SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2012 TO JUNE 2012
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY

Submitted to:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203

Prepared by:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NEW YORK 14203

Prepared for:

TOWN OF CHEEKTOWAGA
ENGINEERING DEPARTMENT
275 ALEXANDER AVE
CHEEKTOWAGA, NEW YORK 14211

SEPTEMBER
2012

URS

September 24, 2012

Mr. Jaspal Singh Walia, P.E.
New York State Department of Environmental Conservation
270 Michigan Ave.
Buffalo, NY 14203

Re: Semi-Annual Report
Pfohl Brothers Landfill, Town of Cheektowaga, New York

Dear Mr. Walia:

Enclosed is one copy of the seventeenth Semi-Annual Report for the Pfohl Brothers Landfill in Cheektowaga, New York. A copy has also been sent to Ms. Pamela Tames, P.E. of the United States Environmental Protection Agency. Also enclosed is the Data Applicability Report for laboratory analyses associated with the Semi-Annual Report. PDF copies of the reports are also enclosed.

If you have any questions on this report, please feel free to contact me.

Sincerely,

URS CORPORATION

Jon Sundquist, Ph.D.
Project Manager

Enclosures

cc: Pamela Tames, P.E. - USEPA (w/attachments)
William Pugh, P.E. – Town of Cheektowaga (w/attachments)
File 11172700 (C-1)

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1.0 INTRODUCTION

1.1 Background

The Pfohl Brothers Landfill is located on Aero Drive in the Town of Cheektowaga, New York (Figure 1-1). The site is listed as site No. 9-15-043 on the New York State Department of Environmental Conservation's (NYSDEC's) Registry of Inactive Hazardous Waste Disposal Sites. A Consent Order between NYSDEC and potentially responsible parties (PRPs) for closure of the site was signed in 2001 and remedial construction commenced in 2001. The remedy included consolidation of waste material, capping of the waste disposal and consolidation areas, and encircling the landfill areas with a groundwater collection system to prevent off-site migration. The remedial action was completed in 2002.

Responsibility for implementing the remedy was divided between a "steering committee" of industrial PRPs and the Town of Cheektowaga. The steering committee responsibilities lay generally with the capital construction activities of the remedy including waste consolidation, cap and drainage system installation, etc. The Town of Cheektowaga, which was named as a PRP for disposal of municipal waste at the Pfohl Brothers Landfill when it was operating, is performing the operation and maintenance (O&M) activities at the landfill, pursuant to a settlement agreement between the Town and the steering committee.

1.2 Operation and Maintenance Activities

While construction of the remedy was substantially complete by late 2002, the final O&M manual was not approved by the NYSDEC until March 10, 2006. However, the Town of Cheektowaga and its consultant (URS Corporation – New York) assumed most of the operational responsibilities since 2002. This includes a variety of general maintenance activities as outlined in Section 2 and sampling and other monitoring activities outlined in Section 3.

Beginning in 2004, the Town and URS assumed all of the O&M activities described in the O&M plan. This report is the seventeenth semi-annual report as called for by Section 3.6 of the O&M plan.

2.0 GENERAL MAINTENANCE ACTIVITIES

Since completion of construction activities in 2002, personnel from the Town of Cheektowaga Engineering Department have performed general activities to ensure the physical operation of the landfill as intended by the design. The various O&M activities performed by the Town from January 2012 through June 2012 include the following actions.

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet are attached in Appendix A.

- Total cumulative effluent flow rates and volumes were summarized on a monthly basis starting in February 2003. The monthly totals for the period of January 2012 through June 2012, including graphs showing daily total discharge (gallons) as a function of calendar day, are presented in Appendix B.

- The wet well pumps were shutdown during wet weather flow conditions throughout the year to reduce hydraulic loading to the sewer. Such actions were only taken upon request of the Buffalo Sewer Authority during heavy storm events in order to reduce the hydraulic load on the BSA treatment system during such events. Shutdown events are recorded and included with the monthly flow data as previously requested by NYSDEC.

- Plowed snow to access the Control Building when necessary.

- Cleaned/replaced check valves as necessary at all wet wells.

- Replaced surge protector for WW4 (May 2012).

- Prepared bid specifications for mowing landfill cap and awarded new contract for calendar years 2012, 2013, and 2014.

- Wildlife trapper engaged as needed to control ground burrowing animals.

3.0 MONITORING ACTIVITIES

The Town of Cheektowaga retained URS Corporation to perform monitoring activities as outlined in Section 3.1 of the O&M plan. During the period of January 2004 through the present, URS performed groundwater hydraulic monitoring (Section 3.1.1.2 of the O&M plan) and effluent monitoring (Section 3.1.4 of the O&M plan) on a quarterly basis. URS also performed the seventeenth semi-annual groundwater quality monitoring event (Section 3.1.1.3 of the O&M plan). A summary of the monitoring activities is presented in the following subsections. Hydraulic and groundwater sampling locations are shown on Figure 3-1.

3.1 Groundwater Hydraulic Monitoring

Groundwater and surface water elevations were monitored on a quarterly basis at all locations listed in Table 3.1 of the O&M Plan. The hydraulic monitoring data tables showing groundwater elevations are presented in Appendix C. Table 1 of this appendix lists the measured elevations. Table 2 provides a comparison of the measured levels in the wells and corresponding manholes/wet wells.

The data presented in Appendix C indicate that groundwater levels outside the collection system were higher than the levels measured in the corresponding wet well or manhole for each measurement date. Therefore, these data demonstrate that the collection system is operating as designed.

3.2 Groundwater Quality Monitoring

The seventeenth semi-annual round of groundwater sampling was conducted between May 15, 2012 and May 17, 2012. All wells listed in Table 3.2 of the O&M plan were purged and sampled using dedicated/disposable equipment. Figure 3-1 shows the well locations. Low flow sampling techniques were used on most wells.

Passive diffusion bags (PDBs) were placed in three wells with low recharge rates (GW-4S, GW-7S, and GW-7D) on March 26, 2012. The PDBs were removed from the wells during the sampling event and their contents were analyzed for VOCs. Following removal of the PDBs the three wells were purged dry. These wells were sampled for the other required parameters after their water levels recovered.

Purge logs and sampling summary sheets are provided in Appendix D. Measurements of pH, specific conductivity, temperature, dissolved oxygen, oxidation reduction potential, and turbidity taken during purging are provided in Appendix D. The samples were packed with ice in coolers and transported under chain-of-custody (CoC) control to Test America Laboratories of Amherst, New York.

Groundwater samples were analyzed for the parameters listed in Table 3.2 of the O&M plan as revised in accordance with Table 3-6 in the Semi Annual Report dated September 2007 (January through June 2007) and as approved by the December 6, 2006 and November 29, 2007 correspondence from the NYSDEC authorizing a reduction in the parameters list (this table is included in this report as Table 3-2). Table 3-1 of this report presents the groundwater sample results compared with NYSDEC Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Class GA water quality standards.

Results

Only one VOC (vinyl chloride at location GW-30S) was detected at a concentration that exceeded Class GA water quality standards. This is the first time vinyl chloride has been detected in this well since O&M sampling began in 2004. No SVOCs were detected at concentrations above the Class GA water quality standards at any location

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. Antimony, chromium, lead, and nickel were detected at concentrations exceeding Class GA standards in well GW-07D. Arsenic was detected at a concentration exceeding Class GA standards in well GW-29S.

Comparison to Historical Results

No significant changes in metals concentrations were observed when compared to previous sampling event analytical results. The concentration of iron, magnesium, manganese, and sodium in most site wells was similar to the concentrations found during previous sampling events.

The concentrations of chromium and nickel at GW-07D and GW-03S, and lead at GW-07D were within the historical range of concentrations observed for these compounds at these wells.

Sodium concentrations were generally higher in bedrock wells (GW-01D, GW-03D, GW-08D and GW-26D) and shallow wells adjacent to roads (GW-01S and GW-30S). The sodium concentration was also elevated in GW-08SR. The higher sodium concentrations in the bedrock wells may be attributed to the local bedrock composition and the elevated concentration in the shallow wells may be the result of seasonal road de-icing activities.

Trend Analysis

Appendix E, Figures E-1 through E-19 presents a trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters exceeding groundwater standards have occurred over the seventeen semi-annual sampling events except as described below. Figure E-2 for GW-01S, indicates a consistent drop in sodium concentration over the seventeen sampling events. Figure E-4 indicates a slight upward trend for magnesium in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-7 for GW-07D shows an upward trend for chromium over the last seven events. Figure E-9 for GW-08D shows a decreasing trend for both iron and manganese since monitoring began. Figures E-10 and E-11 for GW-08SR and GW-26D, respectively, show an upward trend in sodium concentrations since monitoring began. Figures E-

12 and E-14 for GW-28S and GW-30S, respectively, indicate a decreasing trend for sodium since monitoring began.

Laboratory Report

The groundwater analytical data package was prepared by Test America in accordance with NYSDEC Category A deliverable requirements. It was reviewed for compliance with analytical method requirements and the following guidelines: USEPA *Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA-540-R-99-008, October 1999; USEPA *CLP National Functional Guidelines for Inorganic Data Review*, EPA-540-R-01-008, July 2002; and USEPA *Region II Data Validation SOP for SW-846 Method 8290, PCDDs and PCDFs by High Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS)*, SOP No. HW-19, Revision 1, October 1994. Qualifications applied to the data include "J/UJ" (estimated concentration/estimated quantitation limit), "J+" (estimated concentration with possible high bias), "J-" (estimated concentration with possible low bias), and "U" (not detected).

A Data Applicability Report (DAR) was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation (DER-10) *Technical Guidance for Site Investigation and Remediation, Appendix 2B,* dated May 2010. The DAR dated June 2012 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2012 and June 2012) of the groundwater collection system discharge since the previous semi-annual report. The sampling was performed in accordance with the requirements of Discharge Permit No. 10-11-CH016 between the Buffalo Sewer Authority and the Town of Cheektowaga. A copy of Permit No. 10-11-CH016 is included as Appendix F.

During the sampling events in March 2012 and June 2012, each regulated parameter was below the limits set by the permit. Copies of the data summary tables that were included with the monitoring reports are included as Appendix G.

3.4 Monitoring Well Inspections

During the May 2012 groundwater sampling event, a well inspection was performed. All wells appeared to be in good condition with the exception of previously existing damage to the risers on GW-07D, GW-01S, and GW-01D. The monitoring well inspection logs may be found in Appendix H.

4.0 SUMMARY AND RECOMMENDATIONS

General Maintenance: The Town will continue to maintain mechanical equipment at the landfill on an as-needed basis and operate the groundwater collection and discharge system as designed. The Town will also continue regular inspections, mow the cap once per year, and plow access to the control building during winter months as necessary.

Groundwater Hydraulic Monitoring: Hydraulic monitoring has been performed on a quarterly basis in conjunction with the discharge monitoring. Water level measurement data demonstrates that the hydraulic gradient is from outside the landfill towards the collection trench. Continued quarterly monitoring is recommended.

Groundwater Quality Monitoring: Groundwater sample results indicate that only low levels of organic compounds and metals are present. Similar concentrations of most parameters were found during previous sampling events. The eighteenth round of groundwater sampling will be conducted in November 2012. Low flow sampling techniques will be used. Passive diffusion bags will be used again for VOC analyses at the three wells (GW-4S, GW-7S, and GW-7D) that go dry even using low flow sampling techniques.

Groundwater Discharge Monitoring: Groundwater discharges remain within permit limits. Continued quarterly monitoring is recommended.

TABLES

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2012

Location ID			GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Sample ID			GW-1D	GW-1S	GW-3D	GW-3S	GW-4D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/17/12	05/17/12	05/15/12	05/15/12	05/16/12
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Vinyl chloride	UG/L	2					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			0.72 J		
1,4-Dichlorobenzene	UG/L	3			2.1 J		
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025		0.0058 J			
Barium	MG/L	1	0.072	0.15	0.091	0.15	0.073
Cadmium	MG/L	0.005				0.00056 J	
Chromium	MG/L	0.05	0.026			0.029	0.0030 J
Copper	MG/L	0.2	0.0027 J	0.0018 J		0.0019 J	
Iron	MG/L	0.3	2.8	7.4	1.8	0.91	0.21
Lead	MG/L	0.025					
Magnesium	MG/L	35	35.2	11.2	17.2	81.1	70.1
Manganese	MG/L	0.3	0.021	0.75	0.55	0.25	0.016
Mercury	MG/L	7.00E-04					
Nickel	MG/L	0.1			0.0033 J	0.097	
Sodium	MG/L	20	92.6 J-	99.3 J-	214 J-	34.8 J-	77.4 J-
Zinc	MG/L	2	0.014	0.0027 J	0.0085 J	0.0094 J	0.023

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA. * - PCB Criteria based on sum of the aroclors.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

J - The analyte was positively identified, the quantitation is an estimation.

Blank - not detected. - = No criteria.

Only Detected Results Reported.

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[LOGDATE] BETWEEN #5/15/2012# AND #5/17/2012# AND ([SACODE] = 'N' OR [SACODE] = 'FD'

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2012

Location ID			GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Sample ID			GW-4S	GW-7D	GW-7D	GW-7S	GW-7S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/16/12	05/15/12	05/16/12	05/15/12	05/16/12
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			NA		NA
Vinyl chloride	UG/L	2			NA		NA
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3		NA		NA	
1,4-Dichlorobenzene	UG/L	3		NA		NA	
Antimony	MG/L	0.003		NA	0.013 J	NA	
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.12	NA	0.084	NA	0.26
Cadmium	MG/L	0.005		NA	0.0021	NA	0.0013
Chromium	MG/L	0.05	0.021	NA	0.45	NA	0.035
Copper	MG/L	0.2	0.0062 J	NA	0.050	NA	0.0017 J
Iron	MG/L	0.3	4.5	NA	13.2	NA	0.69
Lead	MG/L	0.025	0.0035 J	NA	0.18	NA	
Magnesium	MG/L	35	27.6	NA	31.7	NA	32.8
Manganese	MG/L	0.3	0.19	NA	0.13	NA	0.039
Mercury	MG/L	7.00E-04	0.00013 J	NA		NA	
Nickel	MG/L	0.1	0.011	NA	0.22	NA	0.023
Sodium	MG/L	20	29.5 J-	NA	81.8 J-	NA	55.9 J-
Zinc	MG/L	2	0.022	NA	0.080	NA	0.0070 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2012

Location ID			GW-08D	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID			DUPLICATE	GW-8D	GW-8SR	GW-26D	GW-28S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/15/12	05/15/12	05/15/12	05/16/12	05/16/12
Parameter	**Units**	*	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5				2.0	
Vinyl chloride	UG/L	2					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025			0.011	0.0075 J	
Barium	MG/L	1	0.11	0.10	0.46	0.18	0.076
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0014 J	0.0034 J	0.0020 J	0.0013 J	
Copper	MG/L	0.2	0.0037 J	0.0028 J			
Iron	MG/L	0.3	0.18	0.13	29.4	6.2	0.092
Lead	MG/L	0.025					
Magnesium	MG/L	35	16.9	16.7	47.3	21.5	29.1
Manganese	MG/L	0.3	0.14	0.14	1.4	0.81	0.88
Mercury	MG/L	7.00E-04					
Nickel	MG/L	0.1	0.0041 J	0.0040 J	0.0031 J	0.0021 J	0.0016 J
Sodium	MG/L	20	244 J-	243 J-	360 J-	419 J-	17.3 J-
Zinc	MG/L	2	0.025	0.015	0.0022 J		0.0055 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2012

Location ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/16/12	05/17/12	05/17/12	05/17/12	05/17/12
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Vinyl chloride	UG/L	2		5.3			
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025	0.029				
Barium	MG/L	1	0.20	0.18	0.059	0.057	0.017
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05			0.0016 J	0.0013 J	
Copper	MG/L	0.2			0.0022 J	0.0019 J	
Iron	MG/L	0.3	18.0	14.5	0.42	0.044 J	0.080
Lead	MG/L	0.025					
Magnesium	MG/L	35	103	45.2	29.3	32.5	40.0
Manganese	MG/L	0.3	0.78	1.7	0.87	0.29	0.47
Mercury	MG/L	7.00E-04					
Nickel	MG/L	0.1		0.0025 J	0.0096 J		0.0025 J
Sodium	MG/L	20	11.4 J-	115 J-	4.8 J-	4.1 J-	4.6 J-
Zinc	MG/L	2			0.0067 J	0.0030 J	0.0043 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2012

Location ID			GW-34S	GW-35S
Sample ID			GW-34S	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			05/16/12	05/16/12
Parameter	**Units**	*		
Volatile Organic Compounds				
1,2-Dichloroethene (total)	UG/L	5		
Vinyl chloride	UG/L	2		
Semivolatile Organic Compounds				
1,3-Dichlorobenzene	UG/L	3		
1,4-Dichlorobenzene	UG/L	3		
Antimony	MG/L	0.003		
Arsenic	MG/L	0.025		
Barium	MG/L	1	0.14	0.074
Cadmium	MG/L	0.005		
Chromium	MG/L	0.05	0.0035 J	0.0011 J
Copper	MG/L	0.2		
Iron	MG/L	0.3	0.37	0.084
Lead	MG/L	0.025		
Magnesium	MG/L	35	53.1	23.4
Manganese	MG/L	0.3	0.092	0.30
Mercury	MG/L	7.00E-04		
Nickel	MG/L	0.1	0.0075 J	0.0014 J
Sodium	MG/L	20	32.9 J-	2.7 J-
Zinc	MG/L	2	0.0022 J	0.0024 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-2

APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

GROUNDWATER SAMPLING SUMMARY
OPERATION AND MAINTENANCE PLAN
PFOHL BROTHERS LANDFILL SITE, CHEEKTOWAGA, NEW YORK

LOCATIONS

GW-1D/1S
GW- 3D/3S
GW- 4D/4S
GW- 7D/7S
GW- 8D/8S(R)
GW- 26D/35S
GW- 28S
GW- 29S
GW- 30S
GW- 31S
GW- 32S
GW- 33S
GW- 34S

FREQUENCY

semi-annually for overburden and bedrock groundwater

PARAMETERS

Field	pH conductivity temperature turbidity
VOCs	Acetone Benzene 1,2-Dichloroethene (total) 1,1,2-Trichloroethane Vinyl chloride
SVOCs	Phenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene bis(2-Ethylhexyl)phthalate

TABLE 3-2 (continued)

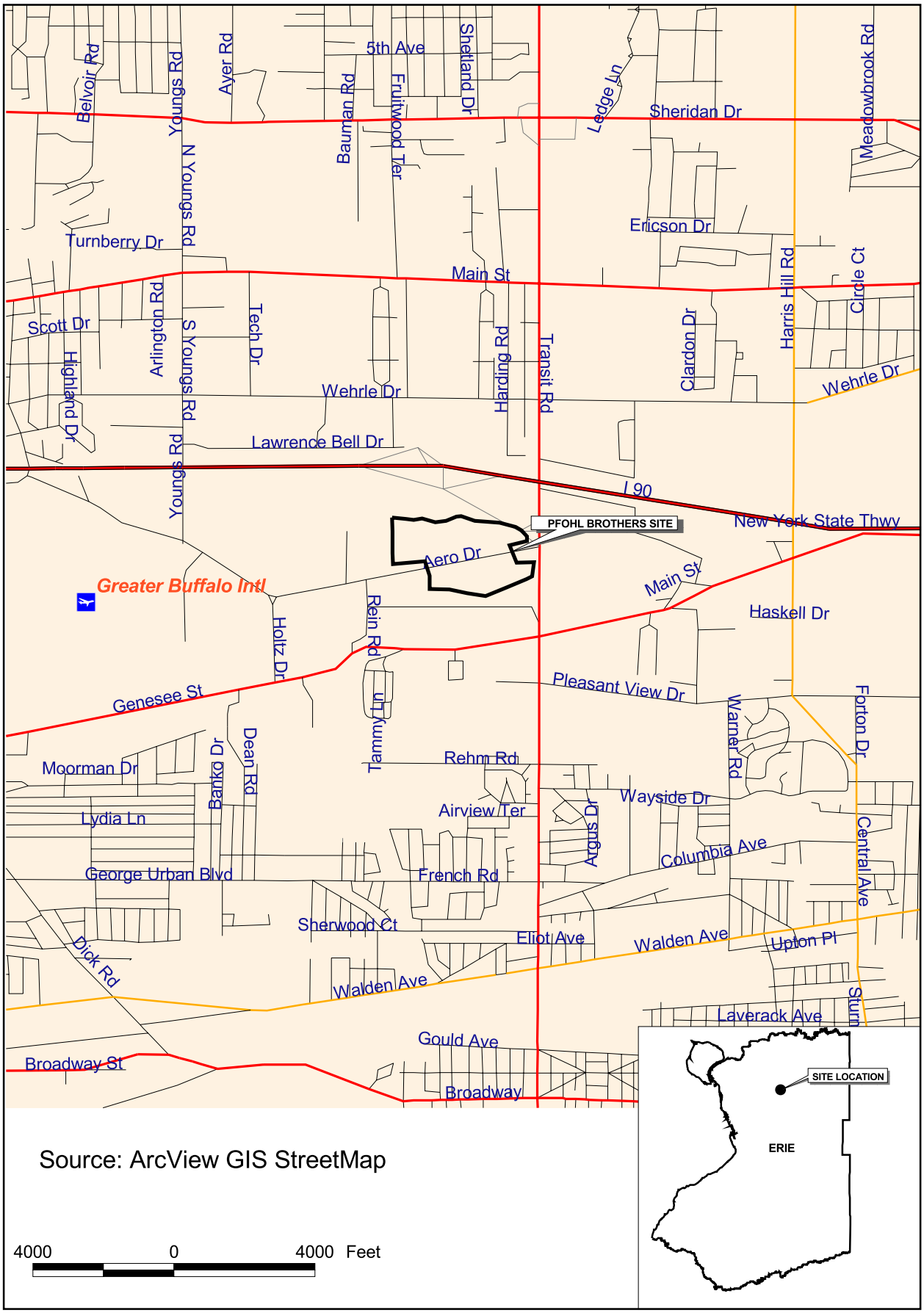
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

GROUNDWATER SAMPLING SUMMARY
OPERATION AND MAINTENANCE PLAN
PFOHL BROTHERS LANDFILL SITE, CHEEKTOWAGA, NEW YORK

PARAMETERS (cont'd)

Metals	Antimony
	Arsenic
	Barium
	Cadmium
	Chromium
	Copper
	Iron
	Lead
	Magnesium
	Manganese
	Mercury
	Nickel
	Silver
	Sodium
	Zinc

FIGURES



URS	PFOHL BROTHERS LANDFILL SITE LOCATION MAP	FIGURE 1-1

n:\111172700.00000\gis\arcview\pfohl_sitelocation.apr Pfohl Bros Location Map
12/15/2005

Legend

- Monitoring Well Location
- Staff Gauge Location
- Manhole Location
- Wet Well Location

400 0 400 Feet

PFOHL BROTHERS LANDFILL
MONITORING LOCATIONS

URS

FIGURE 3-1

N:\11172700.00000\GIS\ArcView\pfhol.apr WELL LOCATIONS
12/15/2005

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheet — Town of Cheektowaga

Date: 2-14-12 — Weather conditions: LT. SNOW 30°

Time: 2:15 — Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.8	0	643,977	1776
WW-2	4.7	0	-3558	121
WW-1	4.0	0	1,120,371	1793
WW-6	6.0	65.8	4,383,802	7196
WW-4	7.0	0	641,349	5172
WW-5	7.1	0	2,965,976	8768

Flow Totalizer at Meter chamber: 9,948,237

Heat Trace

Outside temp T = 30°

Current A = 2.2

Set point SP = 40°

Large Suppressor events: 414,795

Motor Control Center

Volts: 480 volts

Amps: 6 amps

Which WW was running?

1☐ 2☐ 3☐ 4☐ 5☐ 6☒

Filter — Checked ☐ — Changed ☐

Comments and/or Current Conditions

WW 2 NEG FLOW ALARM — CLEARED ALL ALARMS

REMOVED 2011 LOGSHEETS TO ENG. DEPT FILE

Pfohl Brothers Landfill Site

Daily Logsheet — Town of Cheektowaga

Date: 4/23/12 — Weather conditions: LT. SNOW OVERCAST 32°

Time: 11:30 — Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.1	0	945,618	1936
WW-2	4.6	0	- 4497	121
WW-1	4.5	0	1,241,330	1881
WW-6	7.5	0	5,806,317	7585
WW-4	7.0	0	708,554	5215
WW-5	7.7	0	3,769,628	9077
Flow Totalizer at Meter chamber			12,658,293	

Heat Trace

Outside temp **T** = 35°

Current **A** = 20

Set point **SP** = 40

Large Suppressor events: 414,825

Motor Control Center

Volts 480 **volts**

Amps 5 **amps**

Which WW was running?

1☐ 2☐ 3☐ 4☐ 5☐ 6☐

Filter **Checked** ☐ **Changed** ☐

Comments and/or Current Conditions

WW 4 FLOW INVALID - WILL NOT RESET

REMOTE INHIBIT ON

Pfohl Brothers Landfill Site

Daily Logsheet — **Town of Cheektowaga**

Date: 6/11/12 — Weather conditions: SUNNY 82°

Time: 2:05 — Read by: B. PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.8	0	1,132,294	2050
WW-2	4.7	0	-5117	121
WW-1	4.2	0	1,372,639	1973
WW-6	6.9	0	6,511,214	7775
WW-4	7.1	0	708,631	5215
WW-5	7.7	0	4,359,295	9298

Flow Totalizer at Meter chamber: 14,268,576

Heat Trace

Outside temp T = 82

Current A = 0

Set point SP = 40

Large Suppressor events: 414,841

Motor Control Center

Volts 460 volts

Amps 9 amps

Which WW was running?

1☐ 2☐ 3☐ 4☐ 5☐ 6☐

Filter **Checked** ☐ **Changed** ☐

Comments and/or Current Conditions

LOWERED A.C. TO 78°

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2012 – JUNE 2012

The
TOWN OF
CHEEKTOWAGA

Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

February 2, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **January 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

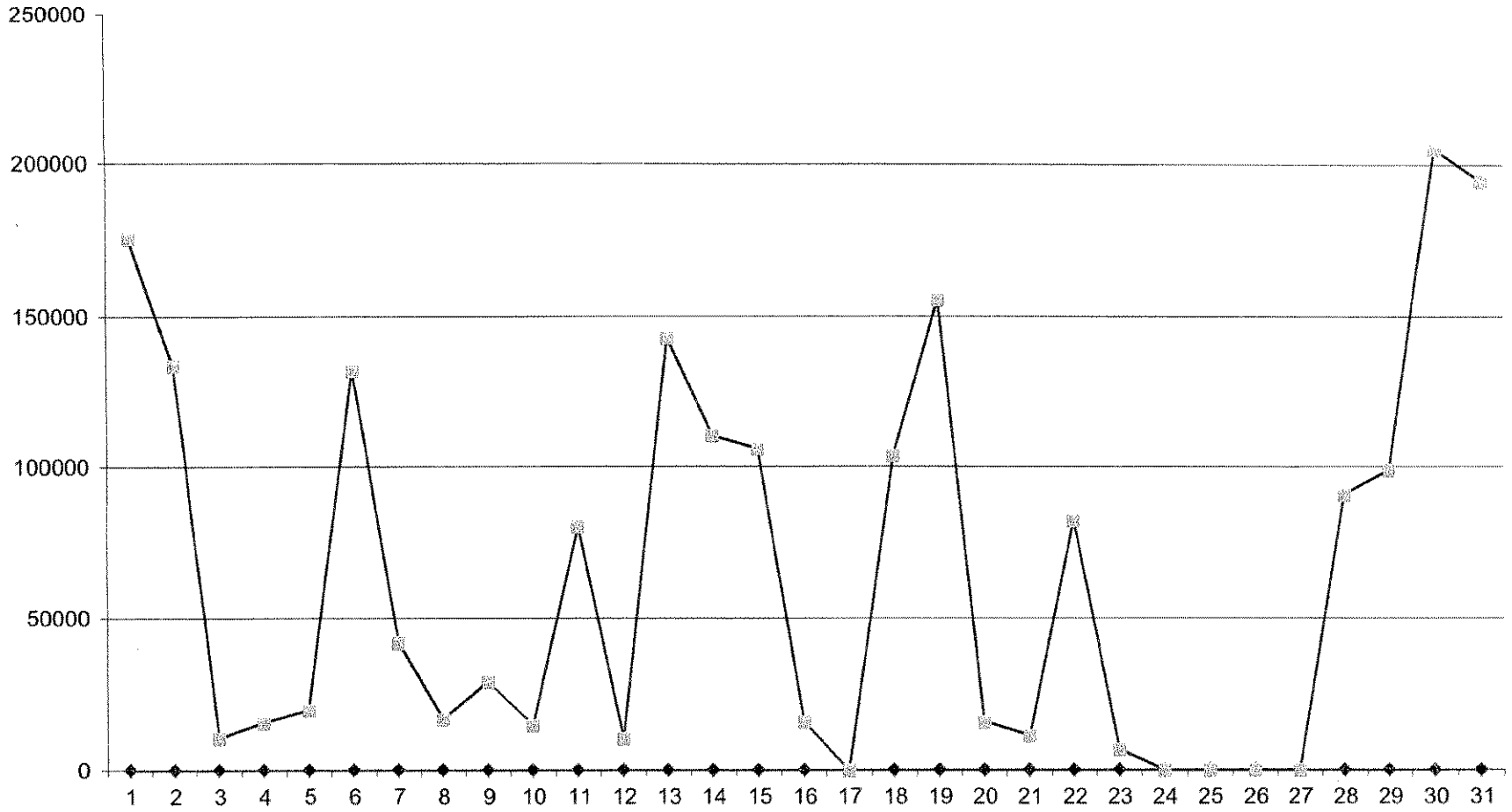
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

12/12/2011		7252183	98,563	7,239,005	
January-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		7427863	175,680	7,414,685	
2		7561417	133,555	7,548,240	
3		7571957	10,540	7,558,780	
4		7587682	15,725	7,574,505	
5		7607660	19,979	7,594,484	
6		7739392	131,732	7,726,216	
7		7781144	41,752	7,767,968	
8		7798132	16,989	7,784,957	
9		7827310	29,178	7,814,135	
10		7842173	14,863	7,828,998	
11		7922540	80,367	7,909,365	
12		7932976	10,437	7,919,802	0029inhibit 2239enable
13		8075700	142,724	8,062,526	
14		8185786	110,086	8,172,612	
15		8291515	105,729	8,278,341	
16		8307491	15,976	8,294,317	2240inhibit
17		8307491	0	8,294,317	
18		8410954	103,464	8,397,781	0956enable
19		8566451	155,497	8,553,278	
20		8582403	15,952	8,569,230	
21		8593706	11,303	8,580,533	
22		8675969	82,263	8,662,796	
23		8682737	6,768	8,669,564	0912inhibit
24		8682737	0	8,669,564	
25		8682737	0	8,669,564	
26		8682737	0	8,669,564	
27		8682737	0	8,669,564	
28		8773614	90,877	8,760,441	0709enable 1728inhibit
29		8872399	98,785	8,859,226	1129enable
30		9077645	205,246	9,064,472	
31		9272351	194,706	9,259,178	
		2,020,168	**2,020,173**	**2,020,173**	

January
2012



The
TOWN OF
CHEEKTOWAGA

Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

March 3, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **February 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

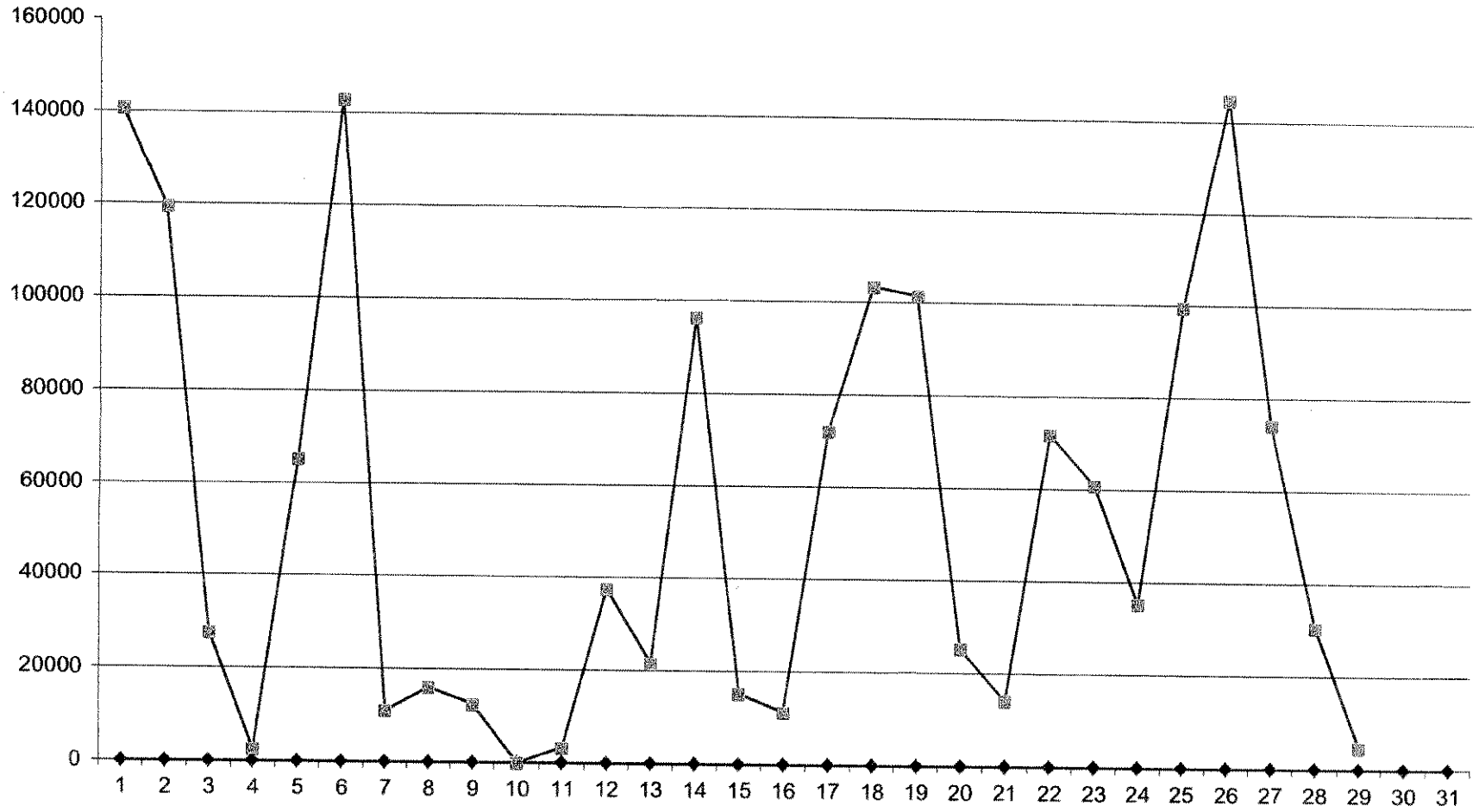
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

12/12/2011		9272351	194,706	9,259,178	
February-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		9413081	140,730	9,399,908	
2		9532459	119,378	9,519,286	
3		9560050	27,591	9,546,877	
4		9562667	2,617	9,549,494	
5		9627855	65,188	9,614,682	
6		9770733	142,878	9,757,560	
7		9781749	11,016	9,768,576	
8		9797838	16,089	9,784,665	
9		9810390	12,552	9,797,217	
10		9810390	0	9,797,217	
11		9813737	3,347	9,800,564	
12		9851201	37,464	9,838,028	
13		9872719	21,518	9,859,546	
14		9969076	96,357	9,955,903	
15		9984244	15,168	9,971,071	
16		9995554	11,310	9,982,381	
17		10067610	72,056	10,054,437	0002inhibit 0941enable
18		10170918	103,308	10,157,745	
19		10272336	101,418	10,259,163	
20		10297634	25,298	10,284,461	
21		10311829	14,195	10,298,656	
22		1038671	71,842	10,370,498	0031inhibit 0821enable
23		10444503	60,832	10,431,330	1435inhibit 2244enable
24		10479793	35,290	10,466,620	0303inhibit
25		10579238	99,445	10,566,065	1004enable
26		10724031	144,793	10,710,858	
27		10798320	74,289	10,785,147	
28		10828783	30,463	10,815,610	
29		10833508	4,725	10,820,335	
30					
31					
		1,561,157	**1,561,157**	**1,561,157**	

Februaryy
2012



The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

April 7, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **March 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

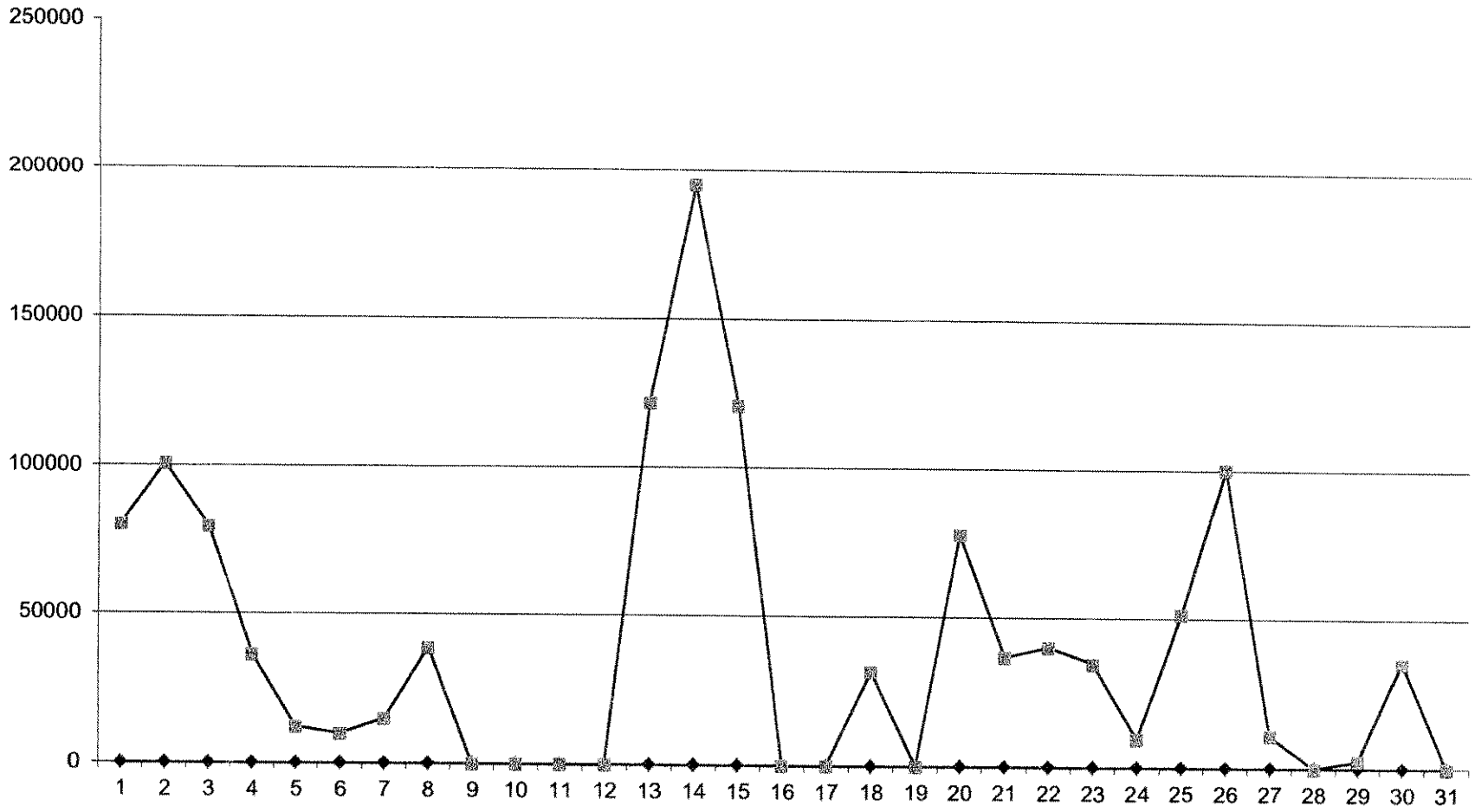
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

2/29/2012		10833508	4,725	10,820,335	
March-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		10913638	80,130	10,900,465	0006inhibit 0701enable
2		11014230	100,592	11,001,057	2221inhibit
3		11093755	79,525	11,080,582	0638enable
4		11130020	36,265	11,116,847	
5		11142187	12,167	11,129,014	
6		11152039	9,852	11,138,866	
7		11166989	14,950	11,153,816	
8		11205728	38,739	11,192,555	1622inhibit
9		11205728	0	11,192,555	
10		11205728	0	11,192,555	
11		11205728	0	11,192,555	
12		11205728	0	11,192,555	
13		11327332	121,604	11,314,159	0747enable
14		11522414	195,082	11,509,241	
15		11643018	120,604	11,629,845	
16		11643018	0	11,629,845	0300inhibit 0612enable
17		11643018	0	11,629,845	
18		11674660	31,642	11,661,487	
19		11674660	0	11,661,487	
20		11752603	77,943	11,739,430	
21		11789308	36,705	11,776,135	
22		11829359	40,051	11,816,186	
23		11864094	34,735	11,850,921	
24		11873556	9,462	11,860,383	2322inhibit
25		11924957	51,401	11,911,784	0827enable
26		12025225	100,268	12,012,052	
27		12036117	10,892	12,022,944	
28		12036117	0	12,022,944	
29		12038563	2,446	12,025,390	
30		12073961	35,398	12,060,788	
31		12073961	0	12,060,788	
		1,240,453	**1,240,453**	**1,240,453**	

March
2012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The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

May 1, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **April 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

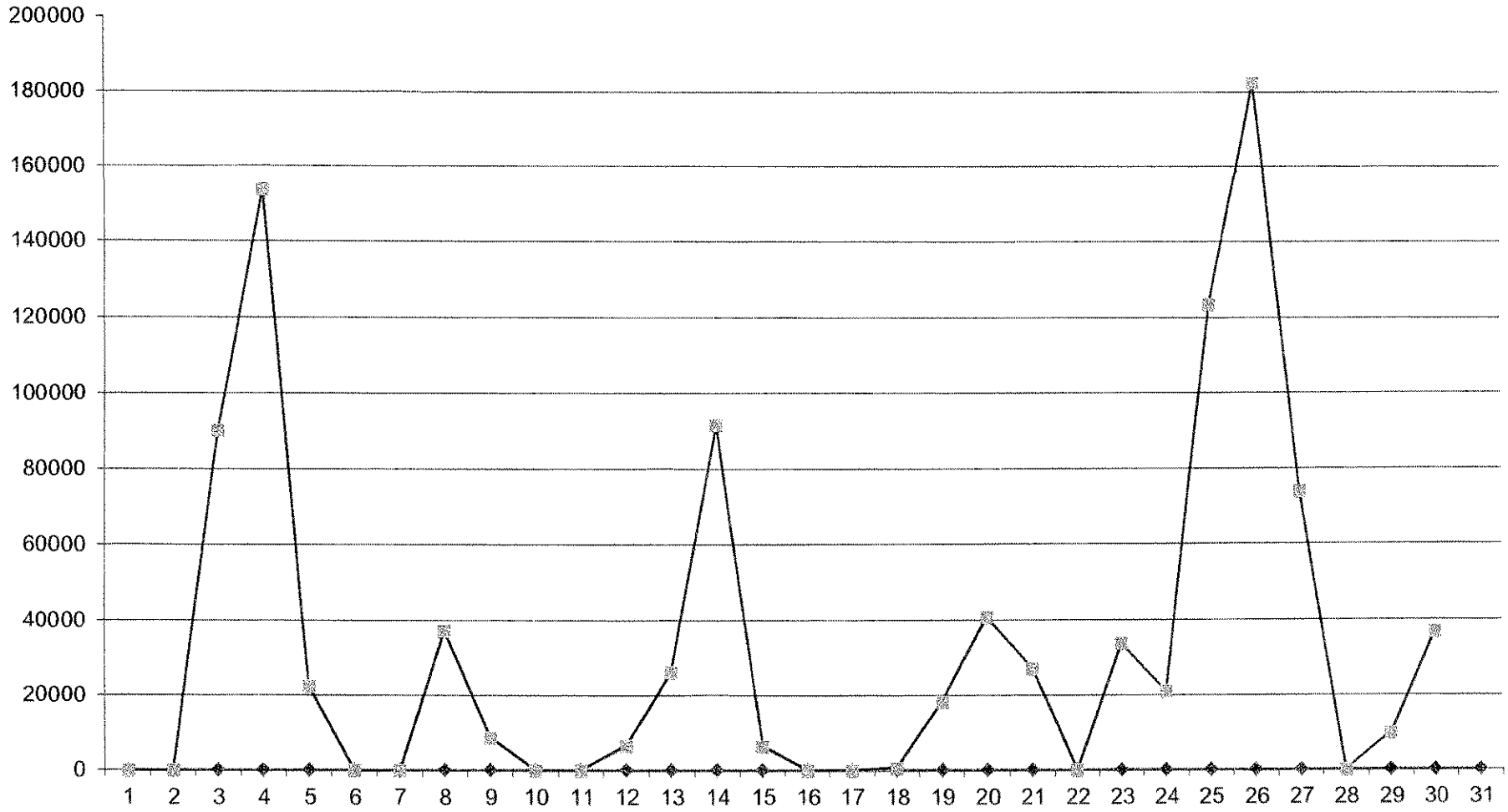
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

3/31/2012		12073961	0	12,060,788	
April-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		12073961	0	12,060,788	1329 inhibit
2		12073961	0	12,060,788	0050 enable
3		12164095	90,134	12,150,922	
4		12317739	153,644	12,304,566	
5		12340068	22,329	12,326,895	
6		12340068	0	12,326,895	
7		12340068	0	12,326,895	
8		12377272	37,104	12,363,999	
9		12385929	8,657	12,372,656	
10		12385929	0	12,372,656	
11		12385929	0	12,372,656	
12		12392502	6,573	12,379,229	
13		12418627	26,125	12,405,354	
14		12510303	91,676	12,497,030	
15		12516719	6,416	12,503,446	
16		12516719	0	12,503,446	
17		12516719	0	12,503,446	
18		12517367	648	12,504,094	
19		12535667	18,300	12,522,394	
20		12576436	40,769	12,563,163	
21		12603435	26,999	12,590,162	2034 inhibit
22		12603435	0	12,590,162	
23		12637173	33,738	12,623,900	0443 enable 1609 inhibit
24		12658293	21,120	12,645,020	
25		12781797	123,504	12,768,524	2002 enable
26		12964227	182,430	12,950,954	
27		13038163	73,936	13,024,890	
28		13038163	0	13,024,890	
29		13048061	9,898	13,034,788	
30		13084801	36,740	13,071,528	
31					
		1,010,840	**1,010,740**	**1,010,740**	

April
2012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The
TOWN OF
CHEEKTOWAGA

Main Pump Station
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Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

June 2, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **May 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

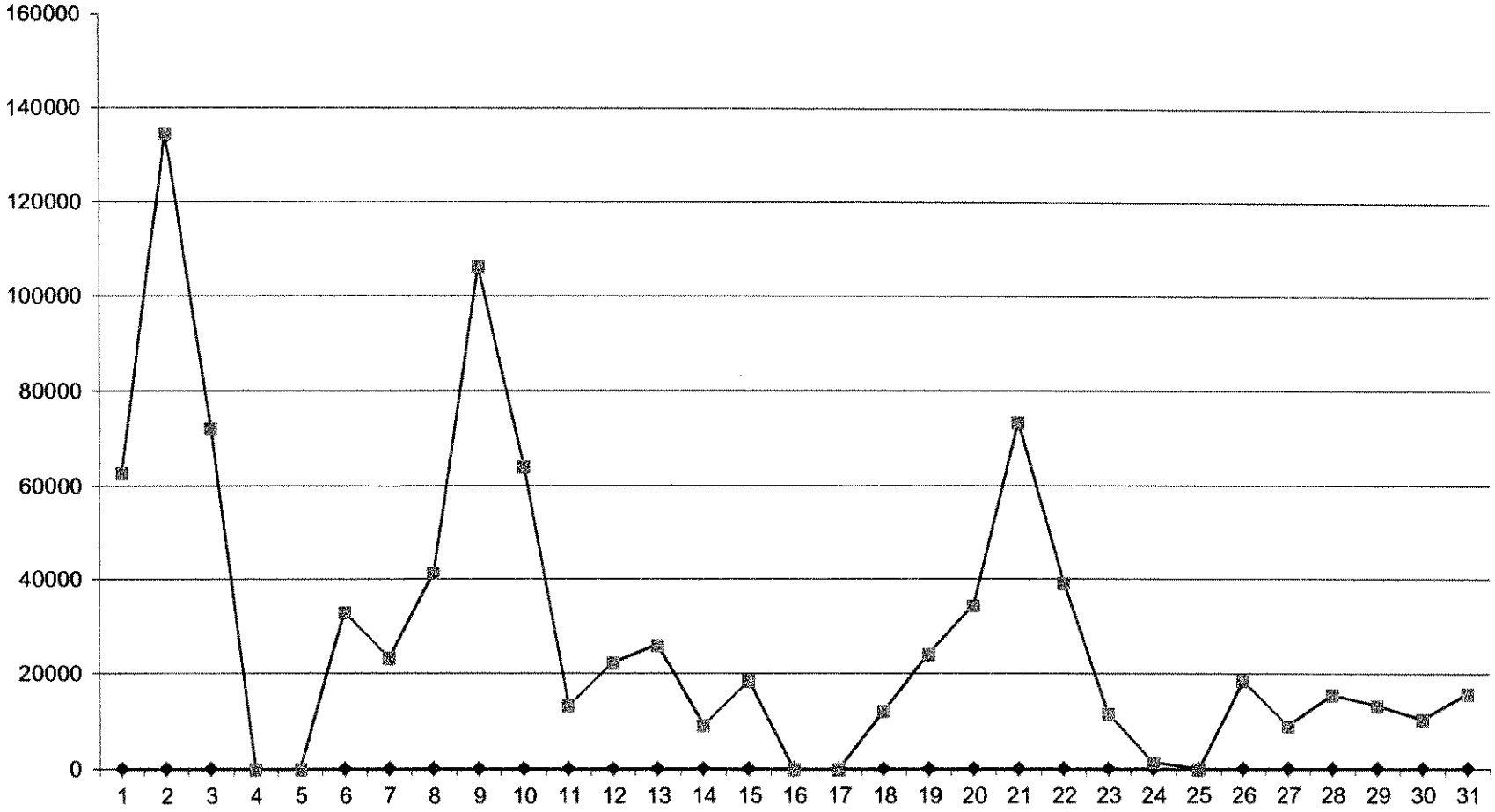
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

4/30/2012		13084801	36,740	13,071,528	
May-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		13147699	62,898	13,134,426	0816 inhibit 1224 enable
2		13282362	134,663	13,269,089	
3		13354530	72,168	13,341,257	
4		13354530	0	13,341,257	0007 inhibit 0728 enable
5		13354530	0	13,341,257	
6		13387455	32,925	13,374,182	
7		13410734	23,279	13,397,461	0239 inhibit 1047 enable
8		13452088	41,354	13,438,815	0704 inhibit 1430 enable
9		13558359	106,271	13,545,086	
10		13622494	64,135	13,609,221	
11		13635862	13,368	13,622,589	
12		13658141	22,279	13,644,868	
13		13684147	26,006	13,670,874	
14		13693387	9,240	13,680,114	
15		13711928	18,541	13,698,655	
16		13711928	0	13,698,655	
17		13711928	0	13,698,655	
18		13724184	12,256	13,710,911	
19		13748296	24,112	13,735,023	
20		13782690	34,394	13,769,417	
21		13856110	73,420	13,842,837	
22		13895307	39,197	13,882,034	
23		13907079	11,772	13,893,806	
24		13908509	1,430	13,895,236	
25		13908509	0	13,895,236	
26		13927050	18,541	13,913,777	
27		13936158	9,108	13,922,885	
28		13951813	15,655	13,938,540	
29		13965191	13,378	13,951,918	
30		13975665	10,474	13,962,392	
31		13991552	15,887	13,978,279	
		906,751	**906,751**	**906,751**	

May
2012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The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

July 12, 2012

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **June 2012** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

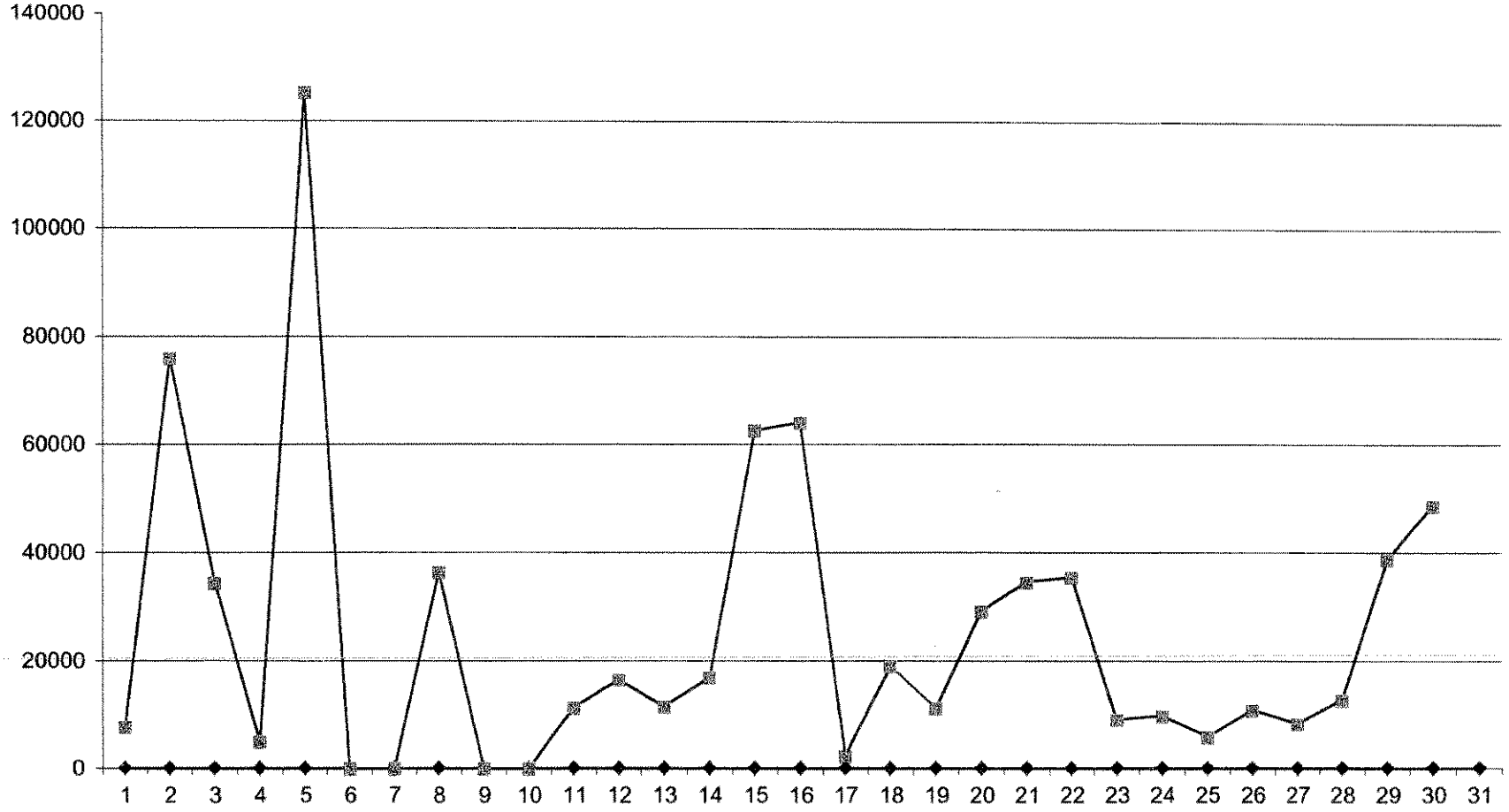
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

5/31/2012		13983857	15,887	13,978,279	
June-12	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		13991552	7,695	13,985,974	1236 inhibit
2		14067530	75,978	14,061,952	0924 enable
3		14102023	34,493	14,096,445	0718 inhibit
4		14106959	4,936	14,101,381	2058 enable
5		14232237	125,278	14,226,659	
6		14232237	0	14,226,659	
7		14232237	0	14,226,659	
8		14268576	36,399	14,263,058	
9		14268576	0	14,263,058	
10		14268576	0	14,263,058	
11		14279922	11,346	14,274,404	
12		14296448	16,526	14,290,930	0037 inhibit 1820 enable
13		14307954	11,506	14,302,436	
14		14324877	16,923	14,319,359	
15		14387433	62,556	14,381,915	
16		14451442	64,009	14,445,924	
17		14453747	2,305	14,448,229	1326 inhibit
18		14472815	19,068	14,467,297	1332 enable
19		14484036	11,221	14,478,518	
20		14513179	29,143	14,507,661	
21		14547759	34,580	14,542,241	
22		14583170	35,411	14,577,652	
23		14592236	9,066	14,586,718	
24		14602028	9,792	14,596,510	
25		14607844	5,816	14,602,326	
26		14618712	10,868	14,613,194	
27		14627006	8,294	14,621,488	
28		14639735	12,729	14,634,217	
29		14678481	38,746	14,672,963	
30		14727189	48,708	14,721,671	
31					
		743,332	**743,392**	**743,392**	

June
2012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APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-01D	1073088.634	1117968.213	694.41	NM	696.12	D	1						
MNW								3/26/2012 1124	2.75	693.37	0.00	693.37	
MNW								5/15/2012 0942	3.09	693.03	0.00	693.03	
MNW								6/20/2012 1413	3.85	692.27	0.00	692.27	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								3/26/2012 1124	3.59	692.60	0.00	692.60	
MNW								5/15/2012 0942	4.24	691.95	0.00	691.95	
MNW								6/20/2012 1413	4.97	691.22	0.00	691.22	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								3/26/2012 1009	2.11	691.77	0.00	691.77	
MNW								5/15/2012 0845	2.29	691.59	0.00	691.59	
MNW								6/20/2012 1311	2.57	691.31	0.00	691.31	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								3/26/2012 1009	2.30	691.50	0.00	691.50	
MNW								5/15/2012 0845	2.73	691.07	0.00	691.07	
MNW								6/20/2012 1311	5.43	688.37	0.00	688.37	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								3/26/2012 1132	13.08	679.67	0.00	679.67	
MNW								5/15/2012 0937	13.04	679.71	0.00	679.71	
MNW								6/20/2012 1419	13.58	679.17	0.00	679.17	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								3/26/2012 1132	4.34	688.38	0.00	688.38	
MNW								5/15/2012 0937	4.66	688.06	0.00	688.06	
MNW								6/20/2012 1419	5.82	686.90	0.00	686.90	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-07D	1071242.458	1117669.925	697.15	NM	699.94	D	1						
MNW								3/26/2012 1101	47.52	652.42	0.00	652.42	
MNW								5/15/2012 0947	44.25	655.69	0.00	655.69	
MNW								6/20/2012 1405	56.77	643.17	0.00	643.17	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								3/26/2012 1101	4.90	694.61	0.00	694.61	
MNW								5/15/2012 0946	5.00	694.51	0.00	694.51	
MNW								6/20/2012 1405	5.88	693.63	0.00	693.63	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								3/26/2012 1024	6.07	691.72	0.00	691.72	
MNW								5/15/2012 0856	6.27	691.52	0.00	691.52	
MNW								6/20/2012 1325	6.56	691.23	0.00	691.23	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								3/26/2012 1024	5.22	692.28	0.00	692.28	
MNW								5/15/2012 0857	5.34	692.16	0.00	692.16	
MNW								6/20/2012 1325	6.02	691.48	0.00	691.48	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								3/26/2012 1051	6.94	691.56	0.00	691.56	
MNW								5/15/2012 0922	7.12	691.38	0.00	691.38	
MNW								6/20/2012 1355	7.41	691.09	0.00	691.09	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								3/26/2012 1030	9.09	691.86	0.00	691.86	
MNW								5/15/2012 0903	9.27	691.68	0.00	691.68	
MNW								6/20/2012 1335	10.17	690.78	0.00	690.78	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-29S	1072552.638	1117761.993	697.50	NM	699.63	S	1						
MNW								3/26/2012 1038	8.29	691.34	0.00	691.34	
MNW								5/15/2012 0910	8.39	691.24	0.00	691.24	
MNW								6/20/2012 1342	9.72	689.91	0.00	689.91	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								3/26/2012 1041	7.95	688.63	0.00	688.63	
MNW								5/15/2012 0912	8.05	688.53	0.00	688.53	
MNW								6/20/2012 1345	8.20	688.38	0.00	688.38	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								3/26/2012 1044	2.86	695.76	0.00	695.76	
MNW								5/15/2012 0916	3.45	695.17	0.00	695.17	
MNW								6/20/2012 1348	5.77	692.85	0.00	692.85	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								3/26/2012 1048	2.78	695.59	0.00	695.59	
MNW								5/15/2012 0919	3.81	694.56	0.00	694.56	
MNW								6/20/2012 1352	5.30	693.07	0.00	693.07	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								3/26/2012 1055	3.94	694.30	0.00	694.30	
MNW								5/15/2012 0924	5.60	692.64	0.00	692.64	
MNW								6/20/2012 1359	7.03	691.21	0.00	691.21	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								3/26/2012 1007	2.64	692.13	0.00	692.13	
MNW								5/15/2012 0838	3.05	691.72	0.00	691.72	
MNW								6/20/2012 1304	5.48	689.29	0.00	689.29	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-35S	1071701.925	1115985.585	696.19	NM	697.39	S	1						
MNW								3/26/2012 1052	3.41	693.98	0.00	693.98	
MNW								5/15/2012 0922	3.81	693.58	0.00	693.58	
MNW								6/20/2012 1355	5.55	691.84	0.00	691.84	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								3/26/2012 1008	10.35	688.27	0.00	688.27	
MH								5/15/2012 0842	10.23	688.39	0.00	688.39	
MH								6/20/2012 1308	10.10	688.52	0.00	688.52	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								3/26/2012 1018	11.13	688.27	0.00	688.27	
MH								5/15/2012 0849	11.07	688.33	0.00	688.33	
MH								6/20/2012 1315	11.02	688.38	0.00	688.38	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								3/26/2012 1020	9.33	687.49	0.00	687.49	
MH								5/15/2012 0853	9.29	687.53	0.00	687.53	
MH								6/20/2012 1319	9.20	687.62	0.00	687.62	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								3/26/2012 1028	14.46	688.55	0.00	688.55	
MH								5/15/2012 0900	14.50	688.51	0.00	688.51	
MH								6/20/2012 1332	14.45	688.56	0.00	688.56	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								3/26/2012 1037	14.98	684.04	0.00	684.04	
MH								5/15/2012 0910	14.90	684.12	0.00	684.12	
MH								6/20/2012 1341	14.94	684.08	0.00	684.08	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-16	1072133.714	1117748.238	698.57	NM	698.57	NA	1						
MH								3/26/2012 1041	14.55	684.02	0.00	684.02	
MH								5/15/2012 0912	14.46	684.11	0.00	684.11	
MH								6/20/2012 1344	14.50	684.07	0.00	684.07	
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA	1						
MH								3/26/2012 1044	18.96	683.20	0.00	683.20	
MH								5/15/2012 0916	18.11	684.05	0.00	684.05	
MH								6/20/2012 1347	18.11	684.05	0.00	684.05	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA	1						
MH								3/26/2012 1049	19.73	686.47	0.00	686.47	
MH								5/15/2012 0921	19.73	686.47	0.00	686.47	
MH								6/20/2012 1354	19.71	686.49	0.00	686.49	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA	1						
MH								3/26/2012 1055	9.00	689.05	0.00	689.05	
MH								5/15/2012 0923	9.04	689.01	0.00	689.01	
MH								6/20/2012 1358	9.00	689.05	0.00	689.05	
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA	1						
MH								3/26/2012 1005	10.04	688.13	0.00	688.13	
MH								5/15/2012 0831	9.83	688.34	0.00	688.34	
MH								6/20/2012 1301	9.72	688.45	0.00	688.45	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
SG								3/26/2012 1014	-1.00	691.00	0.00	691.00	
SG								5/15/2012 0844	-0.92	690.92	0.00	690.92	
SG								6/20/2012 1308	Dry		0.00		Dry

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
SG-02	1073738.27	1116805.85	NM	NM	690.00	NA	1						
SG								3/26/2012 1024	-3.28	693.28	0.00	693.28	
SG								5/15/2012 0856	-3.10	693.10	0.00	693.10	
SG								6/20/2012 1325	Dry		0.00		Dry
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								3/26/2012 0930	-4.1	688.12	0.00	688.12	
MH								5/15/2012 0800	-4.1	688.12	0.00	688.12	
MH								6/20/2012 1230	-4.2	688.22	0.00	688.22	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								3/26/2012 0930	-4.7	688.88	0.00	688.88	
MH								5/15/2012 0800	-4.6	688.78	0.00	688.78	
MH								6/20/2012 1230	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								3/26/2012 0930	-5.0	688.80	0.00	688.80	
MH								5/15/2012 0800	-5.2	689.00	0.00	689.00	
MH								6/20/2012 1230	-5.2	689.00	0.00	689.00	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								3/26/2012 0930	-6.9	683.52	0.00	683.52	
MH								5/15/2012 0800	-7.0	683.62	0.00	683.62	
MH								6/20/2012 1230	-7.0	683.62	0.00	683.62	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								3/26/2012 0930	-6.7	682.84	0.00	682.84	
MH								5/15/2012 0800	-7.2	683.34	0.00	683.34	
MH								6/20/2012 1230	-6.6	682.74	0.00	682.74	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2012

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
WW-06	1072988.420	1114811.518	NM	NM	681.89	NA	1						
MH								3/26/2012 0930	-6.6	688.49	0.00	688.49	
MH								5/15/2012 0800	-6.9	688.79	0.00	688.79	
MH								6/20/2012 1230	-6.9	688.79	0.00	688.79	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

Filter = ([tblGWD].[LOGDATE]>=#3/26/2012#)

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TABLE 2
PFOHL BROTHERS LANDFILL SITE
OVERBURDEN HYDRAULIC GRADIENT

WELL PAIR:	WW-1	*	Level	WW-2	GW-8SR	Level	SG-02	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft)
3/26/2012	688.12	---	---	688.88	692.28	3.40	693.28	4.40
5/15/2012	688.12	---	---	688.78	692.16	3.38	693.10	4.32
6/20/2012	688.22	---	---	688.88	691.48	2.60	DRY	NA

WELL PAIR:	WW-3	GW-28S	Level	WW-4	*	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2012	688.80	691.86	3.06	683.52	---	---
5/15/2012	689.00	691.68	2.68	683.62	---	---
6/20/2012	689.00	690.78	1.78	683.62	---	---

WELL PAIR:	WW-5	GW-32S	Level	WW-6	GW-34S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2012	682.84	695.59	12.75	688.49	692.13	3.64
5/15/2012	683.34	694.56	11.22	688.79	691.72	2.93
6/20/2012	682.74	693.07	10.33	688.79	689.29	0.50

WELL PAIR:	MH-1	SG-1	Level	MH-15	GW-29S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2012	688.27	691.00	2.73	684.04	691.34	7.30
5/15/2012	688.39	690.92	2.53	684.12	691.24	7.12
6/20/2012	688.52	DRY	NA	684.08	689.91	5.83

WELL PAIR:	MH-16	GW-30S	Level	MH-17	GW-31S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2012	684.02	688.63	4.61	683.20	695.76	12.56
5/15/2012	684.11	688.53	4.42	684.05	695.17	11.12
6/20/2012	684.07	688.38	4.31	684.05	692.85	8.80

WELL PAIR:	MH-20	GW-35S	Level	MH-22	GW-33S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2012	686.47	693.98	7.51	689.05	694.30	5.25
5/15/2012	686.47	693.58	7.11	689.01	692.64	3.63
6/20/2012	686.49	691.84	5.35	689.05	691.21	2.16

Notes:

* = No corresponding monitoring well.
NA = Not applicable

APPENDIX D

GROUNDWATER PURGE AND SAMPLE COLLECTION LOGS

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-1S

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 4.41' Depth to Well Bottom: 14.94' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.5 Estimated Purge Volume (liters): 9.5

Sample ID: GW-1S Sample Time: 12:59 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Riser pipe is bulged inwards, could not remove stainless steel bailer from within well, sampled around it.
Orange stain in water initially.

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:14	6.68	14.32	0.722	2.60	716	-7	225	4.41
12:19	6.69	12.41	0.783	0.00	342	-32	210	NM
12:24	6.73	12.35	0.653	0.29	773	-41	210	5.20
12:29	6.73	12.14	0.717	0.00	523	-34	210	5.40
12:34	6.66	11.98	0.792	0.00	237	-33	210	5.46
12:39	6.58	11.89	0.835	0.00	99.4	-35	210	5.52
12:44	6.59	11.84	0.841	0.00	65.0	-37	210	5.55
12:49	6.60	11.89	0.845	0.00	50.0	-39	210	5.55
12:54	6.62	11.89	0.846	0.00	50.8	-41	210	5.56
12:59	6.64	11.88	0.847	0.00	47.7	-43	210	5.57
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-1D

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 3.23' Depth to Well Bottom: 39.65' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 90.0 Estimated Purge Volume (liters): 62.2

Sample ID: GW-1D Sample Time: 14:43 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Sulfur odor

Dark Tint

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:18	6.89	17.07	0.932	2.31	>800	-50	440	3.23
13:23	7.02	13.27	0.998	0.00	41.8	-94	750	3.26
13:28	7.01	12.86	1.01	0.00	12.0	-102	750	3.27
13:33	7.04	12.76	1.01	0.00	14.0	-107	750	3.28
13:38	7.02	12.63	1.01	0.00	16.7	-109	750	3.28
13:43	7.00	12.64	1.01	0.00	15.1	-110	750	3.28
13:48	7.03	12.70	1.00	0.00	19.2	-113	750	3.28
13:53	7.07	12.73	1.00	0.00	24.3	-116	750	3.28
13:58	7.06	12.60	1.01	0.00	15.6	-121	750	3.28
14:03	7.04	12.58	1.01	0.00	13.3	-127	750	3.28
14:08	7.03	12.52	1.01	0.00	10.5	-133	750	3.28
14:13	7.05	12.81	0.997	0.00	8.2	-142	750	3.28
14:18	7.04	12.89	0.996	0.00	5.2	-150	750	3.28
14:23	7.04	12.84	0.996	0.00	5.2	-156	750	3.28
14:28	7.04	12.76	0.997	0.00	1.9	-161	750	3.28
14:33	7.04	12.66	1.00	0.00	1.8	-168	750	3.28
14:38	7.04	12.61	1.00	0.00	0.0	-173	750	3.28
14:43	7.04	12.82	0.996	0.00	0.0	-178	750	3.28
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-3S

Date: 5/15/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 3.20' Depth to Well Bottom: 13.22' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.2 Estimated Purge Volume (liters): 8.7

Sample ID: GW-3S Sample Time: 12:44 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:57	7.42	17.11	1.020	1.97	45.1	89	275	3.20
12:04	7.15	18.41	0.985	1.35	25.1	82	250	5.28
12:09	6.93	18.54	0.969	0.12	14.1	77	185	5.61
12:14	6.83	18.72	0.957	0.00	9.4	81	185	6.18
12:19	6.77	19.07	0.960	0.07	9.7	84	145	6.44
12:24	6.74	19.51	0.947	0.09	11.9	87	145	6.70
12:29	6.71	20.00	0.933	0.16	10.4	89	145	6.95
12:34	6.69	20.34	0.926	0.16	9.5	90	145	7.07
12:39	6.68	20.76	0.911	0.11	8.8	92	145	7.25
12:44	6.67	21.02	0.905	0.11	9.3	93	145	7.39
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-3D

Date: 5/15/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 2.27' Depth to Well Bottom: 35.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 82.6 Estimated Purge Volume (liters): 54.0

Sample ID: GW-3D Sample Time: 14:09 QA/QC: MS/MSD

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:09	6.17	15.70	1.43	0.00	66.9	40	900	2.27
13:14	6.43	13.89	1.49	0.00	9.6	2	900	2.27
13:19	6.46	13.52	1.50	0.00	10.2	-10	900	2.27
13:24	6.45	13.31	1.51	0.00	7.5	-13	900	2.27
13:29	6.44	13.17	1.51	0.00	4.7	-16	900	2.27
13:34	6.55	13.36	1.51	0.00	3.6	-24	900	2.27
13:39	6.54	13.13	1.51	0.00	3.7	-25	900	2.27
13:44	6.53	13.03	1.52	0.00	4.3	-26	900	2.27
13:49	6.54	13.67	1.50	0.00	5.2	-27	900	2.27
13:54	6.55	14.25	1.47	0.00	7.1	-29	900	2.27
13:59	6.55	13.74	1.49	0.00	3.2	-29	900	2.27
14:04	6.53	13.54	1.49	0.00	3.3	-29	900	2.27
14:09	6.51	13.36	1.50	0.00	1.3	-28	900	2.27
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-4S

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 4.72' Depth to Well Bottom: 16.23' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.1 Estimated Purge Volume (liters): 17.0

Sample ID: GW-4S Sample Time: 9:00 VOCs/ 10:35 SVOCs & Metals QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/26/12, sampled VOCs from PDB at 9:00 on 5/16/12
Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 10:35.

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:06	7.49	15.15	0.456	5.75	23.5	113	Intial	4.72
9:08	7.71	13.06	0.456	3.77	167.0	113	2 Gal. Purged	-
9:11	7.65	12.59	0.477	3.38	>800	64	4.5 Gal. Purged	Dry
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-4D

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 12.91' Depth to Well Bottom: 45.57' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 80.7 Estimated Purge Volume (liters): 8.8

Sample ID: GW-4D Sample Time: 10:17 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:22	7.06	16.39	1.20	0.42	9.2	-56	160	12.91
9:27	6.95	17.21	1.17	0.00	14.1	-86	160	13.27
9:32	6.91	17.77	1.16	0.00	15.2	-113	160	13.57
9:37	6.92	18.11	1.14	0.00	13.3	-136	160	13.70
9:42	6.92	18.40	1.14	0.00	10.7	-153	160	13.81
9:47	6.93	18.52	1.14	0.00	7.7	-168	160	13.98
9:52	6.93	18.13	1.13	0.00	7.4	-188	160	14.10
9:57	6.94	18.82	1.26	0.00	5.2	-210	160	14.23
10:02	6.94	19.05	1.27	0.00	1.6	-223	160	14.33
10:07	6.94	19.22	1.27	0.00	0.0	-229	160	14.39
10:12	6.95	19.93	1.27	0.00	0.0	-234	160	14.47
10:17	6.96	20.06	1.27	0.00	0.0	-238	160	14.55
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

WELL PURGING LOG

URS Corporation

SITE NAME: Pfohl Brothers Landfill WELL NO.: GW-7S

PROJECT NO.: 11175616.00000

STAFF: Rob Murphy, Tim Ifkovich

DATE(S): 5/15/12, 5/16/12

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.04	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.00	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.04	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	5.1	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	7.5	8"	2.60

$V=0.0408 \times (\text{CASING DIAMETER [INCHES]})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Initial	2.0	4.0	6.0	7.5						
pH	7.63	7.56	7.44	7.33	7.47						
SPEC. COND. (mS/cm)	0.582	0.582	0.587	0.584	0.570						
DO (mg/l)	6.45	8.32	6.20	7.21	7.21						
TEMPERATURE (^{0}C)	12.17	11.55	12.07	12.69	13.04						
TURBIDITY (NTU)	7.1	15.5	9.8	150	161						
ORP (millivolts)	26	42	60	78	79						
TIME	11:05	11:06	11:09	11:15	11:20						

COMMENTS:
10:05 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/26/12
11:05 - Begin handbailing well.
11:20 - Well dry after removing 7.5 gallons.
5/16/2012 15:40 - return to well, depth to water = 5.18 feet.
15:45 - Collect sample for SVOCs and Metals.

WELL PURGING LOG

URS Corporation

SITE NAME: Pfohl Brothers Landfill WELL NO.: GW-7D

PROJECT NO.: 11175616.00000

STAFF: Rob Murphy, Tim Ifkovich

DATE(S): 5/15/12, 5/16/12

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	60.45	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	44.25	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	16.20	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	10.7	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10.7	8"	2.60

$V=0.0408 \times (\text{CASING DIAMETER [INCHES]})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Init	2	4	6	8	10	10.7				
pH	8.95	8.23	7.85	7.60	7.74	7.35	7.42				
SPEC. COND. (mS/cm)	0.717	0.656	0.671	0.718	0.754	0.806	0.794				
DO (mg/)	16.80	8.65	11.90	12.47	11.95	4.06	8.85				
TEMPERATURE (^{0}C)	15.65	14.40	13.94	13.83	13.91	13.77	14.16				
TURBIDITY (NTU)	5.0	18.3	23.5	27.8	30.2	29.5	61.9				
ORP (millivolts)	4	14	24	10	-2	-26	21				
TIME	10:18	10:24	10:29	10:35	10:44	10:50	10:59				

COMMENTS: 10:00 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/26/12
10:12 - Begin handbailing well.
10:59 - Well dry after removing 10.7 gallons
5/16/2012 15:48 - return to well, depth to water = 59.30 feet.
15:50 - Collect sample for SVOCs and Metals, only enough volume to fill 1 metals container and 1-1 liter Amber container.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-8SR

Date: 5/15/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 5.33' Depth to Well Bottom: 13.02' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.7 Estimated Purge Volume (liters): 5.9

Sample ID: GW-8SR Sample Time: 16:25 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:00	6.31	13.03	3.04	0.00	36.0	-6	315	5.33
16:05	6.16	13.12	3.05	0.00	35.3	-13	230	7.08
16:10	6.09	13.17	3.04	0.00	61.3	-17	230	7.55
16:15	6.07	13.43	3.04	0.00	65.8	-20	200	7.63
16:20	6.06	13.47	3.04	0.00	61.0	-22	200	7.70
16:25	6.06	13.44	3.04	0.00	59.0	-23	200	7.74
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-8D

Date: 5/15/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 6.26' Depth to Well Bottom: 36.54' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 74.8 Estimated Purge Volume (liters): 43.3

Sample ID: GW-8D Sample Time: 15:47 QA/QC: Duplicate (ID=Duplicate)

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:52	6.73	13.61	2.64	1.57	>800	-53	860	6.26
14:57	6.63	12.46	2.71	0.00	12.2	-51	780	6.26
15:02	6.62	12.39	2.70	0.00	10.1	-52	780	6.26
15:07	6.58	12.40	2.67	0.00	5.4	-51	780	6.26
15:12	6.59	12.29	2.33	0.00	10.6	-45	780	6.26
15:17	6.64	12.22	1.86	0.00	4.5	-39	780	6.26
15:22	6.63	12.09	1.76	0.00	2.3	-21	780	6.26
15:27	6.61	12.19	1.75	0.00	2.3	-10	780	6.26
15:32	6.60	12.16	1.75	0.00	1.4	-2	780	6.26
15:37	6.58	12.17	1.75	0.00	1.7	4	780	6.26
15:42	6.58	12.20	1.75	0.00	1.3	7	780	6.26
15:47	6.58	12.18	1.74	0.00	1.3	11	780	6.26
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-26D

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 7.15' Depth to Well Bottom: 40.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 82.9 Estimated Purge Volume (liters): 33.2

Sample ID: GW-26D Sample Time: 13:44 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

Occasional pulses of iron stained particulates in purge water.

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:04	5.91	12.89	2.70	2.28	35.4	3	830	7.15
13:09	6.11	12.67	2.72	0.00	5.7	-7	830	7.15
13:14	6.27	12.54	2.75	0.00	0.4	-18	830	7.15
13:19	6.34	12.56	2.76	0.00	1.9	-23	830	7.15
13:24	6.35	12.49	2.75	0.00	2.2	-26	830	7.15
13:29	6.36	12.46	2.76	0.00	1.2	-28	830	7.15
13:34	6.35	12.43	2.76	0.00	0.6	-29	830	7.15
13:39	6.33	12.44	2.76	0.00	0.0	-29	830	7.15
13:44	6.35	12.43	2.75	0.00	0.0	-30	830	7.15
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-28S

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 9.32' Depth to Well Bottom: 15.52' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.8 Estimated Purge Volume (liters): 9.8

Sample ID: GW-28S Sample Time: 11:53 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange floc. in purge water

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:03	7.63	15.26	0.549	2.98	50.1	-43	255	9.32
11:08	7.16	12.36	0.560	0.00	34.8	-34	190	10.58
11:13	6.97	11.95	0.547	0.00	0.0	-27	190	10.82
11:18	6.90	11.85	0.544	0.00	0.1	-20	190	10.85
11:23	6.77	11.75	0.555	0.06	0.8	-7	190	10.92
11:28	6.67	11.65	0.570	0.00	0.0	0	190	10.98
11:33	6.55	11.52	0.584	0.00	0.0	6	190	10.99
11:38	6.48	11.46	0.591	0.00	0.0	10	190	11.00
11:43	6.39	11.41	0.593	0.00	0.0	14	190	11.01
11:48	6.34	11.33	0.597	0.00	0.0	16	190	11.01
11:53	6.37	11.30	0.600	0.00	0.0	17	190	11.00
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-29S

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.56' Depth to Well Bottom: 20.04' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.1 Estimated Purge Volume (liters): 10.7

Sample ID: GW-29S Sample Time: 15:13 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange iron particulates at start of purge

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:07	7.32	12.79	1.27	1.22	>800	-29	250	8.56
14:12	6.80	12.19	1.27	0.00	692	-32	155	1.32
14:17	6.59	12.17	1.24	0.00	524	-32	155	10.55
14:22	6.50	12.62	1.24	0.00	387	-30	155	10.63
14:27	6.50	12.67	1.24	0.00	239	-30	155	10.74
14:32	6.48	13.01	1.30	0.00	220	-32	155	10.82
14:37	6.45	13.19	1.33	0.00	197	-33	155	10.89
14:42	6.43	13.36	1.34	0.00	132	-35	155	10.92
14:47	6.42	13.51	1.34	0.00	112	-36	155	10.96
14:52	6.41	13.62	1.35	0.00	82.2	-37	155	11.00
14:57	6.41	13.70	1.35	0.00	64.5	-38	155	11.03
15:02	6.40	13.85	1.35	0.00	58.3	-39	155	11.07
15:07	6.40	14.10	1.35	0.00	47.4	-40	155	11.11
15:10	6.40	13.83	1.36	0.00	45.6	-40	155	11.13
15:13	6.38	13.47	1.37	0.00	45.8	-40	155	11.15
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-30S

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.12' Depth to Well Bottom: 17.97' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.1 Estimated Purge Volume (liters): 31.5

Sample ID: GW-30S Sample Time: 8:42 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:07	6.05	10.99	3.08	4.00	322	-11	900	8.12
8:12	6.38	10.45	1.48	0.00	24.0	-30	900	8.27
8:17	6.30	10.37	1.46	0.00	12.0	-33	900	8.28
8:22	6.24	10.34	1.43	0.00	7.6	-34	900	8.28
8:27	6.20	10.33	1.42	0.00	5.7	-33	900	8.28
8:32	6.33	10.32	1.41	0.00	5.2	-43	900	8.28
8:37	6.35	10.32	1.39	0.00	4.1	-44	900	8.28
8:42	6.34	10.32	1.38	0.00	3.1	-44	900	8.28
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-31S

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 3.85' Depth to Well Bottom: 9.57' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.5 Estimated Purge Volume (liters): 4.3

Sample ID: GW-31S Sample Time: 9:30 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:00	6.82	12.34	0.680	5.73	8.8	-26	205	3.85
9:05	6.70	12.54	0.663	0.00	3.2	13	145	5.42
9:10	6.69	12.54	0.664	0.00	7.9	21	145	5.81
9:15	6.69	12.51	0.665	0.00	6.4	27	145	6.30
9:20	6.68	12.76	0.674	0.00	6.4	30	110	6.41
9:25	6.68	12.75	0.676	0.00	9.1	34	110	6.51
9:30	6.67	12.81	0.678	0.00	8.1	36	110	6.62
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-32S

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 4.14' Depth to Well Bottom: 9.93' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.6 Estimated Purge Volume (liters): 6.4

Sample ID: GW-32S Sample Time: 10:42 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:07	7.39	14.04	0.477	7.17	7.4	104	255	4.14
10:12	7.26	13.00	0.483	5.09	4.1	111	170	4.70
10:17	7.11	12.39	0.524	0.68	0.4	107	170	4.68
10:22	7.01	12.30	0.532	0.00	0.6	96	170	4.70
10:27	6.98	12.19	0.537	0.00	0.0	90	170	4.72
10:32	6.97	12.16	0.537	0.00	0.0	84	170	4.75
10:37	6.96	12.19	0.538	0.00	0.0	81	170	4.77
10:42	6.96	12.19	0.537	0.00	0.0	81	170	4.78
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-33S

Date: 5/17/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 5.98' Depth to Well Bottom: 8.21' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 1.4 Estimated Purge Volume (liters): 4.9

Sample ID: GW-33S Sample Time: 11:41 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:06	6.92	16.86	0.721	0.63	0.0	137	140	5.98
11:11	6.74	16.86	0.640	0.00	0.0	126	140	6.53
11:16	6.73	17.00	0.628	0.00	0.0	112	140	6.75
11:21	6.70	16.90	0.632	0.00	0.0	105	140	6.90
11:26	6.68	16.81	0.639	0.00	0.0	99	140	7.05
11:31	6.66	16.63	0.651	0.00	0.0	93	140	7.20
11:36	6.65	16.60	0.656	0.00	0.0	89	140	7.35
11:41	6.64	16.57	0.669	0.00	0.0	89	140	7.50
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-34S

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 3.11' Depth to Well Bottom: 10.01' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.3 Estimated Purge Volume (liters): 4.2

Sample ID: GW-34S Sample Time: 8:30 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:00	7.72	17.91	1.06	1.93	131	102	140	3.11
8:05	6.97	17.91	1.01	0.04	114	69	140	4.40
8:10	6.82	16.92	0.915	0.37	22.2	71	140	4.53
8:15	6.71	16.45	0.926	0.13	14.5	81	140	4.62
8:20	6.62	16.41	0.926	0.00	9.4	87	140	4.71
8:25	6.57	16.35	0.922	0.00	6.9	88	140	4.75
8:30	6.51	16.15	0.918	0.00	6.0	88	140	4.79
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-35S

Date: 5/16/2012 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/Sampling Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 3.94' Depth to Well Bottom: 7.46' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 2.2 Estimated Purge Volume (liters): 5.5

Sample ID: GW-35S Sample Time: 12:50 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:25	6.82	13.88	0.587	2.40	0.0	48	240	3.94
12:30	6.80	13.83	0.492	0.00	0.0	32	215	4.48
12:35	6.78	13.49	0.484	0.00	0.0	24	215	4.53
12:40	6.77	13.42	0.486	0.00	0.0	19	215	4.58
12:45	6.76	13.34	0.487	0.00	0.0	16	215	4.60
12:50	6.74	13.84	0.487	0.00	0.0	13	215	4.60
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 15, 2012*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-7D	GW-7D	40.5	PDB	10:00	Groundwater	VOCs	Not Applicable
GW-7S	GW-7S	19.3	PDB	10:05	Groundwater		Not Applicable
GW-3S	GW-3S	6.2	8.7	12:44	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-3D	GW-3D	82.6	54.0	14:09	Groundwater		Not Applicable
GW-3D-MS	GW-3D	82.6	54.0	14:09	Matrix Spike		Not Applicable
GW-3D-MSD	GW-3D	82.6	54.0	14:09	Matrix Spike Duplicate		Not Applicable
GW-8D	GW-8D	74.8	43.3	15:47	Groundwater		Not Applicable

Additional Comments: GW-7D and GW-7S were sampled for VOCs using passive diffusion bags (PDBs).
GW-7D and GW-7S were then purged dry, remaining parameters collected May 16, 2012.
All other wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 15, 2012*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
DUPLICATE	GW-8D	74.8	43.3	15:47	Blind Duplicate	VOCs/SVOCs/ Metals	Not Applicable
GW-8SR	GW-8SR	4.7	5.9	16:25	Groundwater		Not Applicable
TB-051512	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 16, 2012*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-34S	GW-34S	4.3	4.2	8:30	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-4S	GW-4S	7.1	17.0	9:00 & 10:35	Groundwater		Not Applicable
GW-4D	GW-4D	80.7	8.8	10:17	Groundwater		Not Applicable
GW-28S	GW-28S	3.8	9.8	11:53	Groundwater		Not Applicable
GW-35S	GW-35S	2.2	5.5	12:50	Groundwater		Not Applicable
GW-26D	GW-26D	82.9	33.2	13:44	Groundwater		Not Applicable
GW-29S	GW-29S	7.1	10.7	15:13	Groundwater		Not Applicable

Additional Comments: GW-4S was sampled for VOCs using a passive diffusion bag and then purged dry/allowed to recharge for collection of other parameters
All other wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 16, 2012*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-7S	GW-7S	5.1	7.5	15:45	Groundwater	SVOCs/ Metals	Not Applicable
GW-7D	GW-7D	10.7	10.7	15:50	Groundwater		Not Applicable
TB-051612	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: GW-7D and GW-7S were sampled for SVOCs and Metals after recharging overnight.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 17, 2012*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-30S	GW-30S	6.1	31.5	8:42	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-31S	GW-31S	3.5	4.3	9:30	Groundwater		Not Applicable
GW-32S	GW-32S	3.6	6.4	10:42	Groundwater		Not Applicable
GW-33S	GW-33S	1.4	4.9	11:41	Groundwater		Not Applicable
GW-1S	GW-1S	6.5	9.5	12:59	Groundwater		Not Applicable
GW-1D	GW-1D	90.0	62.2	14:43	Groundwater		Not Applicable
TB-110311	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.

APPENDIX E

HISTORICAL ANALYTICAL RESULTS

FIGURE E-1
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1D

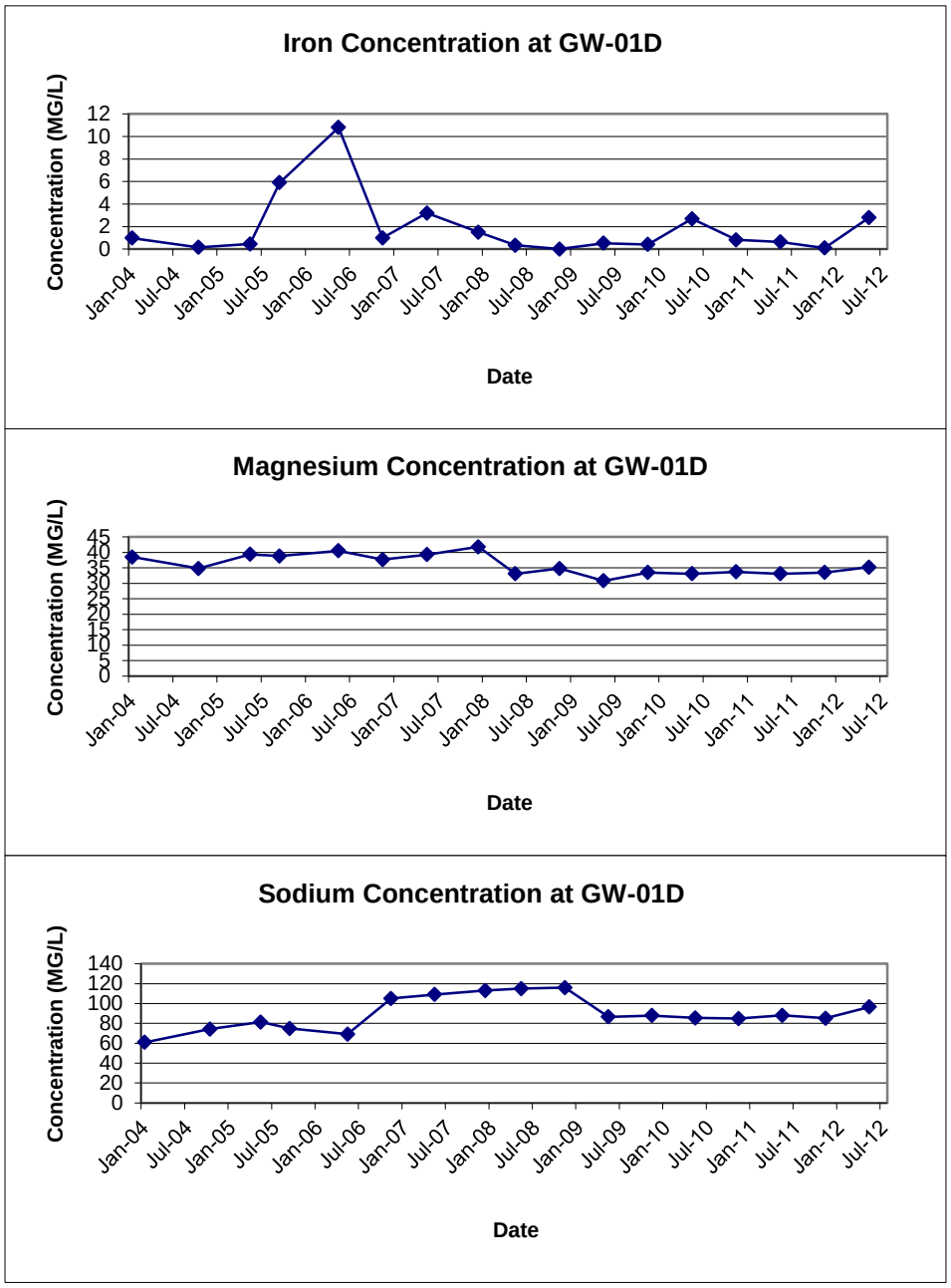


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1S

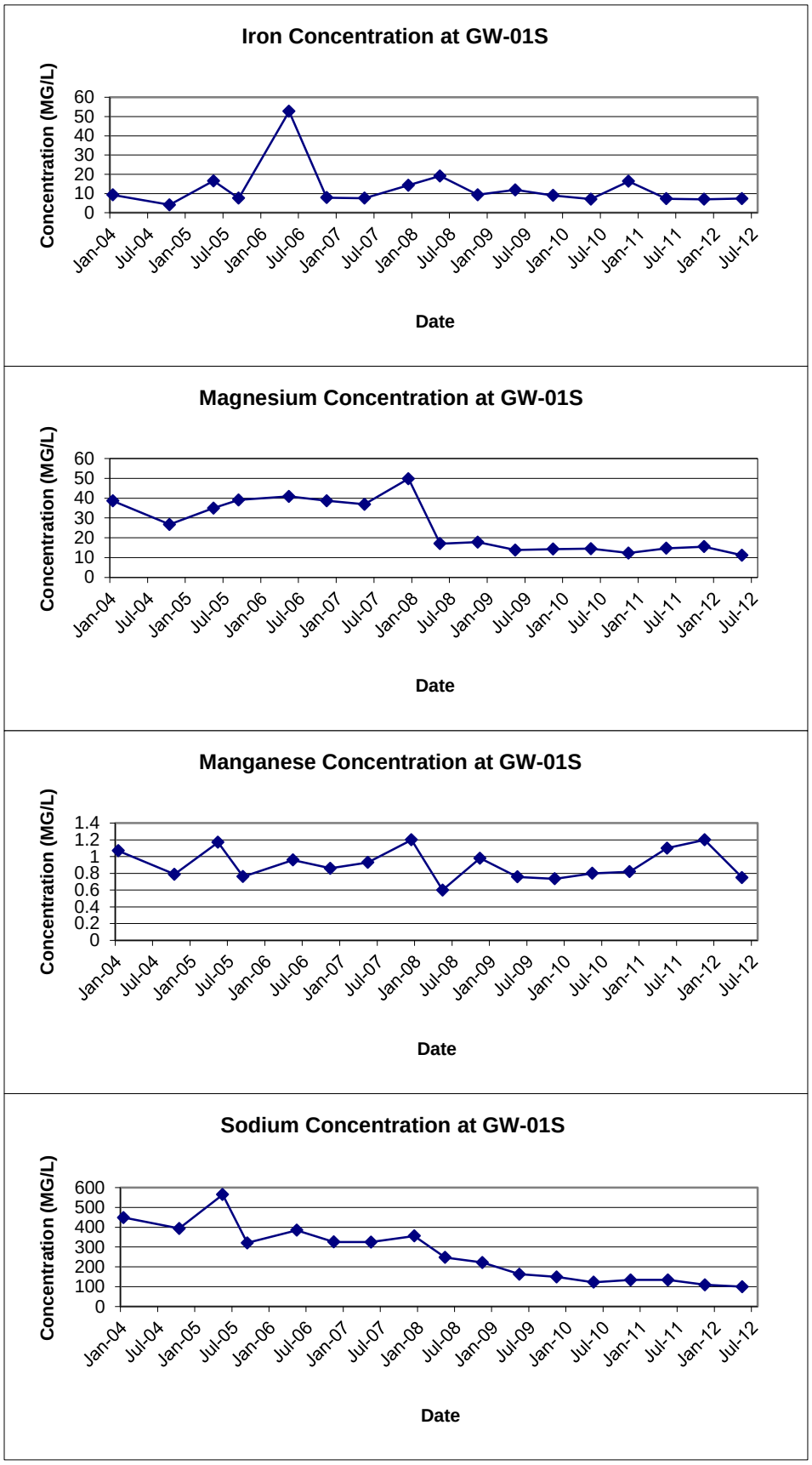


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3D

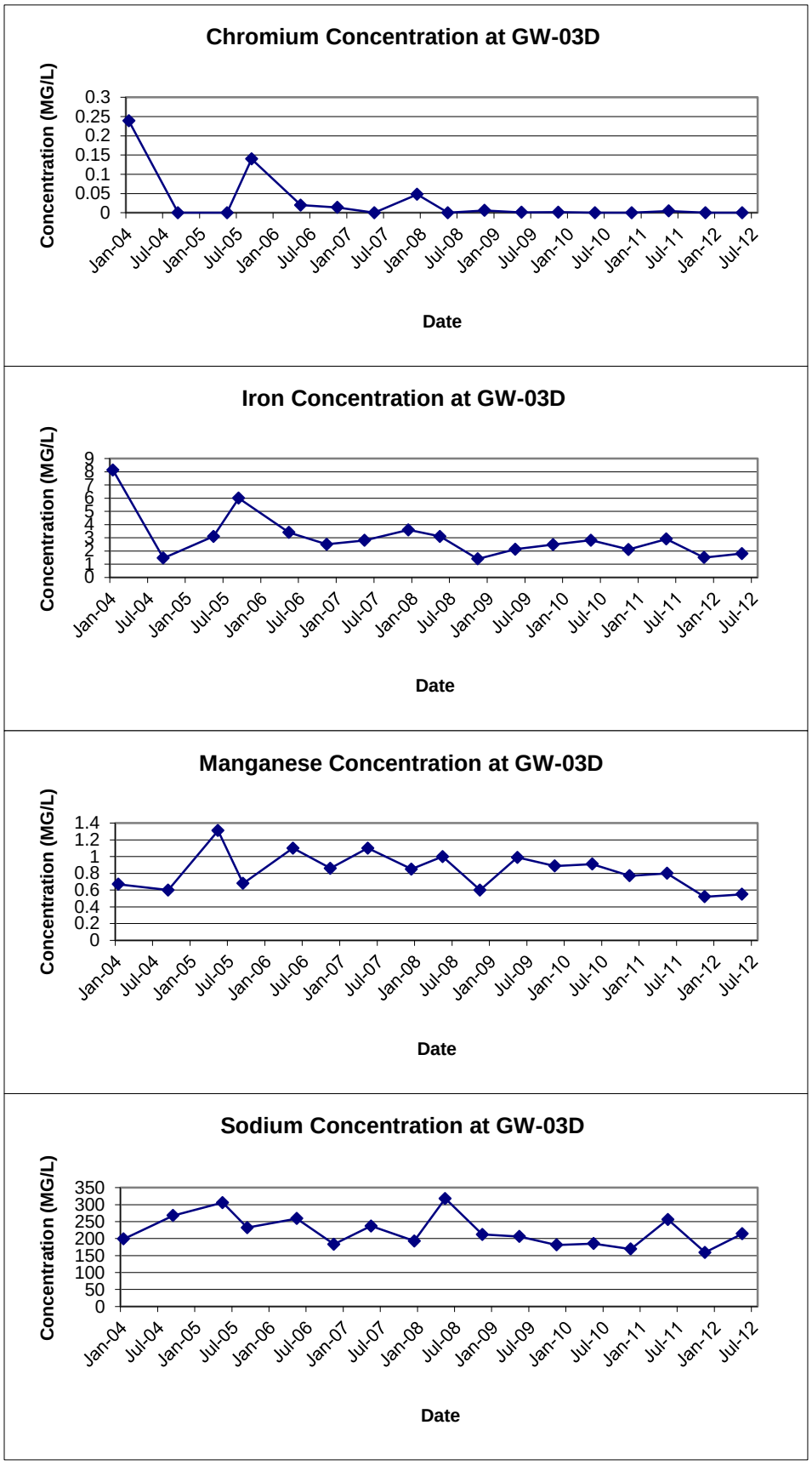


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

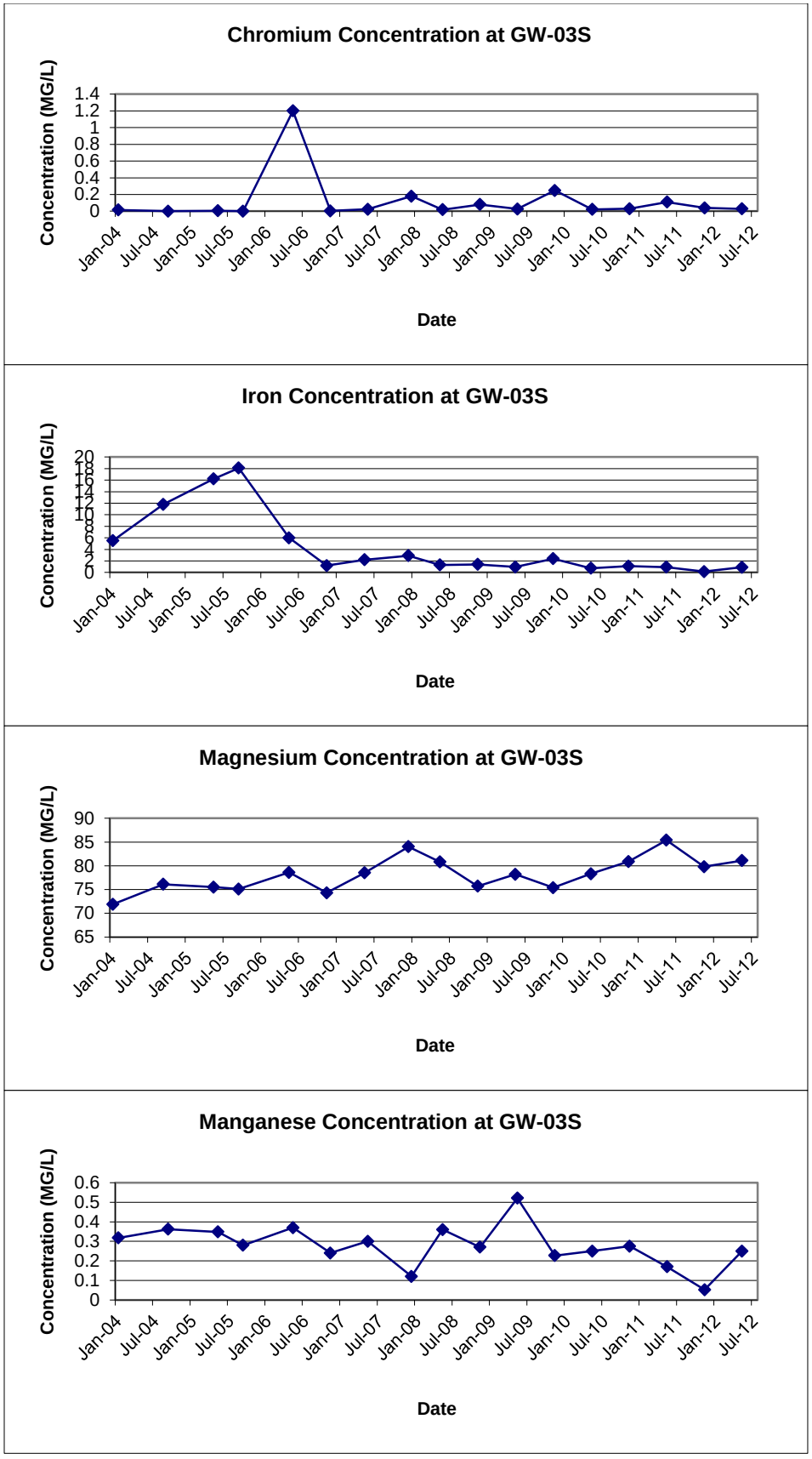


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

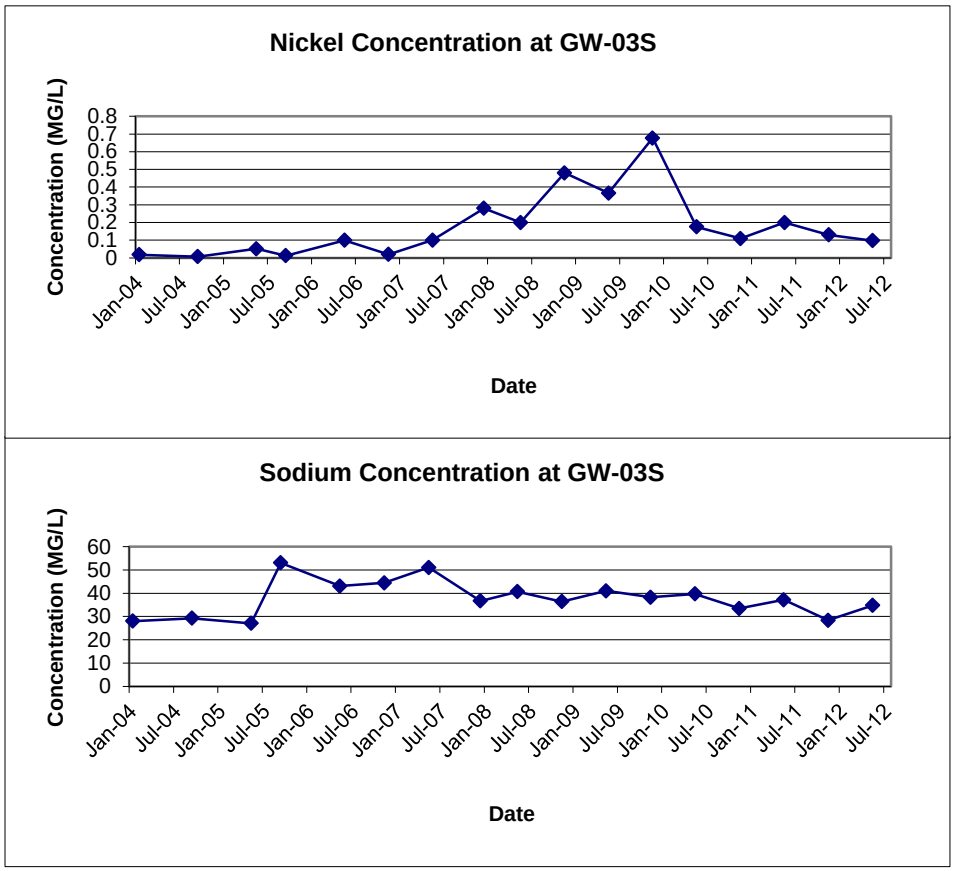


FIGURE E-5
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4D

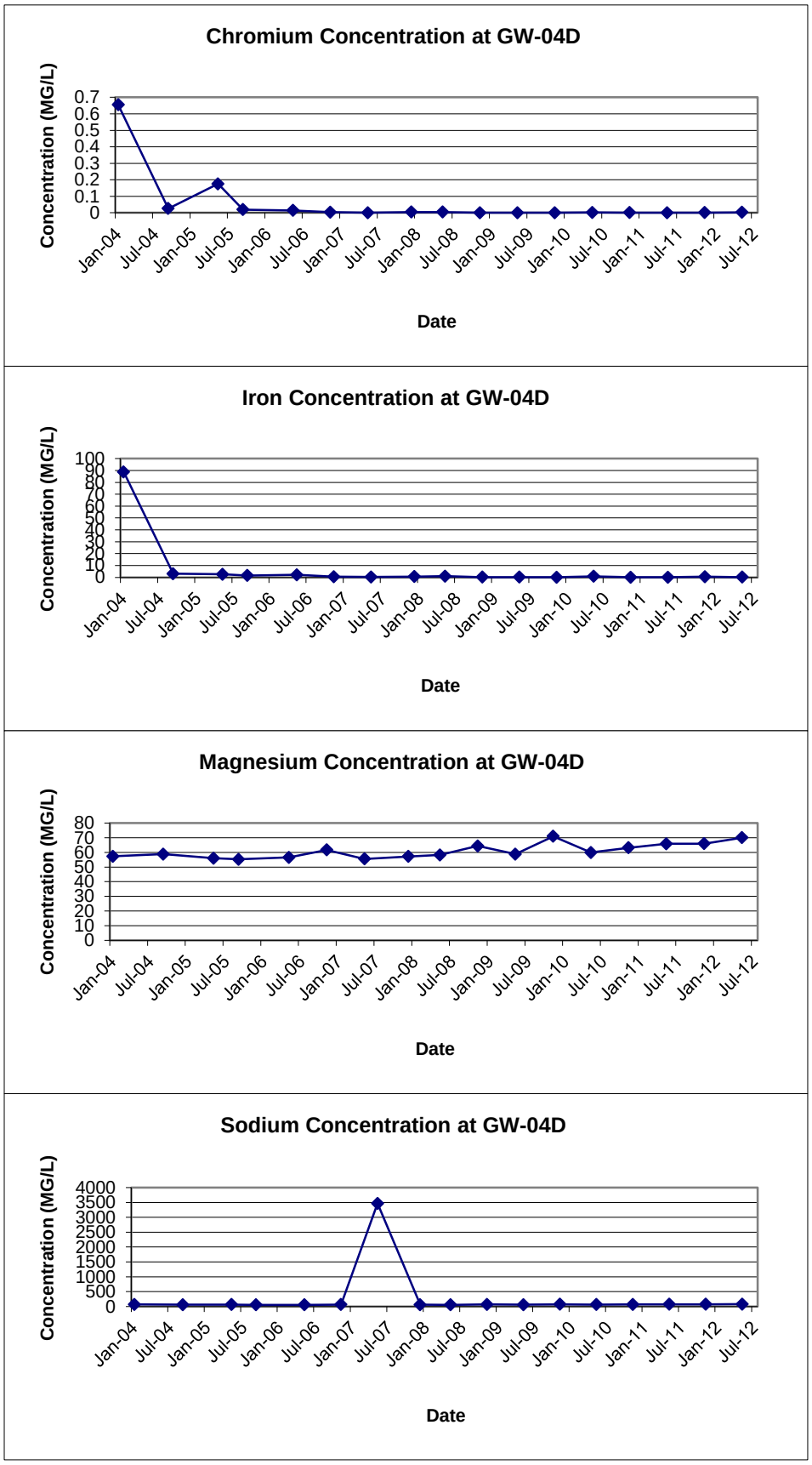


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4S

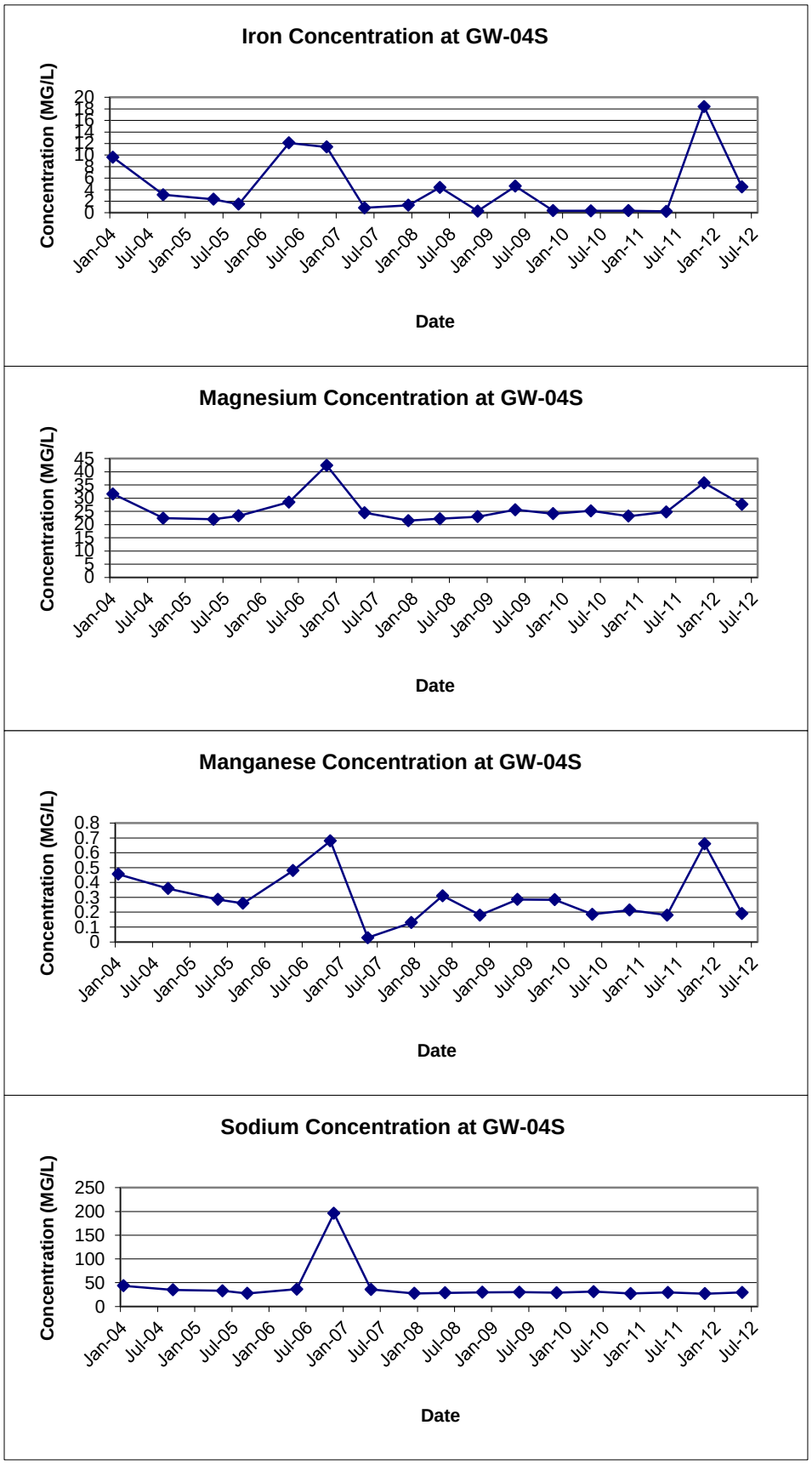


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7D

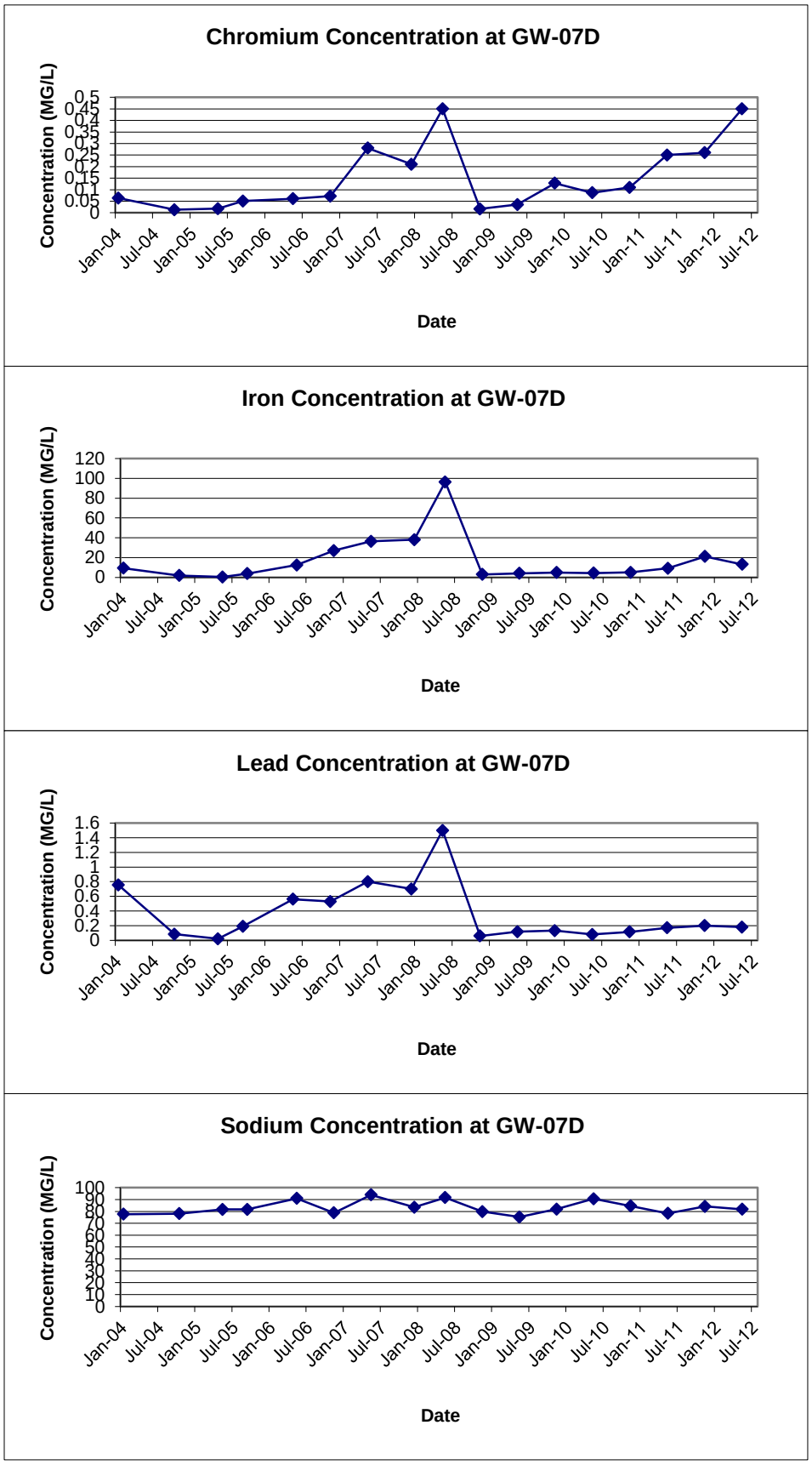


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7S

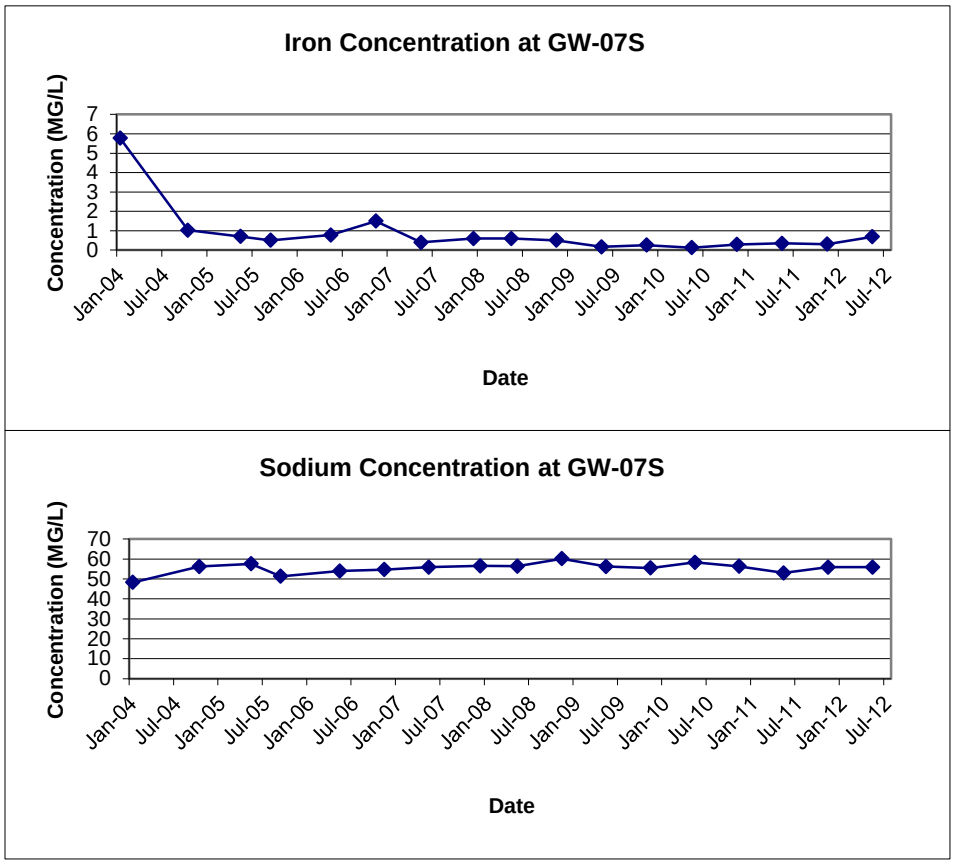


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8D

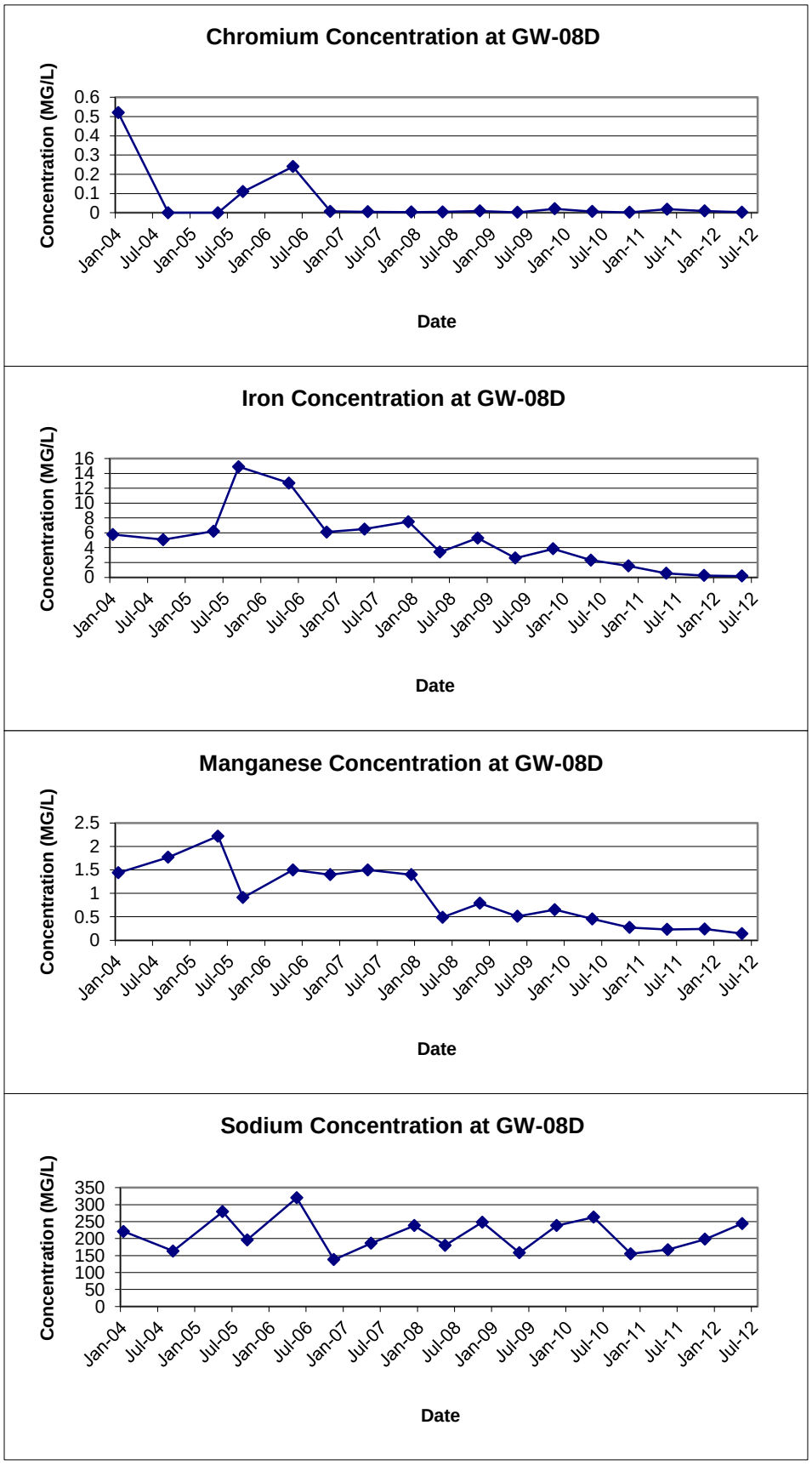


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8SR

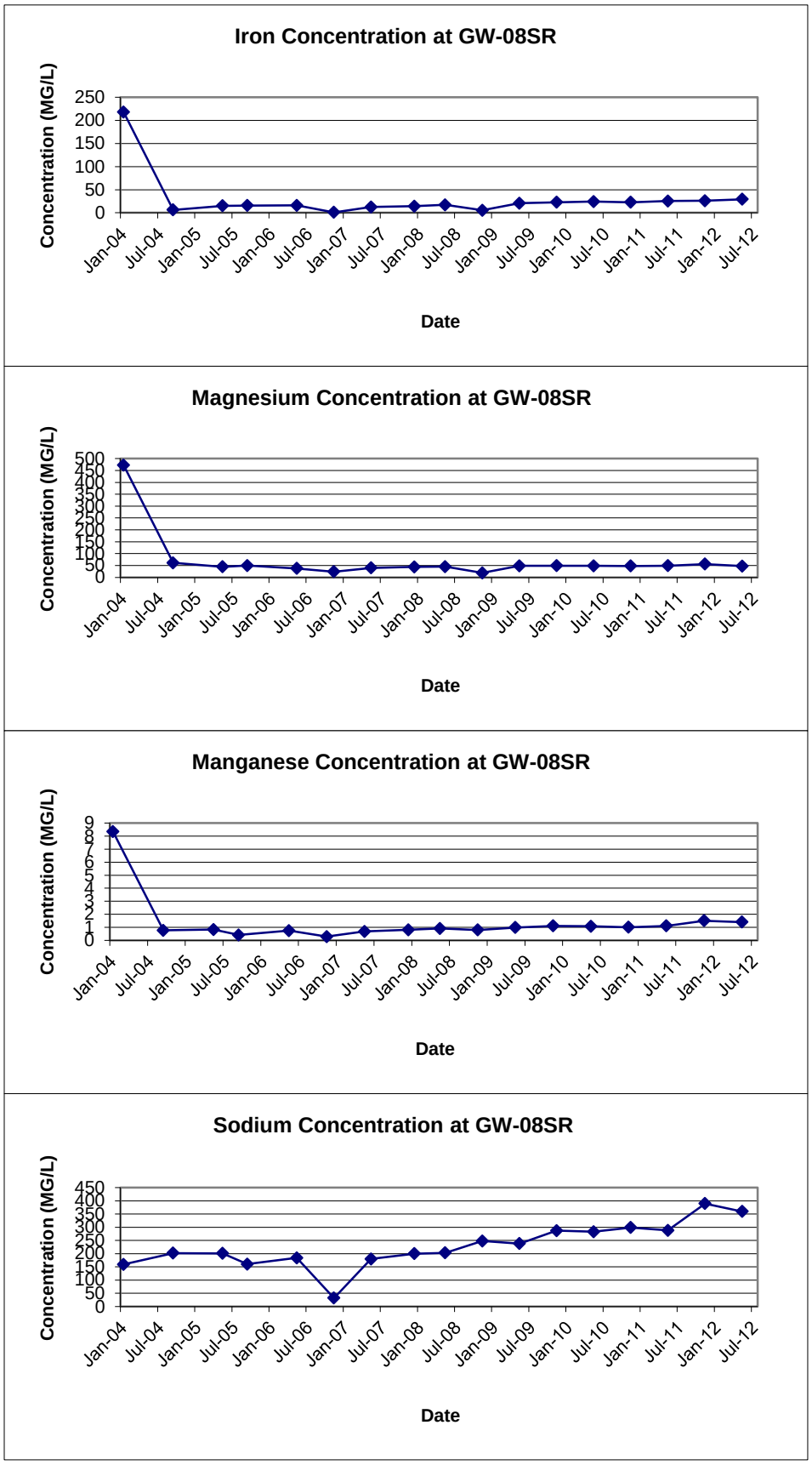


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

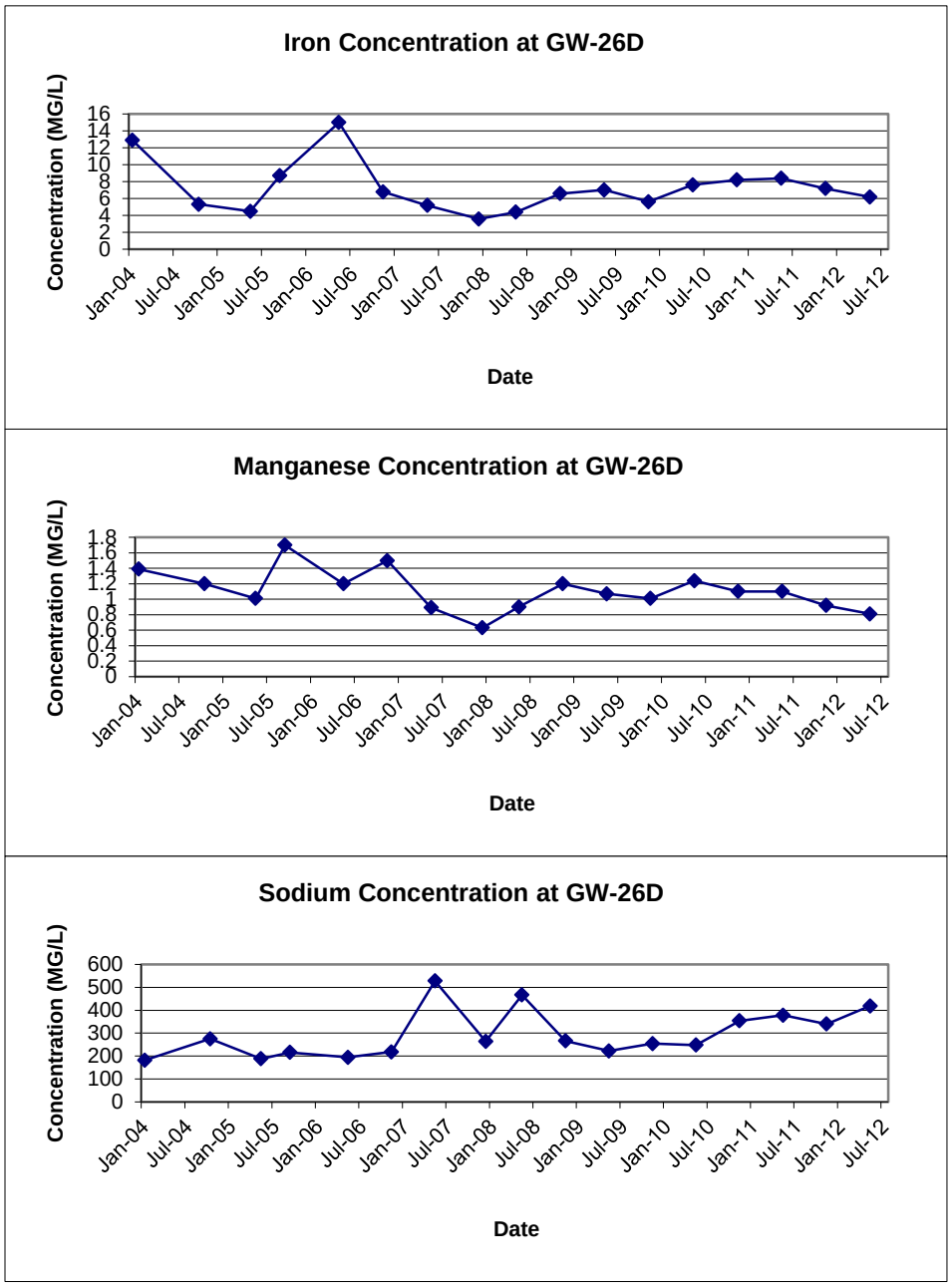


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

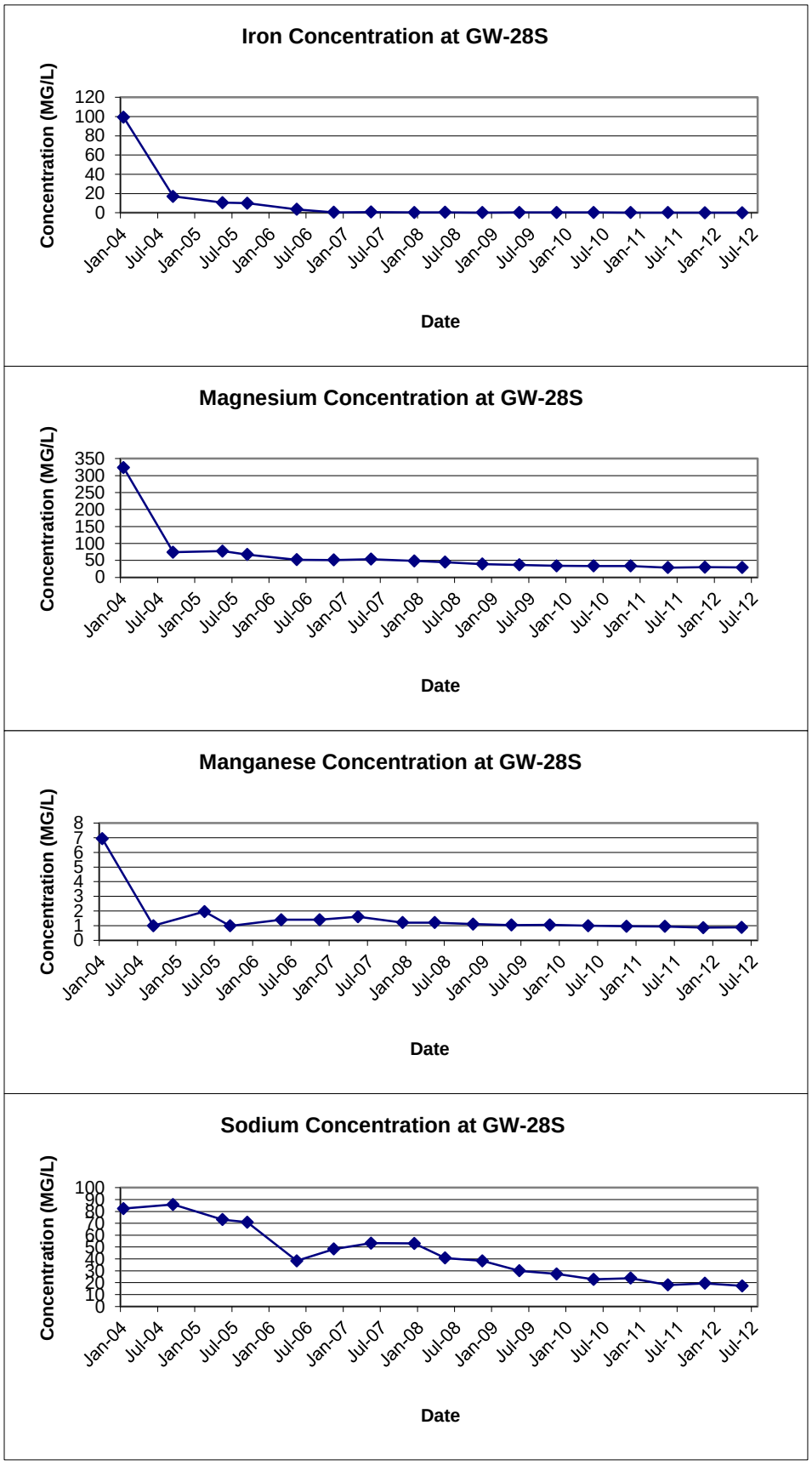


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

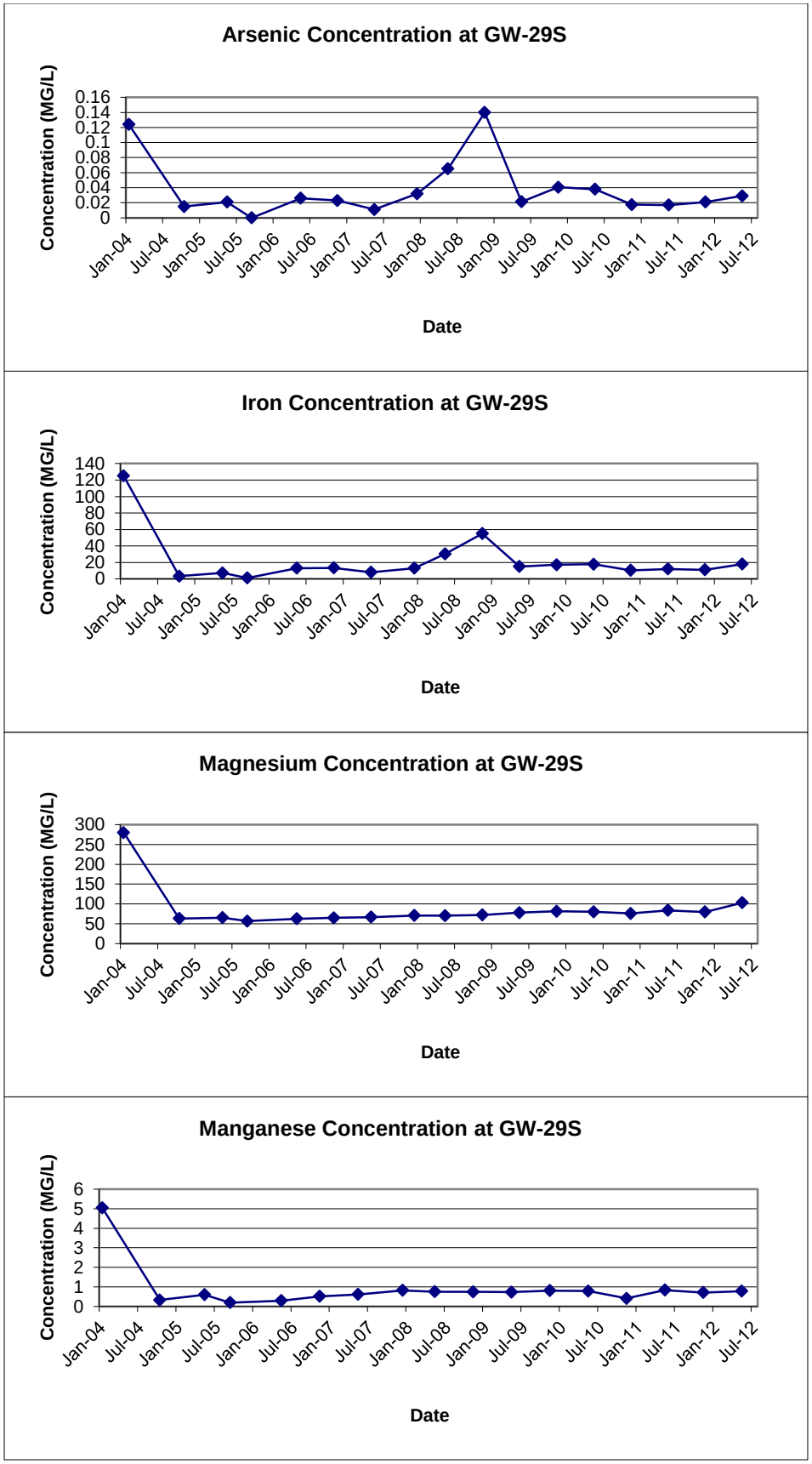


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

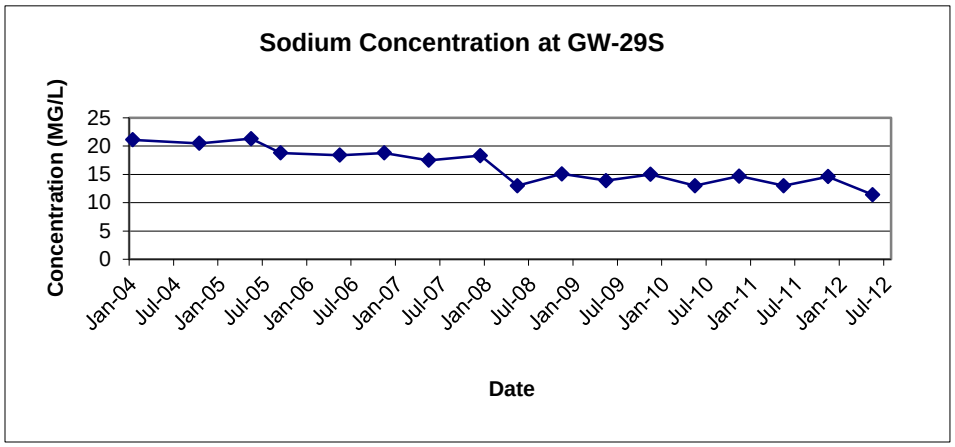


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

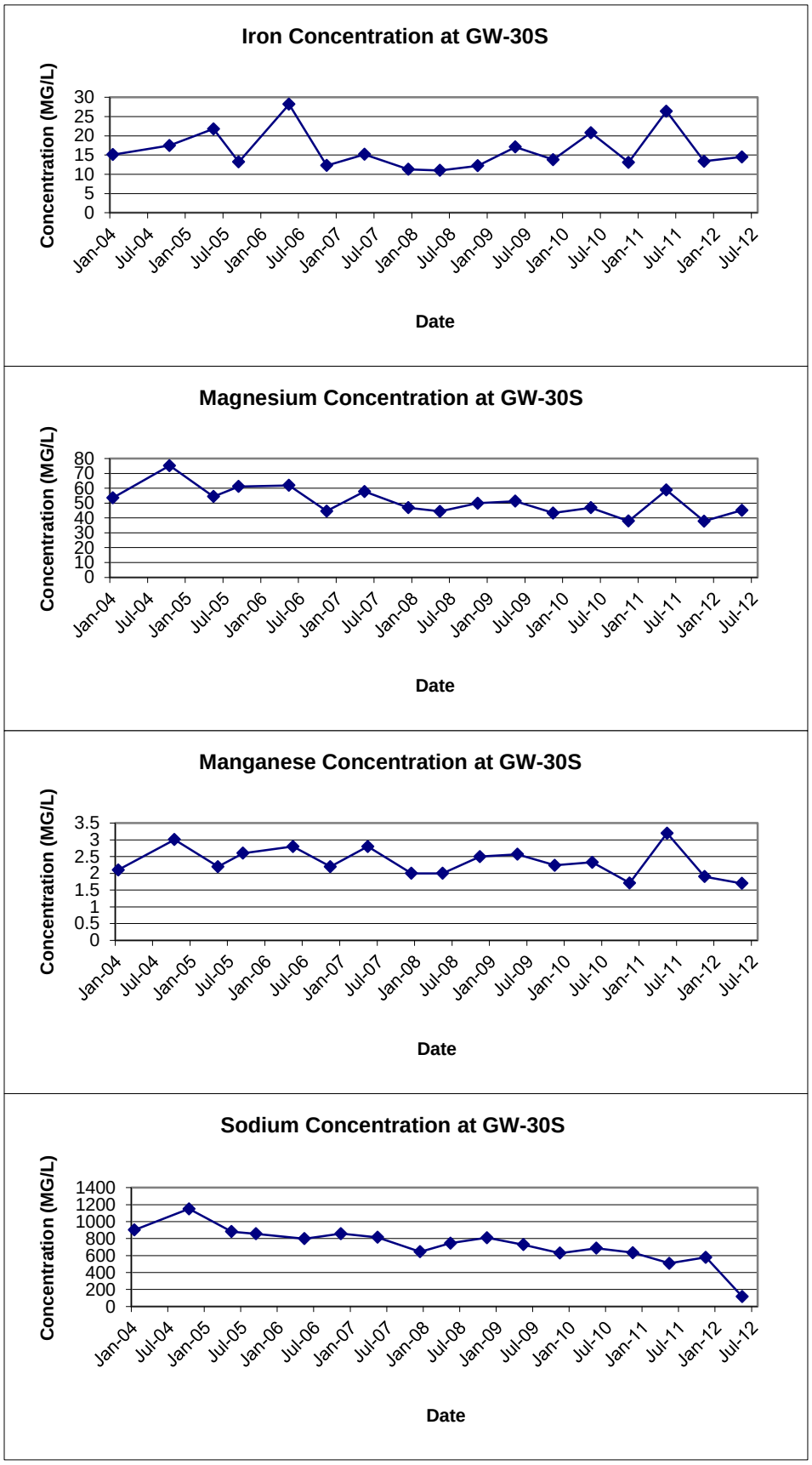


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

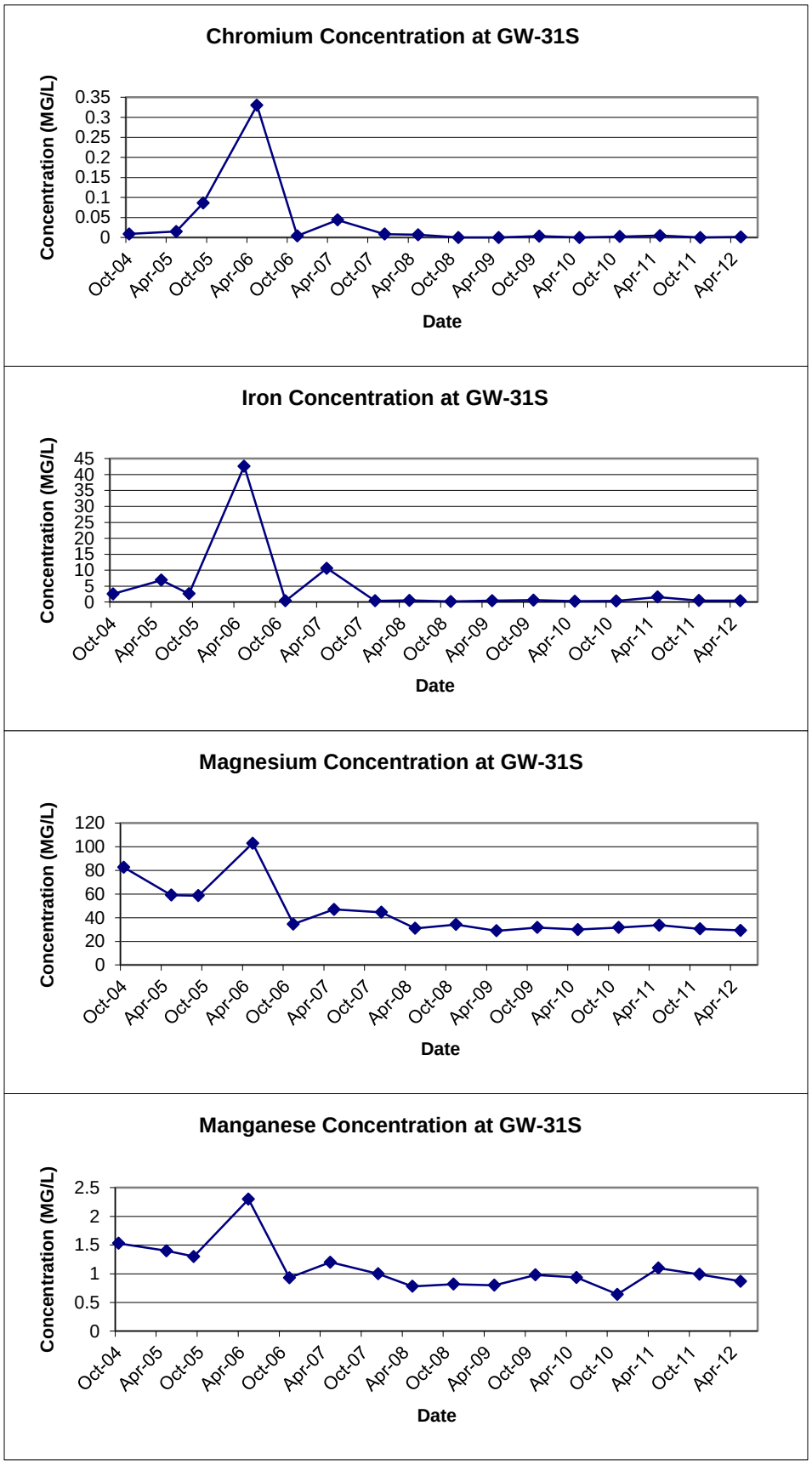


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

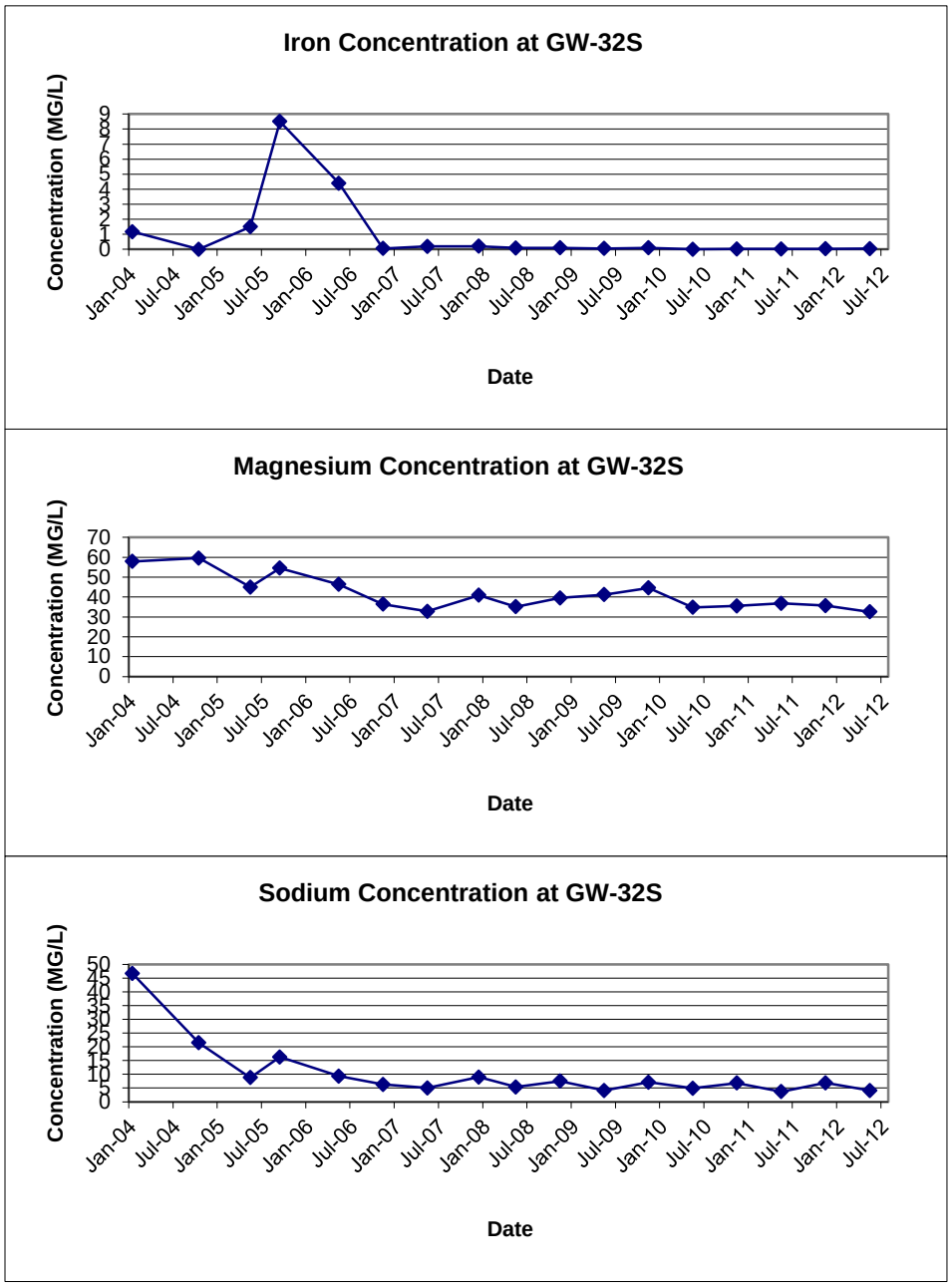


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

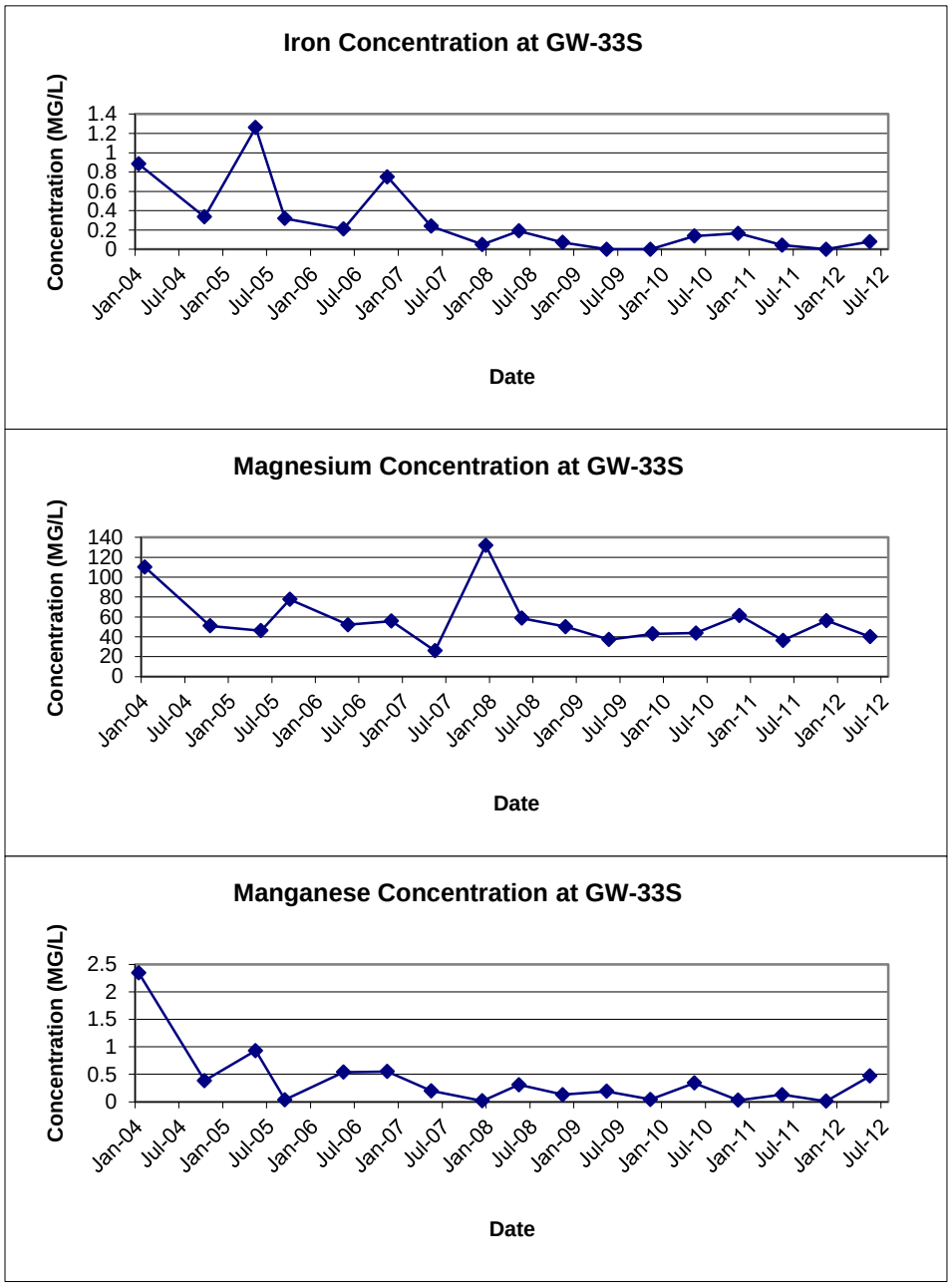


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

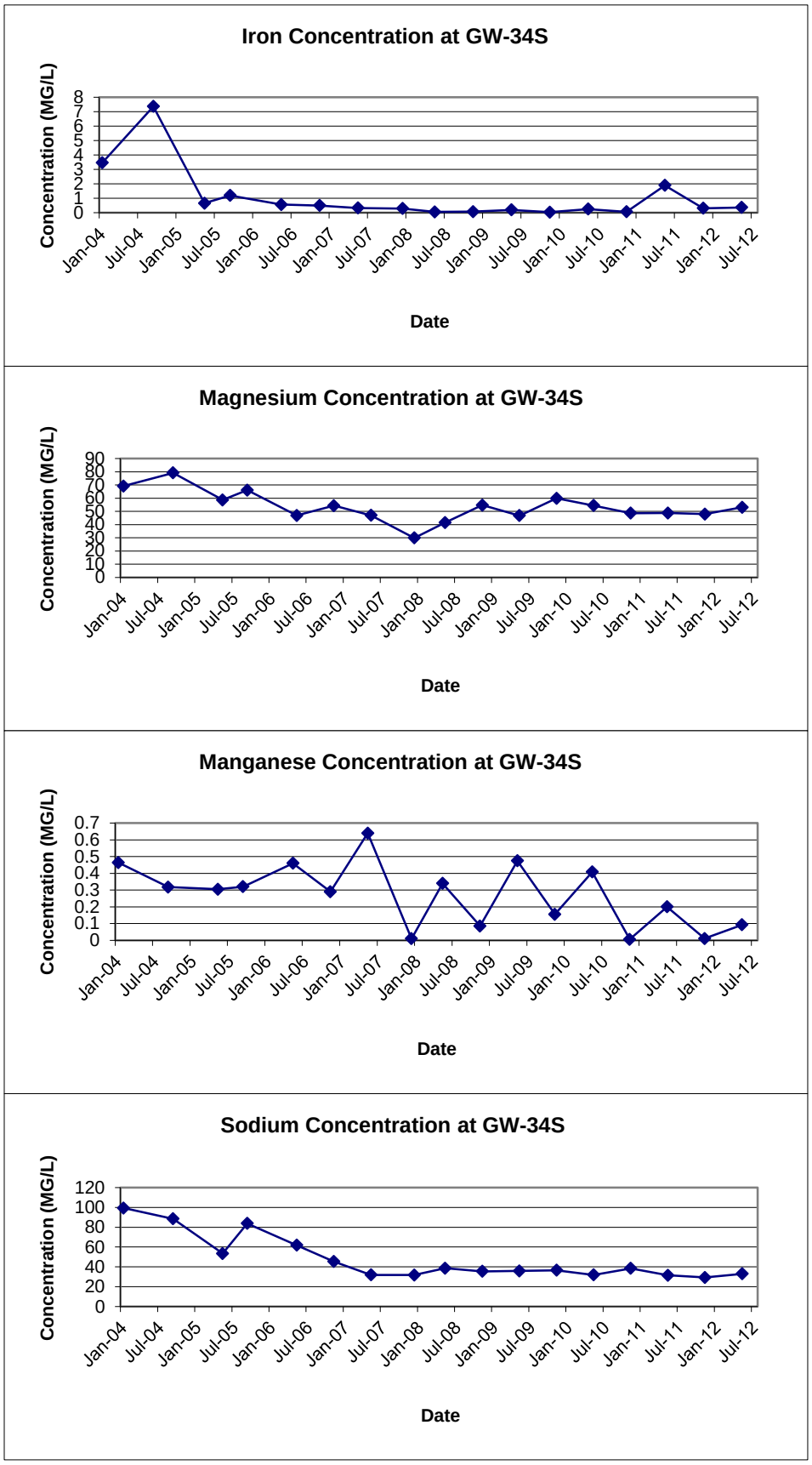
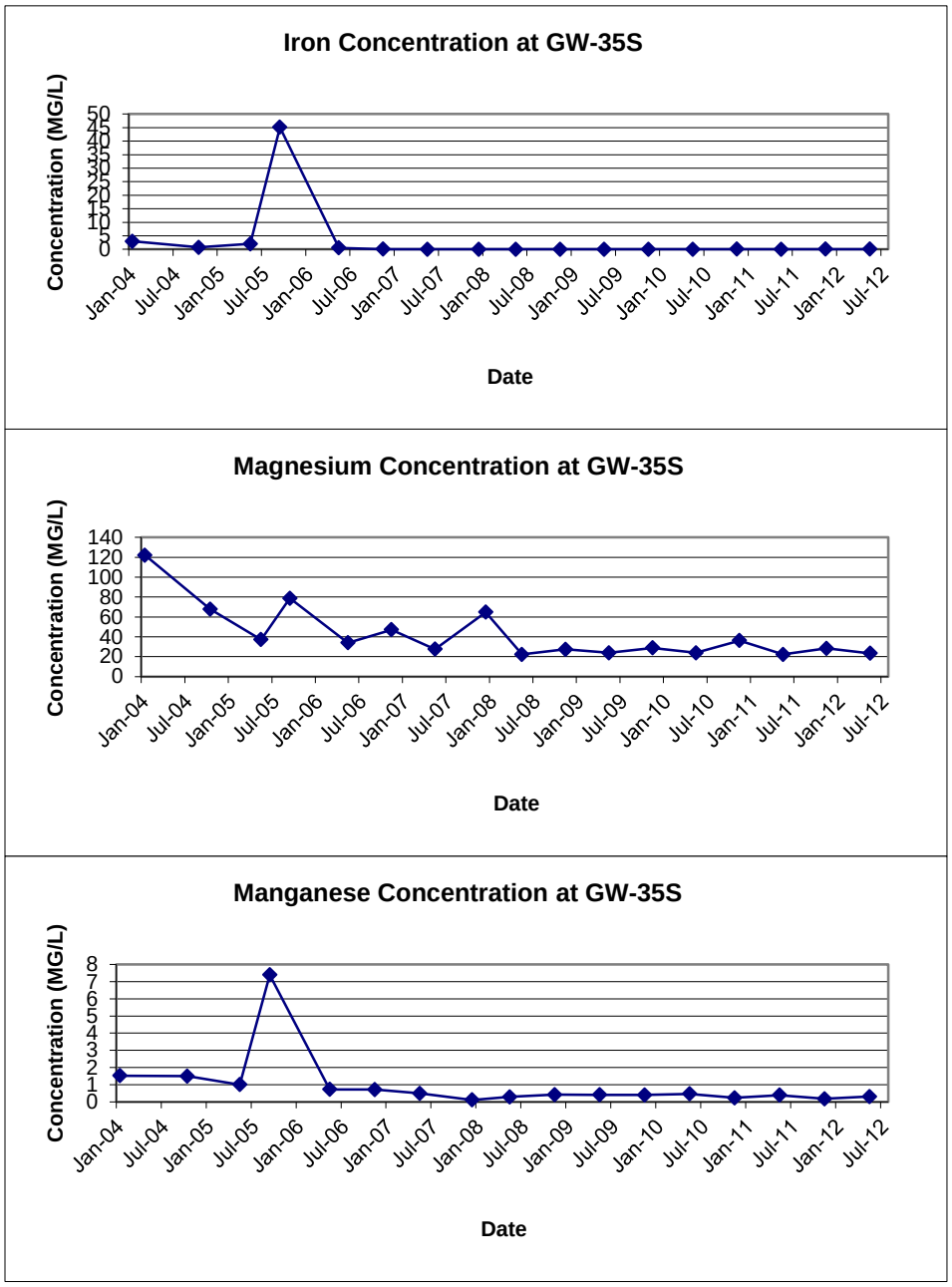


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 10-11-CH016

AUTHORIZATION TO DISCHARGE UNDER THE BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT NO. 10-11-CH016
USEPA Category 40 CFR Part 403

In accordance with the provisions of the Federal Water Pollution Control Act, as amended, and the Sewer Regulations of the Buffalo Sewer Authority, authorization is hereby granted to:

THE TOWN OF CHEEKTOWAGA

to discharge wastewater from a facility located at:

PFOHL BROTHERS LANDFILL REMEDIATION SITE
1000 AERO DRIVE
CHEEKTOWAGA, NEW YORK 14225

The wastewater permitted herein shall be discharged to the Town of Cheektowaga sewer system, which is connected to the Buffalo Municipal Sewer System and Treatment facilities, and which wastewater will be treated at the Buffalo Sewer Authority's Treatment Plant.

Issuance of this permit is based upon a permit application filed on **November 3, 2005** analytical data. This permit is granted in accordance with discharge limitations, monitoring requirements and other conditions set forth in Parts I and II hereof.

Effective this 1st day of November, 2010

To Expire the 31st day of March, 2013

General Manager

Signed this 30th **day of** September **, 2010**

PART I: SPECIFIC CONDITIONS

A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS

During the period beginning the effective date of this Permit and lasting until the expiration date, discharge from the permitted facility outfall (see attached map) shall be limited and monitored **quarterly** by the permittee as specified below.

Sample Point	Parameter	Discharge Limitations[1] Daily Max	Sampling Requirements Period	Type
001	pH	5.0 – 12.0 S.U.	1 day	Composite[2]
	Total Cadmium	1.17 lbs.	1 day	Composite[2]
	Total Chromium	1.17 lbs.	1 day	Composite[2]
	Total Copper	3.74 lbs.	1 day	Composite[2]
	Total Lead	1.17 lbs.	1 day	Composite[2]
	Total Nickel	3.27 lbs.	1 day	Composite[2]
	Total Zinc	5.84 lbs.	1 day	Composite[2]
	Total Barium	2.34 lbs.	1 day	Composite[2]
	Total Suspended Solids[5]	250 mg/l	1 day	Composite[2]
	Total Flow	140,100 gallons[6]	1 day	Discharge meter reading

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS

A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS

During the period beginning the effective date of this Permit and lasting until the expiration date, discharge from the permitted facility outfall (see attached map) shall be limited and monitored **once** by the permittee as specified below.

Sample Point	Parameter	Discharge Limitations[1] Daily Max	Sampling Requirements Period	Type
001	Total Mercury	0.001 lbs.	1 day	Composite[2]
	USEPA Test Method 608[4]	To be monitored	1 day	Grab[3]
	USEPA Test Method 624[4]	To be monitored	1 day	Grab[3]
	USEPA Test Method 625[4]	To be monitored	1 day	Grab[3]

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS

B. DISCHARGE MONITORING REPORTING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported **quarterly** by the permittee on the days specified below:

Sample Point	Parameter	Reporting Requirements	
		Initial Report	**Subsequent Reports**
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	March 31, 2011	Every March 31st, June 30th, September 30th and December 31st
	USEPA Test Methods 608, 624 and 625 & T Mercury	March 31, 2011	

PART I: SPECIFIC CONDITIONS

C. SPECIAL REQUIREMENTS

1. Mass limits based on an average discharge of 140,100 gpd.

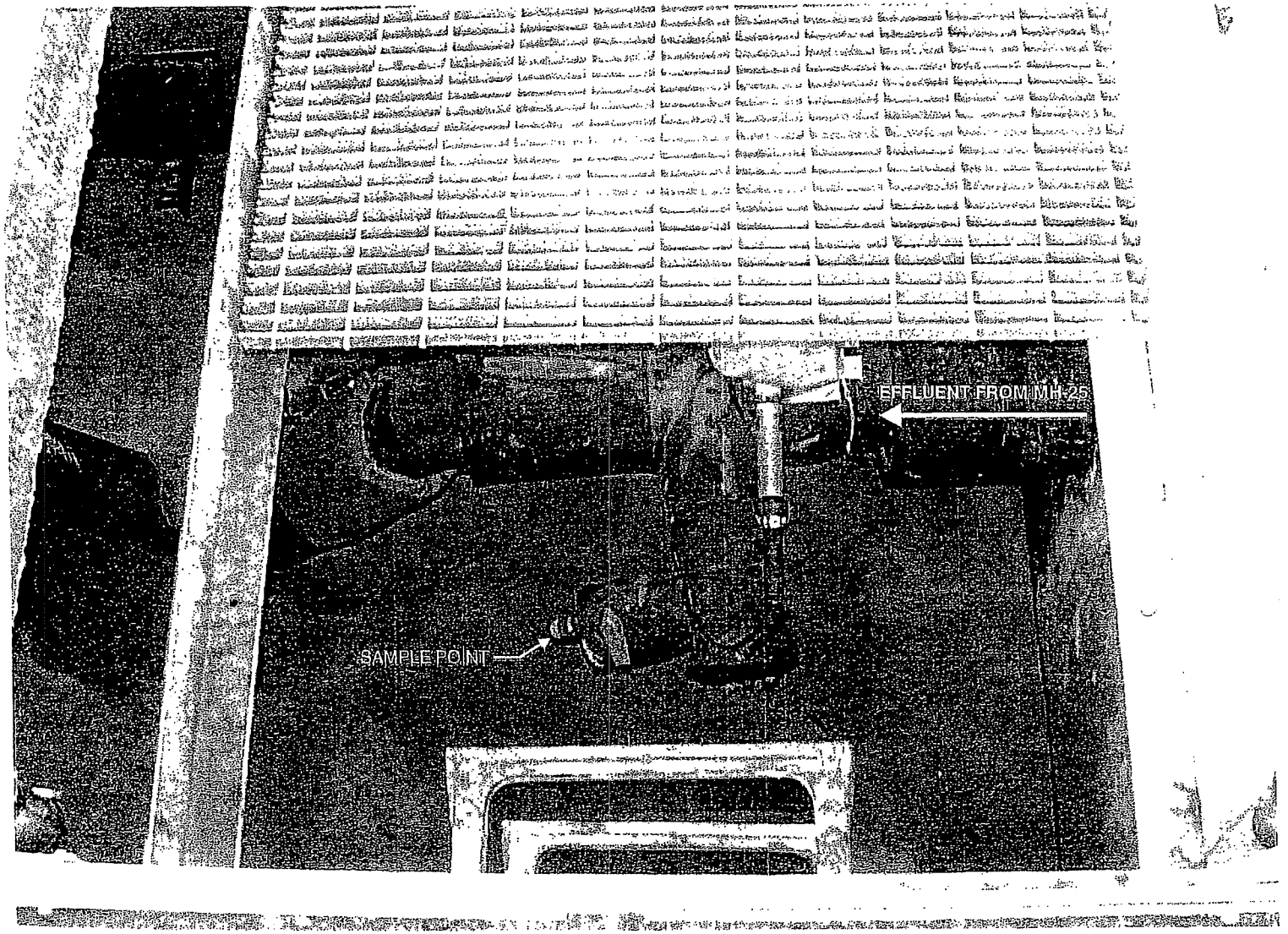
2. Composite samples may be time proportioned.

3. Four grab samples must be collected at equally spaced intervals throughout the sample day. The four (4) grab samples must be composited by a NYSDOH certified laboratory prior to analysis.

4. The permittee must report any compound whose concentration is equal to or greater than 0.01 mg/L. The permittee is not authorized to discharge any of the parameters evaluated by these test procedures which may cause or contribute to a violation of water quality standards or harm the sewerage system. Any parameter detected may, at the discretion of the BSA, be specifically limited and incorporated in this permit.

5. Surchargeable over 250 mg/L.

6. Flow is an action level only. If the permittee consistently exceeds this level, the BSA must be notified so that this permit can be modified.



URS

PFOHL BROTHERS LANDFILL
EFFLUENT SAMPLE POINT

FIGURE 1

PART II GENERAL CONDITIONS

A. MONITORING AND REPORTING

1. Local Limits

Except as otherwise specified in this permit, the permit holder shall comply with all specific prohibitions, limits on pollutants or pollutant parameters set forth in the Buffalo Sewer Authority Sewer Use Regulations, as amended from time to time, and such prohibitions, limits and parameters shall be deemed pretreatment standards for purposes of the Clean Water Act

2. Definitions

Definitions of terms contained in this permit are as defined in the Town of Cheektowaga Local Law No. 2 and the Buffalo Sewer Authority Sewer Use Regulations.

3. Discharge Sampling Analysis

All Wastewater discharge samples and analyses and flow measurements shall be representative of the volume and character of the monitored discharge. Methods employed for flow measurements and sample collections and analyses shall conform to the Buffalo Sewer Authority "Sampling Measurement and Analytical Guidelines Sheet."

4. Recording of Results

For each measurement or sample taken pursuant to the requirements of the permit, the Permittee shall record the information as required in the "Sampling Measurement and Analytical Guidelines Sheet."

5. Additional Monitoring by Permittee

If the Permittee monitors any pollutants at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified in 40 CFR Part 136 the results of such monitoring shall be included in the calculation and reporting of values required under Part I, B. Such increased frequency shall also be indicated.

6. Reporting

All reports prepared in accordance with this Permit shall be submitted to:

Mr. William Pugh, P.E.
Town Engineer
275 Alexander Ave.
Cheektowaga, New York, 14211

All self-monitoring reports shall be prepared in accordance with the BSA "Sampling Measurement and Analytical Guidelines Sheet." These reporting requirements shall not relieve the Permittee of any other reports, which may be required by the

N.Y.S.D.E.C. or the U.S.E.P.A.

B. PERMITTEE REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit and with the information contained in the TC/BPDES Permit Application on which basis this permit is granted. In the event of any facility expansions, production increases, process modifications or the installation, modification or repair of any pretreatment equipment which may result in new, different or increased discharges of pollutants, a new TC/BPDES Permit Application must be submitted prior to any change. Following receipt of an amended application, the BSA may modify this permit to specify and limit any pollutants not previously limited. In the event that the proposed change will be covered under an applicable Categorical Standard, a Baseline Monitoring Report must be submitted at least ninety (90) days prior to any discharge.

2. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed, calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation shall be retained at this facility for a minimum of three (3) years, or longer if requested by the General Manager and/or Town Engineer.

3. Notification of Slug, Accidental Discharge or Spill

In the event that a slug, accidental discharge or any spill occurs at the facility for which this permit is issued, it is the responsibility of the Permittee to immediately notify the B.S.A. Treatment Plant at 883-1820 of the quantity and character of such discharge. If requested by the B.S.A., within five (5) days following all such discharges, the Permittee shall submit a report describing the character and duration of the discharge, the cause of the discharge, and measures taken or that will be taken to prevent a recurrence of such discharge.

4. Noncompliance Notification

If, for any reason, the Permittee does not comply with or will be unable to comply with any discharge limitation specified in this permit, the Permittee or their assigns must verbally notify the Industrial Waste Section at 883-1820 within twenty-four (24) hours of becoming aware of the violation. The Permittee shall provide the Industrial Waste Section with the following information, in writing, within five (5) days of becoming aware of such condition:

a. a description of the discharge and cause of noncompliance and;

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

5. Adverse Impact

The Permittee shall take all reasonable steps to minimize any adverse impact to the Buffalo and Town Sewerage System resulting from noncompliance with any discharge limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

6. Waste Residuals

Solids, sludges, filter backwash or other pollutants removed in the course of treatment or control of wastewaters and/or the treatment of intake waters, shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the Buffalo or Town Sewer System.

7. Power Failures

In order to maintain compliance with the discharge limitations and prohibitions of this permit, the Permittee shall provide an alternative power source sufficient to operate the wastewater control facilities; or, if such alternative power source is not provided the Permittee shall halt, reduce or otherwise control production and/or controlled discharges upon the loss of power to the wastewater control facilities.

8. Treatment Upsets

a. Any industrial user which experiences an upset in operations that places it in a temporary state of noncompliance, which is not the result of operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation, shall inform the Industrial Waste Section immediately upon becoming aware of the upset. Where such information is given verbally, a written report shall be filed by the user within five (5) days. The report shall contain:

   (i) A description of the upset, its cause(s) and impact on the discharger's compliance status.

   (ii) The duration of noncompliance, including exact dates and times of noncompliance, and if the noncompliance is continuing, the time by which compliance is reasonably expected to be restored

   (iii) All steps taken or planned to reduce, eliminate, and prevent recurrence of such an upset.

b. An industrial user which complies with the notification provisions of this Section in a timely manner shall have an affirmative defense to any enforcement action brought by the Industrial Waste Section/Town Engineer for any noncompliance of the limits in this permit, which arises out of violations attributable to and alleged to have occurred during the period of the documented and verified upset.

9. Treatment Bypasses

a. A bypass of the treatment system is prohibited unless the following conditions are met:

(i) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; or

(ii) There was no feasible alternative to the bypass, including the use of auxiliary treatment or retention of the wastewater; and

(iii) The industrial user properly notified the Industrial Waste Section as described in paragraph b. below.

b. Industrial users must provide immediate notice to the Industrial Waste Section upon delivery of an unanticipated bypass. If necessary, the Industrial Waste Section may require the industrial user to submit a written report explaining the cause(s), nature, and duration of the bypass, and the steps being taken to prevent its recurrence.

c. An industrial user may allow a bypass to occur which does not cause pretreatment standards or requirements to be violated, but only if it is for essential maintenance to ensure efficient operation of the treatment system. Industrial users anticipating a bypass must submit notice to the Industrial Waste Section at least ten (10) days in advance. The Industrial Waste Section may only approve the anticipated bypass if the circumstances satisfy those set forth in paragraph a. above.

C. PERMITTEE RESPONSIBILITIES

1. Permit Availability

The originally signed permit must be available upon request at all times for review at the address stated on the first page of this permit.

2. Inspections

The Permittee shall allow the representatives of the Buffalo Sewer Authority or Town of Cheektowaga upon the presentation of credentials and during normal working hours or at any other reasonable times, to have access to and copy any records required in this permit; and to sample any discharge of pollutants.

3. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities for which this permit has been issued the permit shall become null and void. The succeeding owner shall submit a completed Town of Cheektowaga/ Buffalo Sewer Authority permit application prior to discharge to the sewer system.

D. PERMITTEE LIABILITIES

1. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to the following:

a. Violation of any terms or conditions of this permit,

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts,

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

2. Imminent Danger

In the event there exists an imminent danger to health or property, the permitter reserves the right to take immediate action to halt the permitted discharge to the sewerage works.

3. Civil and Criminal Liability

Nothing in this permit shall relieve the Permittee from any requirements, liabilities, or penalties under provisions of the Town of Cheektowaga Local Law No. 2, the "Sewer Regulations of the Buffalo Sewer Authority" or any Federal, State and/or local laws or regulations.

4. Penalties for Violations of Permit Conditions

The "Sewer Regulations of the Buffalo Sewer Authority" and Town of Cheektowaga Local Law No. 2, provide that any person who violates a B.P.D.E.S. permit condition is liable to the Authority and/or the Town for a civil penalty of up to $10,000 per day for each violation. Any person who willfully or negligently violates permit conditions will be referred to the New York State Attorney General.

E. NATIONAL PRETREATMENT STANDARDS

If a pretreatment standard or prohibition (including any Schedule of Compliance specified in such pretreatment standard or prohibition) is established under Section 307 (b) of the Act for a pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with such pretreatment standard or prohibition.

F. PLANT CLOSURE

In the event of plant closure, the Permittee is required to notify the Industrial Waste Section/Town Engineer in writing as soon as an anticipated closure date is determined, but in no case later than five (5) days of the actual closure.

G. CONFIDENTIALITY

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Buffalo Sewer Authority or Town Engineer of the Town of Cheektowaga. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

H. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

APPENDIX G

DISCHARGE REPORT SUMMARY TABLES

SAMPLING FIELD SHEET

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Bill Pugh, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

Sample Location: Meter Chamber - ball valve on 6" HDPE forcemain

Date: 03/26/12 Crew: R. Murphy, T. Ifkovich, J. Brayer

Weather: 35° F, Clear

Sampling Device: NA

Time of Installation: 09:45 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-06 was running at the time of sample setup.
PLC display volumes: WW-01 (1,241,323 gals), WW-02 (-4,140 gals), WW-03 (855,519 gals),
WW-04 (708,513 gals), WW-05 (3,489,919 gals), WW-06 (5,483,868 gals) & MH-25 (11,965,900 gals).

Date: 03/27/12 Crew: R. Murphy, T. Ifkovich, J. Brayer

Weather: 36° F, Clear

Time of Collection: 09:45

Field Measurements:

09:45/RJM
(time/initial)

pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10

pH Measurement: 7.6

Temperature: 9.3°C

Identification: EFF-032712

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (1,241,323 gals), WW-02 (-4,258 gals), WW-03 (855,519 gals),
WW-04 (708,513 gals), WW-05 (3,501,551 gals), WW-06 (5,542,408 gals) & MH-25 (12,036,117 gals).

Reviewed By: Date:
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS MARCH 2012

Sample ID	**EFF-032712**			
Matrix	**Effluent Water**			
Date Sampled	**3/27/2012**			
Parameter	**Result**	**Mass Loading**	**Discharge Limitation**	**Violations**
	(mg/L)	**(lbs/day)**	**(lbs/day)**	**(Y/N)**
Total Barium	0.23	0.13	2.34	No
Total Cadmuim	ND(1)	NA(2)	1.17	No
Total Chromium	0.0014	0.0008	1.17	No
Total Copper	0.05	0.029	3.74	No
Total Lead	ND	NA	1.17	No
Total Nickel	0.0037	0.0022	3.27	No
Total Zinc	0.13	0.076	5.84	No
Total Suspended Solids	25.6	NA	250 (3)	No
pH (4)	7.9	NA	5.0 - 12.0	No
Total Flow (5)		70,217	140,000	No

Notes:

(1) ND = Not Detected
(2) NA = Not Applicable
(3) Discharge Limitation in units of mg/L
(4) pH measurement and Discharge Limitation in Standard Units
(5) Total Flow reported in gallons, sample was collected over a 24 hour period

Calculation: $\left(\frac{x\ mg}{L}\right)\left(\frac{y\ gal}{day}\right)\left(\frac{1\ lb}{453{,}600\ mg}\right)\left(\frac{3.785\ L}{gal}\right) = \frac{x \times y}{119{,}841}\ \frac{lb}{day}$

SAMPLING FIELD SHEET

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Bill Pugh, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

Sample Location: Meter Chamber - ball valve on 6" HDPE forcemain

Date: 6/20/12 Crew: R. Murphy, T. Urban, S. Conway

Weather: 90° F, Clear

Sampling Device: NA

Time of Installation: 12:55 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-06 was running at the time of sample setup.
PLC display volumes: WW-01 (1,434,559 gals), WW-02 (-5,014 gals), WW-03 (1,173,011 gals),
WW-04 (708,631 gals), WW-05 (4,475,978 gals), WW-06 (6,511,214 gals) & MH-25 (14,486,555 gals).

Date: 6/21/12 Crew: R. Murphy, T. Urban, S. Conway

Weather: 90° F, Clear

Time of Collection: 12:55

Field Measurements:

12:55/RJM
(time/initial)

pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10

pH Measurement: 8.4

Temperature: 22.9°C

Identification: EFF-062112

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (1,467,849 gals), WW-02 (-5,044 gals), WW-03 (1,173,011 gals),
WW-04 (708,631 gals), WW-05 (4,489,634 gals), WW-06 (6,511,214 gals) & MH-25 (14,531,770 gals).

Reviewed By: Date:
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2012

Sample ID	**EFF-062112**			
Matrix	**Effluent Water**			
Date Sampled	**6/21/2012**			
Parameter	**Result**	**Mass Loading**	**Discharge Limitation**	**Violations**
	(mg/L)	**(lbs/day)**	**(lbs/day)**	**(Y/N)**
Total Barium	0.21	0.08	2.34	No
Total Cadmuim	0.0005	0.0002	1.17	No
Total Chromium	0.0019	0.0007	1.17	No
Total Copper	0.0082	0.003	3.74	No
Total Lead	0.003	0.0011	1.17	No
Total Nickel	0.0052	0.0020	3.27	No
Total Zinc	0.025	0.009	5.84	No
Total Suspended Solids	29.2	NA	250 (3)	No
pH (4)	8.37	NA	5.0 - 12.0	No
Total Flow (5)		45,215	140,000	No

Notes:

(1) ND = Not Detected
(2) NA = Not Applicable
(3) Discharge Limitation in units of mg/L
(4) pH measurement and Discharge Limitation in Standard Units
(5) Total Flow reported in gallons, sample was collected over a 24 hour period

Calculation: $$\left(\frac{x\ mg}{L}\right)\left(\frac{y\ gal}{day}\right)\left(\frac{1\ lb}{453{,}600\ mg}\right)\left(\frac{3.785\ L}{gal}\right) = \frac{x \times y}{119{,}841}\ \frac{lb}{day}$$

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 15, 2012*

Well I.D. Number	*Lock*	*Surface Seal*	*Protective Casing*	*Riser*	*Water Level (ft. BTOC)*	*Well Depth (ft. BTOC)*	*Other Comments*
GW-1S	OK	OK	OK	Bulged	4.24	14.94	
GW-1D	OK	OK	OK	Bulged	3.09	39.65	
GW-3S	OK	OK	OK	OK	2.73	13.22	
GW-3D	OK	OK	OK	OK	2.29	35.70	
GW-4S	OK	OK	OK	OK	4.66	16.23	
GW-4D	OK	OK	OK	OK	13.04	45.57	
GW-7S	OK	OK	OK	OK	5.00	35.04	
GW-7D	OK	OK	OK	Damaged	44.25	60.45	

Additional Comments: _____

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WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 15, 2012*

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-8SR	OK	OK	OK	OK	5.34	13.02	
GW-8D	OK	OK	OK	OK	6.27	36.54	
GW-26D	OK	OK	OK	OK	7.12	40.70	
GW-28S	OK	OK	OK	OK	9.27	15.52	
GW-29S	OK	OK	OK	OK	8.39	20.04	
GW-30S	OK	OK	OK	OK	8.05	17.97	
GW-31S	OK	OK	OK	OK	3.45	9.57	
GW-32S	OK	OK	OK	OK	3.81	9.93	

Additional Comments: _____

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WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 15, 2012*

Well I.D. Number	***Lock***	***Surface Seal***	***Protective Casing***	***Riser***	***Water Level (ft. BTOC)***	***Well Depth (ft. BTOC)***	***Other Comments***
GW-33S	OK	OK	OK	OK	5.60	8.21	
GW-34S	OK	OK	OK	OK	3.05	10.01	
GW-35S	OK	OK	OK	OK	3.81	7.46	

Additional Comments: _____

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