 INSTRUMENT CALIBRATION

4.1 GC/MS CALIBRATION - VOLATILES AND SEMI-VOLATILES

4.1.1 INITIAL CALIBRATION

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed.

Linearity of the curve and instrument sensitivity were evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) percent relative standard deviation (%RSD) values must not exceed 30 percent.

The initial calibration data for VOCs and SVOCs were reviewed. All RRFs for VOCs and SVOCs met the above criteria. One acetone calibration curve exceeded the %RSD criteria. All associated sample results were either non-detect or were qualified as estimated by the laboratory; no further qualification of the data was necessary.

4.1.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

The compound 2,2'-oxybis (1-chloropropane) slightly exceeded the 25 %D criteria for one SVOC calibration. The %D was exceeded due to an increase in sensitivity, and the associated data were non-detect; no qualification of the data was performed.

All remaining RRFs and %Ds were acceptable.

4.2 GC CALIBRATION - POLYCHLORINATED BIPHENYLS (PCBs)

To ensure that instrument performance was acceptable throughout chlorinated pesticide analysis, the criteria outlined in Method 8082 for initial and continuing instrument calibration have been evaluated.

4.2.1 INITIAL CALIBRATION

In order to quantify compounds of interest, calibration of the GC/ECD over a specific concentration range must be performed. Initially, five-point calibration curves were analyzed for Aroclors 1016 and 1260. All other Aroclors were analyzed separately at a single concentration.

Linearity of the calibration curves is acceptable if all RSD values are less than or equal to 15 percent. All initial calibration standards were analyzed at the required frequencies. All linearity criteria were satisfied as specified in the method.

4.2.2 CONTINUING CALIBRATION

To ensure that the calibration of the instrument is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis.

To evaluate the continued linearity of the calibration, %D values are calculated for each compound. As specified in the method, all %D values should be less than 20 percent.

All continuing calibration performed met the above criteria.

4.3 INSTRUMENT CALIBRATION - 2,3,7,8-TCDD/F

The high resolution gas chromatograph/high resolution mass spectrometer (HRGC/HRMS) instrument was properly tuned prior to sample analysis. All calibration data were acceptable, exhibiting adequate instrument sensitivity and linearity. Ion abundance ratios were within the method-specified control limits.

Calibration verification standards were analyzed at the proper frequency and all native and labeled analytes showed good correlation with the initial calibration curve. For each congener, the ion abundance ratios were within the method-specified control limits.

4.4 INORGANICS CALIBRATION

4.4.1 INITIAL CALIBRATION

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For trace inductively coupled plasma (ICP) analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve. For atomic absorption (AA) and cyanide analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve. Resulting correlation coefficients for curves consisting of a blank and five or more standards must be at least 0.995.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	*Inorganic Species*	*Control Limits (Percent)*
ICP	Metals	90 - 110
Cold Vapor AA	Mercury	80 - 120
Spectrophotometric	Cyanide	85 - 115

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses were properly calibrated prior to sample analyses.

4.4.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

5.0 SURROGATE SPIKE RECOVERIES

In accordance with the methods employed, all samples, blanks, and standards analyzed for VOCs, SVOCs, and PCBs were spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency. Surrogate recovery evaluations were performed as specified in the "Guidelines".

5.1 VOLATILES

Samples submitted for VOC determinations were spiked with four surrogate compounds prior to sample analysis.

All surrogate recoveries reported for the VOC analyses were within the method control limits, indicating good analytical efficiency.

5.2 SEMI-VOLATILES

Samples submitted for SVOC determinations were spiked with six surrogate compounds prior to sample extraction and analysis. Per the "Guidelines", it is acceptable for one surrogate recovery per fraction to be outside of the limits as long as the recovery is greater than 10 percent.

All sample surrogate recoveries met the above criteria, indicating good analytical efficiency.

5.3 PCBs

Samples submitted for PCB determinations were spiked with the surrogate compounds tetrachloro-m-xylene (TCMX) and decachlorobiphenyl (DCB) prior to sample preparation.

All surrogate recoveries were acceptable, indicating good analytical efficiency.

6.0 INTERNAL STANDARD RECOVERIES

6.1 VOLATILES AND SEMI-VOLATILES

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, internal standard compounds are added to all samples, blanks, and spike samples prior to VOC and SVOC analyses. All results are calculated as a ratio of the internal standard response. The criteria by which the internal standard results are assessed are as follows:

i) internal standard area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

All internal standard recoveries were acceptable, demonstrating good analytical performance.

6.2 2,3,7,8-TCDD/F

The proper IS compounds were added to all samples, blanks, and spike samples prior to extraction. Internal standards were used to quantify the 2,3,7,8-TCDD/F present in the samples (isotope-dilution mass spectrometry) as well as determine the overall method efficiency. All recoveries were acceptable. In addition, the proper cleanup standard was added to all samples, blanks, and spikes subsequent to extraction, but prior to fractionation. All recoveries showed acceptable analytical efficiency.

7.0 LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination introduced during analysis. Laboratory blanks are prepared from deionized water and analyzed as samples.

For this study, laboratory blanks were analyzed at a minimum frequency of one per analytical batch.

7.1 VOLATILES

A low level of acetone was detected in one VOC method blank. Associated detected acetone results up to ten times this level were qualified as non-detect (see Table 5).

7.2 SEMI-VOLATILES

Analysis of the laboratory blank yielded non-detect results for all SVOCs of interest. This indicates that contamination was not a factor in this analysis.

7.3 PCBs

Analysis of the laboratory blank yielded non-detect results for all PCBs of interest. This indicates that contamination was not a factor in this analysis.

7.4 2,3,7,8-TCDD/F

Analysis of the laboratory blank yielded non-detect results for the congeners of interest. This indicates that contamination was not a factor in this analysis.

7.5 INORGANICS ANALYSES

Upon review of the initial calibration blanks, continuing calibration blanks, and preparation blanks, it was noted that some metal and cyanide concentrations were detected above the IDL in the calibration and preparation blanks associated with the samples collected for this project.

In accordance with the "Guidelines" all sample results greater than the instrument detection limit but less than five times the amount detected in the associated blank were qualified as non-detect (see Table 5). All remaining investigative samples associated with contaminated laboratory blanks yielded either non-detect concentrations or concentrations greater than five times the associated laboratory blank concentrations for the analytes of interest. Qualification of the remaining sample data was not required on this basis.

8.0 BLANK SPIKE ANALYSES - ORGANICS

Blank spikes are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects. Blank spikes were performed for all analyses.

8.1 VOLATILES

Blank samples were spiked with the specified target compound list (TCL) VOCs. All blank spike sample analyses yielded recoveries within the method control limits, indicating acceptable analytical accuracy.

8.2 SEMI-VOLATILES

Blank samples were spiked with the specified TCL SVOCs. Most blank spike sample analyses yielded recoveries within the method control limits, indicating acceptable analytical accuracy. One low blank spike recovery for n-nitrosodi-n-propylamine was reported. All associated sample results were qualified as estimated based on a possible low bias (see Table 6).

8.3 PCBs

Blank samples were spiked with specified TCL PCB compounds prior to extraction. All recoveries reported for the blank spikes were within the method control limits, indicating acceptable analytical accuracy.

8.4 2,3,7,8,-TCDD/F

Ongoing precision and recovery (OPR) standards were extracted and analyzed along with the samples to assess analytical accuracy. All recoveries were acceptable, indicating good analytical accuracy.

9.0 LABORATORY CONTROL SAMPLE ANALYSES - INORGANICS

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs were analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were reported for all inorganics analyses. All LCS samples yielded recoveries within the established control limits, indicating acceptable overall laboratory performance.

10.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES - ORGANICS

The recoveries of MS/MSD analyses are used to assess the analytical accuracy achieved on individual sample matrices. The RPD between the MS and MSD is used to assess analytical precision.

TCL analyses are spiked with method-specified analytes. Samples chosen for MS/MSD analyses are specified in Table 1.

10.1 VOLATILES

All recoveries and RPDs were acceptable, indicating good laboratory accuracy and precision.

10.2 SEMI-VOLATILES

All recoveries and RPDs were acceptable, indicating good laboratory accuracy and precision.

10.3 PCBs

All recoveries and RPDs were acceptable, indicating good laboratory accuracy and precision.

10.4 2,3,7,8-TCDD/F

All recoveries and RPDs were acceptable, indicating good laboratory accuracy and precision.

11.0 MATRIX SPIKE ANALYSES - INORGANICS

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. The established control limits for inorganic matrix spike recoveries are 75 to 125 percent. Per the "Guidelines", qualification of metals data is not required if the sample result exceeds four times the spike concentration added. The sample chosen for spike analyses is specified in Table 1.

All MS analyses performed were acceptable, demonstrating good analytical accuracy.

12.0 DUPLICATE SAMPLE ANALYSES - INORGANICS

For inorganic parameters, analytical precision is evaluated based on the analysis of duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1.

In accordance with the "Guidelines", laboratory duplicate results should have a maximum RPD of 20 percent for water samples.

All duplicate analyses performed were acceptable, demonstrating good analytical precision.

13.0 ICP SERIAL DILUTION

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of one investigative sample is analyzed at a five-fold dilution. For samples yielding analyte concentrations greater than 50 times the IDL, the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on the sample chosen as the MS sample. All analyses met the above criteria.

14.0 ICP INTERFERENCE CHECK SAMPLE ANALYSIS (ICS)

To verify that proper inter-element and background correction factors have been established by the laboratory, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium, and iron and are analyzed at the beginning and end of each sample analysis period.

ICS analysis results were evaluated for all samples. All ICS recoveries were within the established control limits of 80 to 120 percent. Some false positives were detected, but the associated samples did not have comparable interferent levels and further evaluation was not necessary.

15.0 TICs

Chromatographic peaks recorded during volatile and semi-volatile sample analyses which are not target compounds, surrogates, or internal standards, are potential TICs. The ten largest TICs for TCL volatiles and 20 largest TICs for TCL semi-volatiles that exhibit areas greater than 10 percent of the area of the nearest internal standard are tentatively identified and quantified.

A summary of the TICs is presented in Table 3. TICs which were present in laboratory blanks or were identified as aldol condensation products were rejected and are not included in the table.

16.0 FIELD QA/QC

16.1 FIELD DUPLICATES

To assess the analytical and sampling protocol precision, one field duplicate (as identified in Table 1) was collected and submitted "blind" to the laboratory. All data outside of estimated regions of detection demonstrated acceptable agreement.

16.2 TRIP BLANKS

For this program, three trip blanks were submitted for VOC analysis. The purpose of trip blank analysis is to monitor possible ambient contamination from sample collection, transport, and storage.

Most trip blank results were non-detect for the VOCs of interest. Acetone was present at low levels in two of the trip blanks. All associated detected sample results were previously qualified for laboratory blank contamination, and no further qualification of the data was necessary.

17.0 CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by STL and Alta are acceptable with the specific qualifications noted within.

TABLES

TABLE 1
SAMPLE COLLECTION AND ANALYSES SUMMARY
GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

				Analyses					
Sample Date	*Sample Number*	*Location*	*Comments*	*TCL VOCs*	*TCL SVOCs*	*PCBs*	*Total TAL Metals*	*Cyanide*	*2,3,7,8-TCDD/F*
4/10/2001	W-1979-0401-001	GW-8S	MS/MSD (VOCs only)	x	x	x	x	x	x
4/10/2001	W-1979-0401-002	GW-9S		x	x	x	x	x	x
4/10/2001	W-1979-0401-003	GW-9S	Field Duplicate of W-1979-0401-002	x	x	x	x	x	x
4/10/2001	W-1979-0401-004	GW-3D		x	x	x	x	x	x
4/10/2001	W-1979-0401-005	GW-3S		x	x	x	x	x	x
4/10/2001	W-1979-0401-TB1	---	Trip Blank	x					
4/11/2001	W-1979-0401-006	GW-1S	MS/MSD/Duplicate	x	x	x	x	x	x
4/11/2001	W-1979-0401-007	GW-1D		x	x	x	x	x	x
4/11/2001	W-1979-0401-008	GW-7S		x	x	x	x	x	x
4/11/2001	W-1979-0401-TB2	---	Trip Blank	x					
4/12/2001	W-1979-0401-009	GW-7D		x	x	x	x	x	x
4/12/2001	W-1979-0401-TB3	---	Trip Blank	x					

Notes:
TCL Target Compound List.
TAL Target Analyte List.
PCBs Polychlorinated Biphenyls.
MS/MSD Matrix Spike/Matrix Spike Duplicate.
VOCs Volatile Organic Compounds.
SVOCs Semi-Volatile Organic Compounds.

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-1D	GW-1S	GW-3D	GW-3S	GW-7D	GW-7S	GW-8S	GW-9S
Sample ID:		W-1979-0401-007	W-1979-0401-006	W-1979-0401-004	W-1979-0401-005	W-1979-0401-009	W-1979-0401-008	W-1979-0401-001	W-1979-0401-002
Sample Date:		04/11/2001	04/11/2001	04/10/2001	04/10/2001	04/12/2001	04/11/2001	04/10/2001	04/10/2001
Parameters	**Units**								
Dioxins/Furans									
2,3,7,8-TCDD	pg/L	ND(1.45)	ND(1.23)	ND(0.513)	ND(0.501)	ND(0.828)	ND(1.21)	ND(1.49)	ND(0.829)
2,3,7,8-TCDF	pg/L	ND(3.02)	ND(2.36)	ND(1.08)	ND(1.59)	ND(1.91)	ND(1.94)	ND(1.99)	ND(1.26)
General Chemistry									
Cyanide, total	ug/L	ND(4.0)	ND(4.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(2.0)
TAL Metals									
Aluminum	ug/L	ND(23.8)	ND(21.8)	ND(8.6)	ND(13.0)	369	149	ND(8.9)	ND(9.8)
Antimony	ug/L	ND(4.1)	ND(4.1)	ND(4.1)	ND(4.1)	5.0	ND(4.1)	ND(4.1)	ND(4.1)
Arsenic	ug/L	ND(2.0)	ND(2.0)	3.3	2.1	2.8	ND(2.0)	4.4	5.4
Barium	ug/L	44.3	199	112	80.8	74.7	182	138	236
Beryllium	ug/L	ND(0.077)	ND(0.077)	ND(0.077)	ND(0.077)	ND(0.077)	ND(0.077)	ND(0.077)	ND(0.077)
Cadmium	ug/L	ND(0.63)	ND(0.63)	ND(0.63)	ND(0.63)	ND(0.63)	ND(0.63)	ND(0.63)	ND(0.63)
Calcium	ug/L	108000	208000	144000	65500	51400	32800	159000	129000
Chromium	ug/L	6.9	1.7	1.3	ND(1.1)	7.9	1.8	ND(1.1)	1.7
Cobalt	ug/L	ND(2.6)	ND(2.6)	ND(2.6)	ND(2.6)	ND(2.6)	ND(2.6)	ND(2.6)	ND(2.6)
Copper	ug/L	ND(5.4)	ND(21.8)	ND(11.9)	ND(4.7)	ND(19.6)	ND(1.3)	ND(4.9)	ND(11.7)
Iron	ug/L	314	6070	1360	1210	3210	ND(172)	924	13700
Lead	ug/L	ND(2.2)	ND(2.0)	ND(1.8)	ND(1.8)	171	ND(3.1)	ND(1.8)	ND(2.8)
Magnesium	ug/L	40300	35600	24300	46800	2740	25800	91300	40000
Manganese	ug/L	18.2	851	533	219	24.9	76.2	121	1180
Mercury	ug/L	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)
Nickel	ug/L	ND(7.9)	ND(7.9)	ND(7.9)	ND(7.9)	13.0	ND(7.9)	26.2	ND(7.9)
Potassium	ug/L	ND(2580)	ND(1750)	3670	1570	13600	ND(2450)	1760	31000
Selenium	ug/L	ND(3.2)	ND(3.2)	ND(3.2)	ND(3.2)	ND(3.2)	ND(3.2)	ND(3.2)	ND(3.2)
Silver	ug/L	ND(1.1)	ND(0.95)	ND(1.3)	ND(0.84)	ND(0.90)	ND(0.77)	ND(1.4)	ND(1.6)
Sodium	ug/L	42800	397000	198000	13900	72600	52800	60500	33300
Thallium	ug/L	ND(5.7)	ND(5.7)	ND(5.7)	ND(5.7)	ND(5.7)	ND(5.7)	ND(5.7)	ND(5.7)
Vanadium	ug/L	5.1	ND(4.1)	ND(4.1)	ND(4.1)	6.1	6.5	ND(4.1)	4.9
Zinc	ug/L	ND(11.8)	ND(15.5)	ND(7.1)	133	131	ND(3.2)	ND(3.2)	ND(4.2)
TCL Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-1D	GW-1S	GW-3D	GW-3S	GW-7D	GW-7S	GW-8S	GW-9S
Sample ID:		W-1979-0401-007	W-1979-0401-006	W-1979-0401-004	W-1979-0401-005	W-1979-0401-009	W-1979-0401-008	W-1979-0401-001	W-1979-0401-002
Sample Date:		04/11/2001	04/11/2001	04/10/2001	04/10/2001	04/12/2001	04/11/2001	04/10/2001	04/10/2001
Parameters	Units								
TCL Volatile Organic Compounds (Cont'd)									
1,1-Dichloroethene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethene, total	ug/L	ND(1.0)	ND(1.0)	2.9	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloropropane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone	ug/L	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ug/L	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
4-Methyl-2-pentanone	ug/L	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Acetone	ug/L	ND(10)	ND(10)	2.3 J	2.0 J	ND(10)	ND(10)	2.2 J	ND(10)
Benzene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	0.88 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon disulfide	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon tetrachloride	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ug/L	ND(1.0)	ND(1.0)	1.6	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Chloroform	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
cis-1,3-Dichloropropene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethylbenzene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	0.63 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylene chloride	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Styrene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	4.3	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,3-Dichloropropene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	0.35 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl chloride	ug/L	ND(2.0)	ND(2.0)	5.5	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Xylenes, total	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TCL Semi-Volatile Organics									
1,2,4-Trichlorobenzene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,2-Dichlorobenzene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,3-Dichlorobenzene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,4-Dichlorobenzene	ug/L	ND(10)	ND(10)	3.4 J	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,2'-Oxybis(1-chloropropane)	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4,5-Trichlorophenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4,6-Trichlorophenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-1D	GW-1S	GW-3D	GW-3S	GW-7D	GW-7S	GW-8S	GW-9S
Sample ID:		W-1979-0401-007	W-1979-0401-006	W-1979-0401-004	W-1979-0401-005	W-1979-0401-009	W-1979-0401-008	W-1979-0401-001	W-1979-0401-002
Sample Date:		04/11/2001	04/11/2001	04/10/2001	04/10/2001	04/12/2001	04/11/2001	04/10/2001	04/10/2001
Parameters	**Units**								
TCL Semi-Volatile Organics (Cont'd)									
2,4-Dichlorophenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4-Dimethylphenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4-Dinitrophenol	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
2,4-Dinitrotoluene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,6-Dinitrotoluene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Chloronaphthalene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Chlorophenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Methylnapthalene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Methylphenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Nitroaniline	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
2-Nitrophenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
3,3'-Dichlorobenzidine	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
3-Nitroaniline	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
4,6-Dinitro-2-methylphenol	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
4-Bromophenyl-phenylether	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chloro-3-methylphenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chloroaniline	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chlorophenyl-phenylether	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Methylphenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Nitroaniline	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
4-Nitrophenol	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
Acenaphthene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Acenaphthylene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Anthracene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo[a]anthracene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo[a]pyrene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo[b]fluoranthene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo[g,h,i]perylene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo[k]fluoranthene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-chloroethoxy)Methane	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-chloroethyl)Ether	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-ethylhexyl)Phthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Butylbenzylphthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Carbazole	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Chrysene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
di-n-Butylphthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
di-n-Octylphthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibenzofuran	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibenz[a,h]anthracene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-1D	GW-1S	GW-3D	GW-3S	GW-7D	GW-7S	GW-8S	GW-9S
Sample ID:		W-1979-0401-007	W-1979-0401-006	W-1979-0401-004	W-1979-0401-005	W-1979-0401-009	W-1979-0401-008	W-1979-0401-001	W-1979-0401-002
Sample Date:		04/11/2001	04/11/2001	04/10/2001	04/10/2001	04/12/2001	04/11/2001	04/10/2001	04/10/2001
Parameters	Units								
TCL Semi-Volatile Organics (Cont'd)									
Diethylphthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dimethylphthalate	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Fluoranthene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Fluorene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorobenzene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorobutadiene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorocyclopentadiene	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
Hexachloroethane	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Indeno[1,2,3-cd]pyrene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Isophorone	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
N-Nitroso-di-n-propylamine	ug/L	ND(10)	ND(10)	ND(10) J	ND(10) J	ND(10)	ND(10)	ND(10) J	ND(10) J
N-Nitrosodiphenylamine	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Naphthalene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Nitrobenzene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Pentachlorophenol	ug/L	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)
Phenanthrene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Phenol	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Pyrene	ug/L	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
TCL PCBs									
Aroclor-1016	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1221	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1232	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1242	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1248	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1254	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Aroclor-1260	ug/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-9S
Sample ID:		W-1979-0401-003
Sample Date:		04/10/2001
		Dupl.
Parameters	Units	
Dioxins/Furans		
2,3,7,8-TCDD	pg/L	ND(0.537)
2,3,7,8-TCDF	pg/L	ND(1.37)
General Chemistry		
Cyanide, total	ug/L	ND(2.0)
TAL Metals		
Aluminum	ug/L	ND(15.0)
Antimony	ug/L	ND(4.1)
Arsenic	ug/L	4.8
Barium	ug/L	230
Beryllium	ug/L	ND(0.077)
Cadmium	ug/L	ND(0.63)
Calcium	ug/L	125000
Chromium	ug/L	1.1
Cobalt	ug/L	ND(2.6)
Copper	ug/L	ND(10.6)
Iron	ug/L	12500
Lead	ug/L	ND(1.8)
Magnesium	ug/L	39600
Manganese	ug/L	1130
Mercury	ug/L	ND(0.054)
Nickel	ug/L	ND(7.9)
Potassium	ug/L	30200
Selenium	ug/L	ND(3.2)
Silver	ug/L	ND(1.2)
Sodium	ug/L	33000
Thallium	ug/L	ND(5.7)
Vanadium	ug/L	ND(4.1)
Zinc	ug/L	ND(3.2)
TCL Volatile Organic Compounds		
1,1,1-Trichloroethane	ug/L	ND(1.0)
1,1,2,2-Tetrachloroethane	ug/L	ND(1.0)
1,1,2-Trichloroethane	ug/L	ND(1.0)
1,1-Dichloroethane	ug/L	ND(1.0)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-9S
Sample ID:		W-1979-0401-003
Sample Date:		04/10/2001
		Dupl.
Parameters	Units	
TCL Volatile Organic Compounds (Cont'd)		
1,1-Dichloroethene	ug/L	ND(1.0)
1,2-Dichloroethane	ug/L	ND(1.0)
1,2-Dichloroethene, total	ug/L	ND(1.0)
1,2-Dichloropropane	ug/L	ND(1.0)
2-Butanone	ug/L	ND(5.0)
2-Hexanone	ug/L	ND(5.0)
4-Methyl-2-pentanone	ug/L	ND(5.0)
Acetone	ug/L	1.8 J
Benzene	ug/L	ND(1.0)
Bromodichloromethane	ug/L	ND(1.0)
Bromoform	ug/L	ND(1.0)
Bromomethane	ug/L	ND(1.0)
Carbon disulfide	ug/L	ND(1.0)
Carbon tetrachloride	ug/L	ND(1.0)
Chlorobenzene	ug/L	ND(1.0)
Chloroethane	ug/L	ND(2.0)
Chloroform	ug/L	ND(1.0)
Chloromethane	ug/L	ND(2.0)
cis-1,3-Dichloropropene	ug/L	ND(1.0)
Dibromochloromethane	ug/L	ND(1.0)
Ethylbenzene	ug/L	ND(1.0)
Methylene chloride	ug/L	ND(2.0)
Styrene	ug/L	ND(1.0)
Tetrachloroethene	ug/L	ND(1.0)
Toluene	ug/L	ND(1.0)
trans-1,3-Dichloropropene	ug/L	ND(1.0)
Trichloroethene	ug/L	ND(1.0)
Vinyl chloride	ug/L	ND(2.0)
Xylenes, total	ug/L	ND(1.0)
TCL Semi-Volatile Organics		
1,2,4-Trichlorobenzene	ug/L	ND(10)
1,2-Dichlorobenzene	ug/L	ND(10)
1,3-Dichlorobenzene	ug/L	ND(10)
1,4-Dichlorobenzene	ug/L	ND(10)
2,2'-Oxybis(1-chloropropane)	ug/L	ND(10)
2,4,5-Trichlorophenol	ug/L	ND(10)
2,4,6-Trichlorophenol	ug/L	ND(10)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-9S
Sample ID:		W-1979-0401-003
Sample Date:		04/10/2001
		Dupl.
Parameters	**Units**	
TCL Semi-Volatile Organics (Cont'd)		
2,4-Dichlorophenol	ug/L	ND(10)
2,4-Dimethylphenol	ug/L	ND(10)
2,4-Dinitrophenol	ug/L	ND(50)
2,4-Dinitrotoluene	ug/L	ND(10)
2,6-Dinitrotoluene	ug/L	ND(10)
2-Chloronaphthalene	ug/L	ND(10)
2-Chlorophenol	ug/L	ND(10)
2-Methylnapthalene	ug/L	ND(10)
2-Methylphenol	ug/L	ND(10)
2-Nitroaniline	ug/L	ND(50)
2-Nitrophenol	ug/L	ND(10)
3,3'-Dichlorobenzidine	ug/L	ND(50)
3-Nitroaniline	ug/L	ND(50)
4,6-Dinitro-2-methylphenol	ug/L	ND(50)
4-Bromophenyl-phenylether	ug/L	ND(10)
4-Chloro-3-methylphenol	ug/L	ND(10)
4-Chloroaniline	ug/L	ND(10)
4-Chlorophenyl-phenylether	ug/L	ND(10)
4-Methylpnenol	ug/L	ND(10)
4-Nitroaniline	ug/L	ND(50)
4-Nitrophenol	ug/L	ND(50)
Acenaphthene	ug/L	ND(10)
Acenaphthylene	ug/L	ND(10)
Anthracene	ug/L	ND(10)
Benzo[a]anthracene	ug/L	ND(10)
Benzo[a]pyrene	ug/L	ND(10)
Benzo[b]fluoranthene	ug/L	ND(10)
Benzo[g,h,i]perylene	ug/L	ND(10)
Benzo[k]fluoranthene	ug/L	ND(10)
bis(2-chloroethoxy)Methane	ug/L	ND(10)
bis(2-chloroethyl)Ether	ug/L	ND(10)
bis(2-ethylhexyl)Phthalate	ug/L	ND(10)
Butylbenzylphthalate	ug/L	ND(10)
Carbazole	ug/L	ND(10)
Chrysene	ug/L	ND(10)
di-n-Butylphthalate	ug/L	ND(10)
di-n-Octylphthalate	ug/L	ND(10)
Dibenzofuran	ug/L	ND(10)
Dibenz[a,h]anthracene	ug/L	ND(10)

TABLE 2

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Sample Location:		GW-9S
Sample ID:		W-1979-0401-003
Sample Date:		04/10/2001
		Dupl.
Parameters	Units	
TCL Semi-Volatile Organics (Cont'd)		
Diethylphthalate	ug/L	ND(10)
Dimethylphthalate	ug/L	ND(10)
Fluoranthene	ug/L	ND(10)
Fluorene	ug/L	ND(10)
Hexachlorobenzene	ug/L	ND(10)
Hexachlorobutadiene	ug/L	ND(10)
Hexachlorocyclopentadiene	ug/L	ND(50)
Hexachloroethane	ug/L	ND(10)
Indeno[1,2,3-cd]pyrene	ug/L	ND(10)
Isophorone	ug/L	ND(10)
N-Nitroso-di-n-propylamine	ug/L	ND(10) J
N-Nitrosodiphenylamine	ug/L	ND(10)
Naphthalene	ug/L	ND(10)
Nitrobenzene	ug/L	ND(10)
Pentachlorophenol	ug/L	ND(50)
Phenanthrene	ug/L	ND(10)
Phenol	ug/L	ND(10)
Pyrene	ug/L	ND(10)
TCL PCBs		
Aroclor-1016	ug/L	ND(1.0)
Aroclor-1221	ug/L	ND(1.0)
Aroclor-1232	ug/L	ND(1.0)
Aroclor-1242	ug/L	ND(1.0)
Aroclor-1248	ug/L	ND(1.0)
Aroclor-1254	ug/L	ND(1.0)
Aroclor-1260	ug/L	ND(1.0)

Notes

ND()	-	Not detected at or above the quatitation limit listed in parentheses.
J	-	Estimated.
TAL	-	Target Analyte List.
TCL	-	Target Compound List.
PCBs	-	Polychlorinated Biphenyls.

TABLE 3
TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
GROUNDWATER SAMPLING
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NEW YORK
APRIL 2001

	Volatiles		*Semi-Volatiles*	
Sample Location	*Compound*	*Estimated Concentration (µg/L)*	*Compound*	*Estimated Concentration (µg/L)*
W-1979-0401-001	None	-	Unknown Substituted Benzoic	2.5 J
W-1979-0401-002	Propane, 2-methoxy-2-methyl-	2.4 J	None	-
W-1979-0401-003	Propane, 2-methoxy-2-methyl-	2.3 J	None	-
W-1979-0401-004	None	-	Unknowns	13 J
			Caprolactam	22 J
W-1979-0401-005	None	-	None	-
W-1979-0401-006	None	-	2-Pyrrolidinone, 1-methyl-	2.9 J
W-1979-0401-007	None	-	Caprolactam	110 J
			Unknowns	90 J
			Cyclic octaatomic sulfur	65 J
			Unknown Organic Acid	2.1 J
			Unknown Straight Alkane	8.8 J
			Unknown Alkane	5.9 J
W-1979-0401-008	None	-	Unknown	14 J
			Caprolactam	740 J
W-1979-0401-009	Propane	40 J	1-Hexanol, 2-ethyl-	3.3 J
	Isobutane	38 J	2-Pyrrolidinone, 1-methyl-	2.0 J
	Butane	12 J	Caprolactam	170 J
	Butane, 2-methyl-	10 J	Unknown Sulfur Compound	5.1 J
	Cyclohexane	2.1 J	2-Mercaptobenzothiazole	7.1 J
			Unknowns	30 J
			Unknown Organic Acid	5.5 J
			Octadecanoic acid	5.5 J
			Cyclic octaatomic sulfur	100 J

Notes:
- Not applicable.
J Associated value is estimated.

TABLE 4

SAMPLE HOLDING TIMES CRITERIA AND ANALYTICAL METHODS SUMMARY
GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Parameter	*Matrix*	*Analytical Method*	*VTSR to Extraction (Days)*	*VTSR/ Extraction to Analysis (Days)*
TCL Volatiles	Water	8260B [1]	-	7
TCL Semi-Volatiles	Water	8270C [1]	5	40
TCL PCBs	Water	8082 [1]	5	40
TAL Metals (except mercury)	Water	6010B [1]	-	180
Mercury	Water	7470A [1]	-	26
Cyanide	Water	9012A [1]	-	12
2,3,7,8-TCDD/F	Water	1613B [2]	-	180

Notes:

[1] Referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", (SW-846), Third Edition, 1986 and subsequent revisions.

[2] Method 1613: Tetra-through-Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS, Revision B, USEPA, September 1994.

PCBs Polychlorinated Biphenyls.

TAL Target Analyte List.

TCL Target Compound List.

VTSR Verified Time of Sample Receipt.

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE LABORATORY BLANKS
GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Parameter	*Analysis Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Result*	*Units*
Volatiles	04/16/01	Acetone	2.6J	W-1979-0401-006	2.9 J	ND (10)	µg/L
				W-1979-0401-007	1.7J	ND (10)	µg/L
				W-1979-0401-008	2.7 J	ND (10)	µg/L
				W-1979-0401-009	7.6 J	ND (10)	µg/L
Metals	PBLK 4/23/2001	Lead	2.2	W-1979-0401-002	2.8	ND (2.8)	µg/L
				W-1979-0401-006	2.0	ND (2.0)	µg/L
				W-1979-0401-007	2.2	ND (2.2)	µg/L
				W-1979-0401-008	3.1	ND (3.1)	µg/L
	PBLK 4/25/2001	Aluminum	8.9	W-1979-0401-001	8.9	ND (8.9)	µg/L
				W-1979-0401-002	9.8	ND (9.8)	µg/L
				W-1979-0401-003	15.0	ND (15.0)	µg/L
				W-1979-0401-005	13.0	ND (13.0)	µg/L
				W-1979-0401-006	21.8	ND (21.8)	µg/L
				W-1979-0401-007	23.8	ND (23.8)	µg/L
	PBLK 4/25/2001	Copper	20.6	W-1979-0401-001	4.9	ND (4.9)	µg/L
				W-1979-0401-002	11.7	ND (11.7)	µg/L
				W-1979-0401-003	10.6	ND (10.6)	µg/L
				W-1979-0401-004	11.9	ND (11.9)	µg/L
				W-1979-0401-005	4.7	ND (4.7)	µg/L
				W-1979-0401-006	21.8	ND (21.8)	µg/L
				W-1979-0401-007	5.4	ND (5.4)	µg/L
				W-1979-0401-009	19.6	ND (19.6)	µg/L

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE LABORATORY BLANKS
GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Parameter	*Analysis Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Result*	*Units*
Metals (Con'td)	PBLK 4/25/2001	Iron	48.6	W-1979-0401-008	172	ND (172)	µg/L
	PBLK 4/25/2001	Zinc	16	W-1979-0401-002	4.2	ND (4.2)	µg/L
				W-1979-0401-004	7.1	ND (7.1)	µg/L
				W-1979-0401-006	15.5	ND (15.5)	µg/L
				W-1979-0401-007	11.8	ND (11.8)	µg/L
	CCB1 4/23/2001	Silver	1.4	W-1979-0401-001	1.4	ND (1.4)	µg/L
				W-1979-0401-002	1.6	ND (1.6)	µg/L
				W-1979-0401-003	1.2	ND (1.2)	µg/L
				W-1979-0401-004	1.3	ND (1.3)	µg/L
				W-1979-0401-005	0.84	ND (0.84)	µg/L
				W-1979-0401-006	0.95	ND (0.95)	µg/L
				W-1979-0401-007	1.1	ND (1.1)	µg/L
				W-1979-0401-008	0.77	ND (0.77)	µg/L
				W-1979-0401-009	0.90	ND (0.90)	µg/L
	CCB2 4/25/01	Potassium	581	W-1979-0401-006	1750	ND (1750)	µg/L
				W-1979-0401-007	2580	ND (2580)	µg/L
				W-1979-0401-008	2450	ND (2450)	µg/L

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE LABORATORY BLANKS
GROUNDWATER SAMPLING EVENT
PFOHL BROTHERS LANDFILL SITE
CHEEKTOWAGA, NEW YORK
APRIL 2001

Parameter	*Analysis Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Result*	*Units*
Cyanide	MBLK 4/17/01	Cyanide	4.0	W-1979-0401-001	1.0	ND (1.0)	µg/L
				W-1979-0401-002	2.0	ND (2.0)	µg/L
				W-1979-0401-003	2.0	ND (2.0)	µg/L
				W-1979-0401-004	2.0	ND (2.0)	µg/L
				W-1979-0401-005	2.0	ND (2.0)	µg/L
				W-1979-0401-006	4.0	ND (4.0)	µg/L
				W-1979-0401-007	4.0	ND (4.0)	µg/L
				W-1979-0401-008	2.0	ND (2.0)	µg/L
				W-1979-0401-009	2.0	ND (2.0)	µg/L

Notes:

ND Non-detect at associated value.

J Associated value is estimated.

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING BLANK SPIKE SAMPLE RESULTS

GROUNDWATER SAMPLING EVENT

PFOHL BROTHERS LANDFILL SITE

CHEEKTOWAGA, NEW YORK

APRIL 2001

Parameter	*Compound*	*% Recovery*	*Control Limits (%)*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
Semi-volatiles	n-Nitrosodi-n-propylamine	19	30-115	W-1979-0401-001	ND 10	µg/L	J
				W-1979-0401-002	ND 10	µg/L	J
				W-1979-0401-003	ND 10	µg/L	J
				W-1979-0401-004	ND 10	µg/L	J
				W-1979-0401-005	ND 10	µg/L	J

Notes:

ND Non-detect at associated value.

J Associated value is estimated.