SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2013 TO JUNE 2013
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

FEBRUARY
2014

URS

February 12, 2014

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 nineteenth 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)

URS Corporation
77 Goodell St.
Buffalo, NY 14203
Tel: 716.856.5636
Fax: 716.856.2545

TABLE OF CONTENTS

Page No.

TABLES

FIGURES

APPENDICES

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. 915043 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 nineteenth 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 2013 through June 2013 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 2013 through June 2013, 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 suppressors and fuses as needed for pump station instrumentation equipment.

- Engaged contractor to apply Roundup herbicide to control vegetation growth through the stone access road. Applied herbicide on both Area B and C (i.e., along the

perimeter access road around the landfill areas north and south of Aero Drive) in June 2013.

- Replaced defective level transmitter equipment at WW-3 (April 2013).

- Replaced discharge hose at WW-1 (June 2013).

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 nineteenth 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 nineteenth semi-annual round of groundwater sampling was conducted between May 8, 2013 and May 10, 2013. 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 at most monitoring well locations.

Passive diffusion bags (PDBs) were placed in three monitoring wells with low recharge rates (GW-4S, GW-7S, and GW-7D) on March 27, 2013. 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.

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. 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).

Results

The VOC vinyl chloride was detected in one sample (from GW-30S) at a concentration of 2.2 micrograms per liter (µg/L), slightly exceeding its Class GA water quality standard of 2.0 µg/L. This is the second time vinyl chloride has been detected in this well since sampling began in 2004. It was detected in May 2012 at a concentration of 5.3 µg/L. 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. Nickel was detected at a concentration exceeding its Class A standard at well GW-03S. Antimony, chromium, lead, and nickel were detected at concentrations exceeding Class GA standards in well GW-07D. It is noted that GW-07D is located upgradient

of the site. Arsenic was detected at a concentration exceeding its Class GA standard at 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-03S, nickel at GW-07D, and lead at GW-07D were within the historical range of concentrations observed for these compounds at these wells. The concentration of chromium at GW-07D was the highest it has been since sampling began.

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

A trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards was performed and is presented in Figures E-1 through E-19 of Appendix E. 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 nineteen semi-annual sampling events except as described below. Figure E-2 for GW-01S, indicates an upward trend in iron over the last four sampling events, a recent upward trend in manganese concentrations, and a downward trend in sodium concentration over the nineteen sampling events. Figure E-3 for GW-03D indicates seasonal variations and a slight downward trend for manganese over the last nine sample 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-6 for GW-04S shows a slight upward trend for magnesium over the last 12 events. Figure E-7 for GW-07D shows an upward trend for chromium. 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. Figure E-10 for GW-08SR also indicates an upward trend for manganese. Figures E-12 for GW-28S indicates a decreasing trend for sodium since monitoring began. Figure E-13 for GW-29S shows a slight increasing trend for magnesium over the last 16 events. Figure E-14 for GW-30S indicates a downward trend for magnesium, manganese, and sodium. Figure E-16 shows there is a seasonal variation in sodium concentration in monitoring well GW-32S. Figures E-17 and E-18 for GW-33S and GW-34S indicate a seasonal fluctuation in manganese concentration.

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 2013 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2013 and June 2013) 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. 13-04-CH016 between the Buffalo Sewer Authority and the Town of Cheektowaga. A copy of Permit No. 13-04-CH016 is included as Appendix F.

During the sampling events in March 2013 and June 2013, 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 2013 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 twentieth round of groundwater sampling will be conducted in November 2013. 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 2013

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			05/10/13	05/10/13	05/08/13	05/08/13	05/09/13
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Vinyl chloride	UG/L	2					
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025		0.0098 J		0.0065 J	
Barium	MG/L	1	0.076	0.18	0.079	0.18	0.078
Cadmium	MG/L	0.005				0.00064 J	
Chromium	MG/L	0.05	0.016	0.0040		0.027	0.0014 J
Copper	MG/L	0.2				0.0026 J	
Iron	MG/L	0.3	1.9	23.3	1.3	0.29	0.10
Lead	MG/L	0.025					
Magnesium	MG/L	35	35.6	17.6	16.1	82.0	71.9
Manganese	MG/L	0.3	0.025	1.7	0.48	0.13	0.019
Nickel	MG/L	0.1			0.0034 J	0.18	
Sodium	MG/L	20	101	86.3	167	100	83.4
Zinc	MG/L	2	0.011	0.0065 J		0.017	0.0042 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.

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.

N:\11172700.00000\GIS\dB\Program\EDMS.md
Printed: 11/6/2013 2:00:21 PM
[LOGDATE] BETWEEN #5/8/2013# AND #5/10/2013# AND ([SACODE] = 'FD' OR [SACODE] = 'N

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2013

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			05/09/13	05/08/13	05/09/13	05/08/13	05/09/13
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			NA		NA
Vinyl chloride	UG/L	2			NA		NA
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	5		NA	4.2 J	NA	4.8
Metals							
Antimony	MG/L	0.003		NA	0.0075 J	NA	
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.12	NA	0.090	NA	0.28
Cadmium	MG/L	0.005		NA	0.0028	NA	0.0035
Chromium	MG/L	0.05	0.0068	NA	0.53	NA	0.0042
Copper	MG/L	0.2	0.0034 J	NA	0.051	NA	
Iron	MG/L	0.3	2.9	NA	14.3	NA	0.21
Lead	MG/L	0.025		NA	0.22	NA	
Magnesium	MG/L	35	27.8	NA	32.2	NA	35.0
Manganese	MG/L	0.3	0.20	NA	0.13	NA	0.043
Nickel	MG/L	0.1	0.0095 J	NA	0.27	NA	0.0088 J
Sodium	MG/L	20	29.6	NA	80.6	NA	56.1
Zinc	MG/L	2	0.019	NA	0.11	NA	0.0061 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.

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.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2013

Location ID			GW-08D	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID			FD-050813	GW-8D	GW8SR	GW-26D	GW-28S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/08/13	05/08/13	05/08/13	05/09/13	05/09/13
Parameter	**Units**	*	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5				1.4 J	
Vinyl chloride	UG/L	2					
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025			0.018		
Barium	MG/L	1	0.090	0.092	0.52	0.14	0.081
Cadmium	MG/L	0.005			0.00051 J		
Chromium	MG/L	0.05	0.0094 J	0.0063 J	0.0045		0.0011 J
Copper	MG/L	0.2	0.0039 J	0.0036 J	0.0021 J		
Iron	MG/L	0.3	0.18	0.22	33.4	5.2	0.13
Lead	MG/L	0.025			0.0038 J		
Magnesium	MG/L	35	16.3	16.4	53.6	18.7	29.9
Manganese	MG/L	0.3	0.19	0.20	1.6	0.66	0.95
Nickel	MG/L	0.1	0.0067 J	0.0070 J	0.0069 J	0.0017 J	0.0016 J
Sodium	MG/L	20	201	204	416	335	15.1
Zinc	MG/L	2	0.0061 J	0.0070 J	0.0043 J	0.0017 J	0.0059 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.

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.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2013

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			05/09/13	05/10/13	05/10/13	05/10/13	05/10/13
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Vinyl chloride	UG/L	2		2.2			
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025	0.027				
Barium	MG/L	1	0.20	0.14	0.057	0.056	0.019
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05					
Copper	MG/L	0.2					
Iron	MG/L	0.3	14.8	8.5	0.51		0.036 J
Lead	MG/L	0.025					
Magnesium	MG/L	35	91.7	38.1	27.1	32.4	35.7
Manganese	MG/L	0.3	0.76	1.0	0.86	0.39	0.081
Nickel	MG/L	0.1			0.0050 J		
Sodium	MG/L	20	9.3	56.1	3.9	4.1	3.1
Zinc	MG/L	2	0.0036 J		0.012	0.0035 J	0.0032 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.

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.

N:\11172700.00000\GIS\dB\Program\EDMS.md
Printed: 11/6/2013 2:00:23 PM
[LOGDATE] BETWEEN #5/8/2013# AND #5/10/2013# AND ([SACODE] = 'FD' OR [SACODE] = 'N

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2013

Location ID			GW-34S	GW-35S
Sample ID			GW-34S	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			05/09/13	05/09/13
Parameter	**Units**	*		
Volatile Organic Compounds				
1,2-Dichloroethene (total)	UG/L	5		
Vinyl chloride	UG/L	2		
Semivolatile Organic Compounds				
bis(2-Ethylhexyl)phthalate	UG/L	5		
Metals				
Antimony	MG/L	0.003		
Arsenic	MG/L	0.025		
Barium	MG/L	1	0.12	0.080
Cadmium	MG/L	0.005		
Chromium	MG/L	0.05		
Copper	MG/L	0.2		
Iron	MG/L	0.3	0.22	0.065
Lead	MG/L	0.025		
Magnesium	MG/L	35	39.9	23.9
Manganese	MG/L	0.3	0.23	0.16
Nickel	MG/L	0.1	0.0051 J	0.0013 J
Sodium	MG/L	20	26.3	2.9
Zinc	MG/L	2	0.0062 J	0.0044 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.

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.

N:\11172700.00000\GIS\dB\Program\EDMS.md
Printed: 11/6/2013 2:00:24 PM
[LOGDATE] BETWEEN #5/8/2013# AND #5/10/2013# AND ([SACODE] = 'FD' OR [SACODE] = 'N

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)

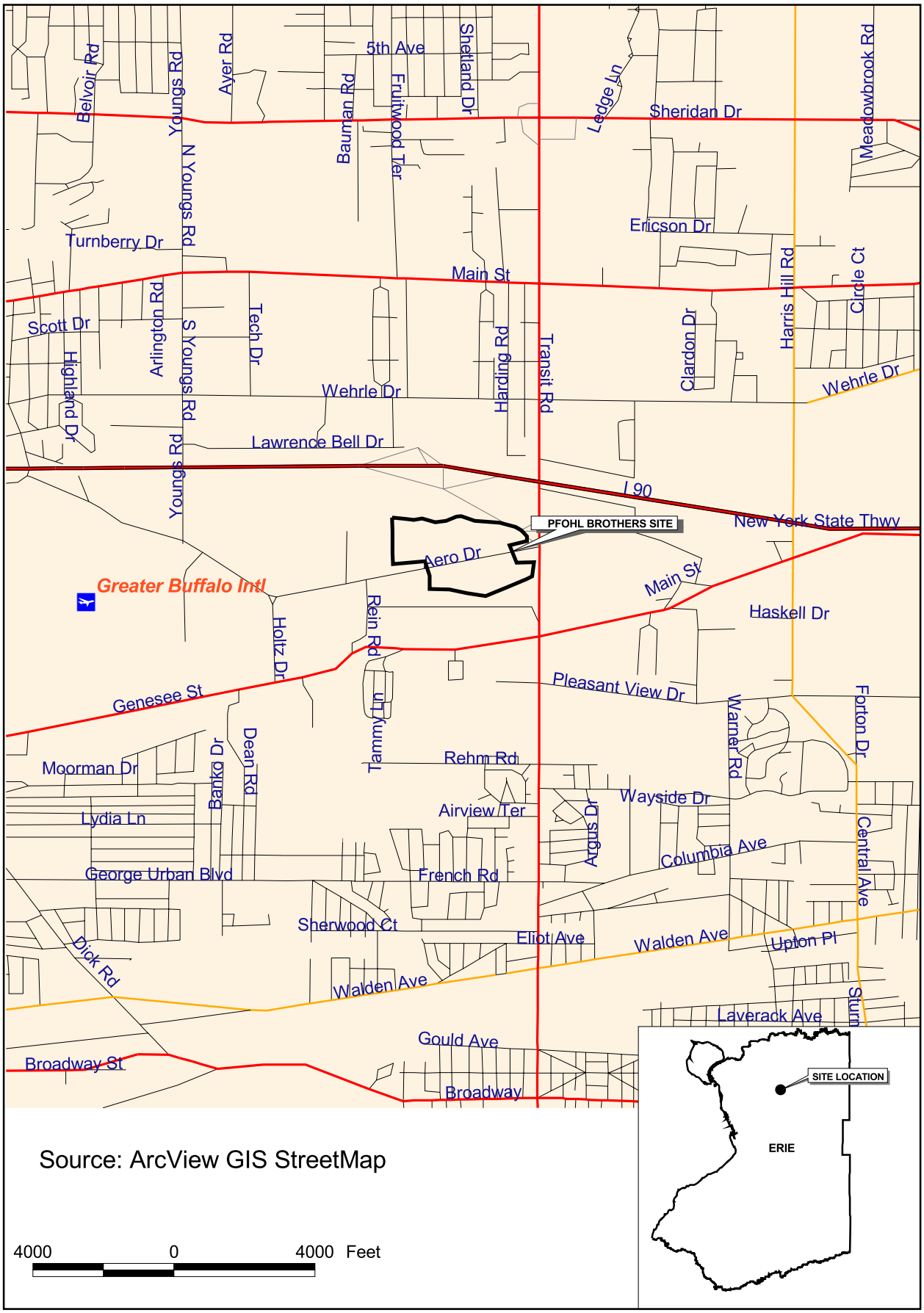
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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**

ate 3/8/13 — Weather conditions SUNNY 41°

Time 2:55 — Read by: B. PUSH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	6.3	30.5	683,826	2434
WW-2	4.6	0	12,821	131
WW-1	3.9	0	826,536	2447
WW-6	5.9	53.1	4,519,157	8981
WW-4	6.9	0	360935	5416
WW-5	6.7	0	2,789,571	10,396

Flow Totalizer at Meter chamber: 9,184,307

Heat Trace
Outside temp T = 41°
Current A = 2.2
Set point SP = 40

Large Suppressor events: 415,299

Motor Control Center
Volts 480 volts
Amps 10 amps
Which WW was running?
1☐ 2☐ 3☒ 4☐ 5☐ 6☒

Filter Checked ☐ Changed ☐

Comments and/or Current Conditions

RESET LEVEL INVALID ALARM WW3
RAN WW3 ON HAND ± 20 MIN. AND
RETURNED TO AUTO.

DROVE PERIMETER ROAD - AREA B - OK

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 5-16-13

Time 3:20

Weather conditions SUNNY 73°

Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	763,128	2522
WW-2	4.7	0	12,830	131
WW-1	4.0	0	912,050	2560
WW-6	6.2	0	5,695863	9312
WW-4	6.9	0	865,680	5611
WW-5	99	0	3,334,933	10,587

Flow Totalizer at Meter chamber 11,586,400

Heat Trace

Outside temp T = 73

Current A = 0

Set point SP = 40°

Large Suppressor events 415,320

Motor Control Center

Volts 480 volts

Amps 2 amps

Which WW was running?

1☐ 2☐ 3☐ 4☐ 5☐ 6☐ ∅

Filter Checked ☐ Changed ☐

Comments and/or Current Conditions

WW 3 → LEVEL INVALID ALARMS —

WW 5 WILL NOT RESET.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 6-18-13

Time 2:10

Weather conditions OVERCAST 70°

Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99 (DEFAULT)	0	818,919	2549
WW-2	4.4	0	37,023	144
WW-1	4.1	0	1,036,496	2572
WW-6	6.8	0	6,288,144	9474
WW-4	7.0	0	971,939	5658
WW-5	6.7	0	3,608,428	10,676

Flow Totalizer at Meter chamber _____

Heat Trace

Outside temp T = 70°

Current A = 0

Set point SP = 40°

Surge Suppressor events 415,328

Motor Control Center

Volts 480 volts

Amps 3 amps

Which WW was running?

1☐ 2☐ 3☐ 4☐ 5☐ 6☐ Ø

Filter Checked ☐ Changed ☐

Comments and/or Current Conditions

WW 3 IN ALARM MODE —
REPAIR TO INSTRUMENTATION U.G. CABLE
BEING SCHEDULED

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2013 – JUNE 2013

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

July 5, 2013

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 2013 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.

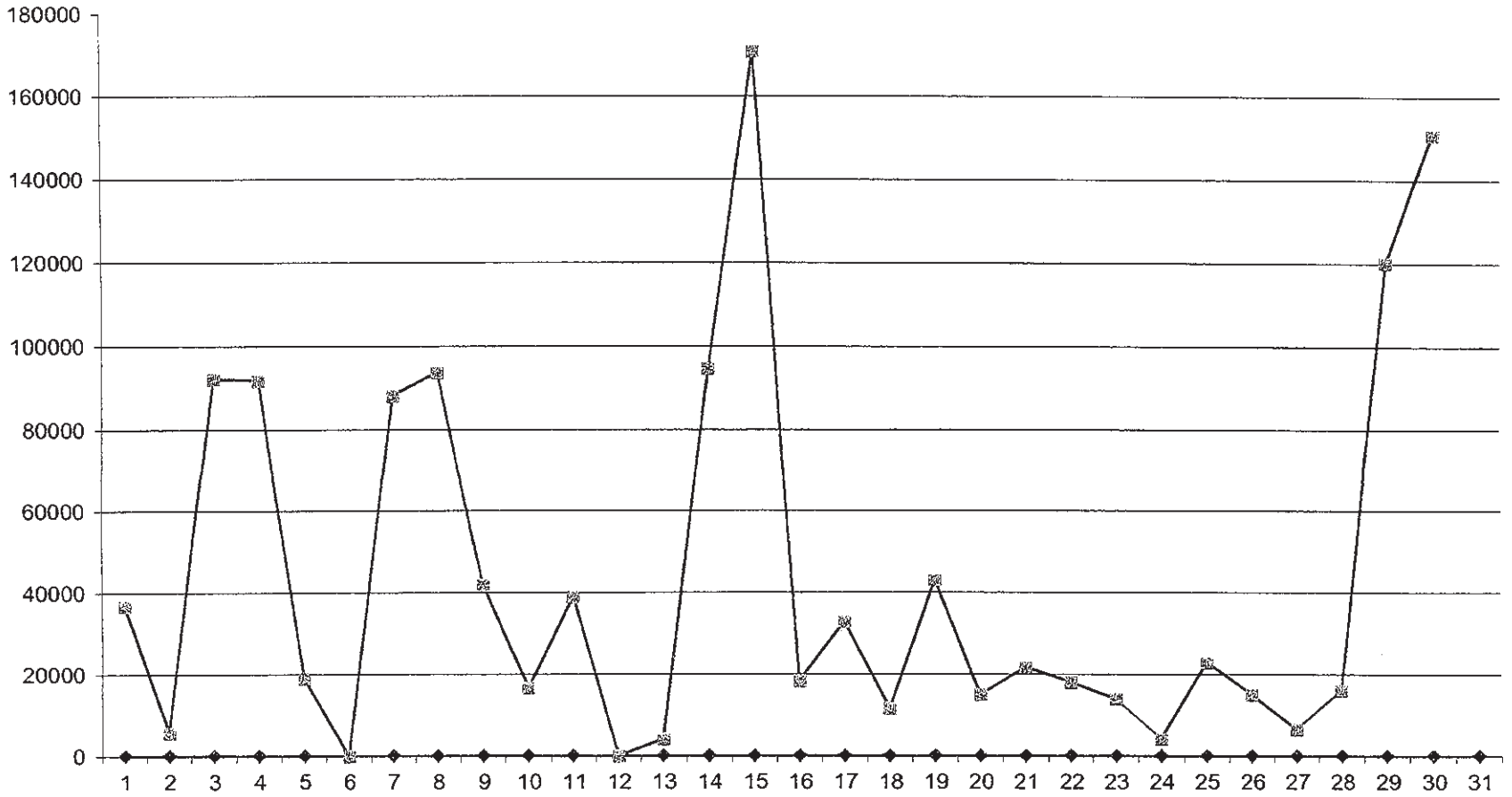
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

5/31/2013		11907271	0	11,907,291	
June-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		11944155	36,884	11,944,175	21:35 inhibit
2		11949896	5,741	11,949,916	12:20 enable
3		12042056	92,160	12,042,076	
4		12133928	91,872	12,133,948	
5		12153048	19,120	12,153,068	12:47 inhibit
6		12153048	0	12,153,068	
7		12241242	88,194	12,241,262	06:00 enable
8		12334952	93,710	12,334,972	
9		12376712	41,760	12,376,732	23:57 inhibit
10		12393427	16,715	12,393,447	18:45 enable
11		12432442	39,015	12,432,462	07:41inhibit 13:18enable
12		12432442	0	12,432,462	
13		12436632	4,190	12,436,652	02:56 inhibit
14		12531343	94,711	12,531,363	12:06 enable
15		12702128	170,785	12,702,148	
16		12720546	18,418	12,720,566	
17		12753438	32,892	12,753,458	
18		12765075	11,637	12,765,095	
19		12808043	42,968	12,808,063	
20		12823076	15,033	12,823,096	
21		12844799	21,723	12,844,819	
22		12862824	18,025	12,862,844	
23		12876855	14,031	12,876,875	
24		12881115	4,260	12,881,135	
25		12904061	22,946	12,904,081	
26		12919101	15,040	12,919,121	23:52 inhibit
27		12925710	6,609	12,925,730	07:26 enable
28		12941822	16,112	12,941,842	00:00 inhibit
29		13061954	120,132	13,061,974	07:54 enable
30		13212773	150,819	13,212,793	
31					
		1,305,502	**1,305,502**	**1,305,502**	

June
2013


180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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

June 11, 2013

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 2013 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.

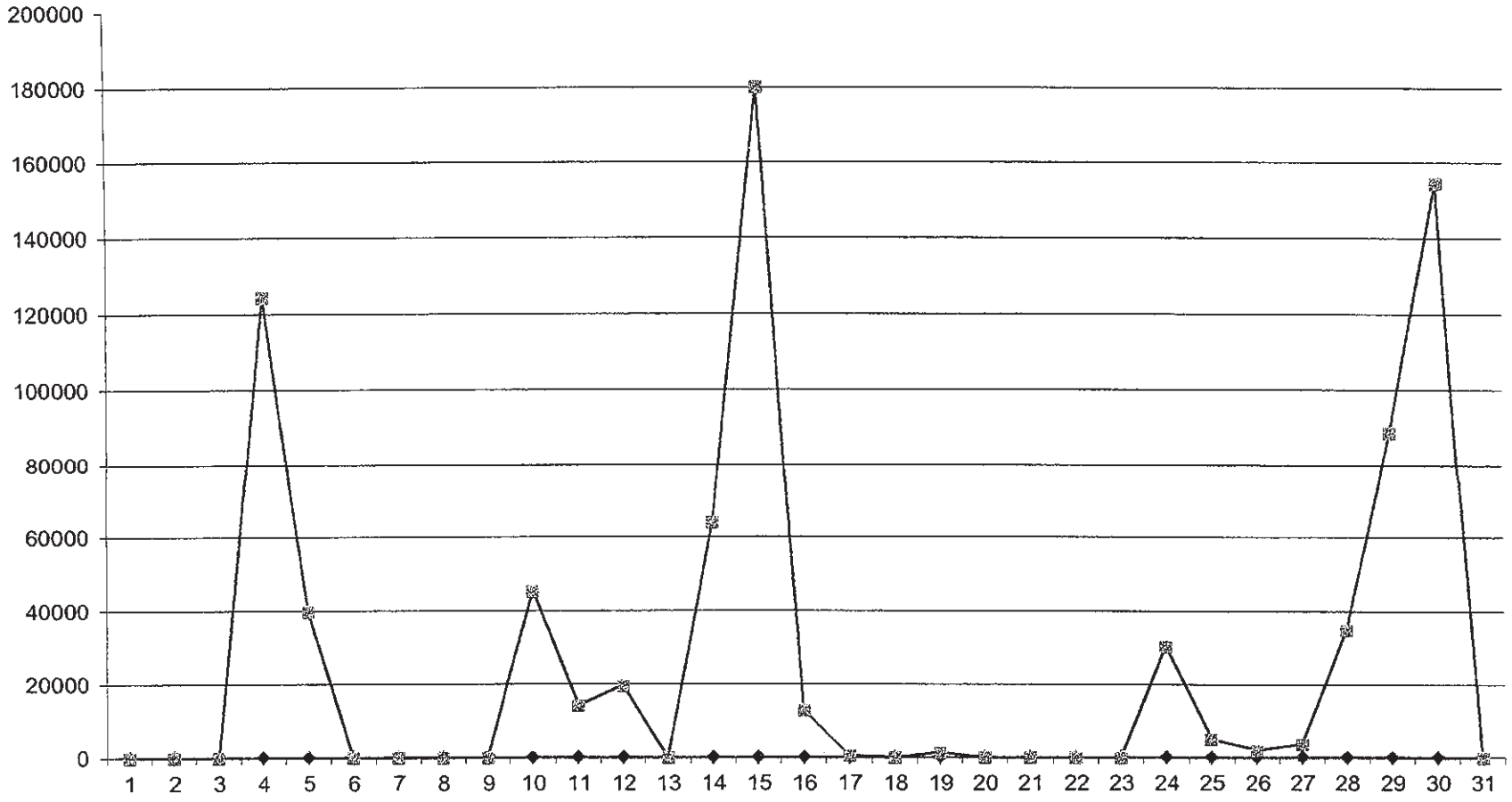
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

4/30/2013		11086044	0	11,086,064	
May-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		11086044	0	11,086,064	
2		11086044	0	11,086,064	
3		11086044	0	11,086,064	
4		11210512	124,468	11,210,532	
5		11250293	39,781	11,250,313	
6		11250293	0	11,250,313	
7		11250293	0	11,250,313	
8		11250293	0	11,250,313	
9		11250293	0	11,250,313	
10		11295581	45,288	11,295,601	1909 inhibit
11		11309766	14,185	11,309,786	1752 enable
12		11329400	19,634	11,329,420	
13		11329400	0	11,329,420	
14		11393389	63,989	11,393,409	
15		11573481	180,092	11,573,501	
16		11586400	12,919	11,586,420	
17		11586981	581	11,587,001	
18		11586981	0	11,587,001	
19		11588255	1,274	11,588,275	
20		11588255	0	11,588,275	
21		11588255	0	11,588,275	
22		11588255	0	11,588,275	
23		11588255	0	11,588,275	
24		11618686	30,431	11,618,706	
25		11623744	5,058	11,623,764	
26		11625639	1,895	11,625,659	
27		11629335	3,696	11,629,355	
28		11664183	34,848	11,664,203	1000 inhibit
29		11752800	88,617	11,752,820	1241 enable
30		11907271	154,471	11,907,291	
31		11907271	0	11,907,291	
		821,227	**821,227**	**821,227**	

May
2013


200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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 10, 2013

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 2013 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.

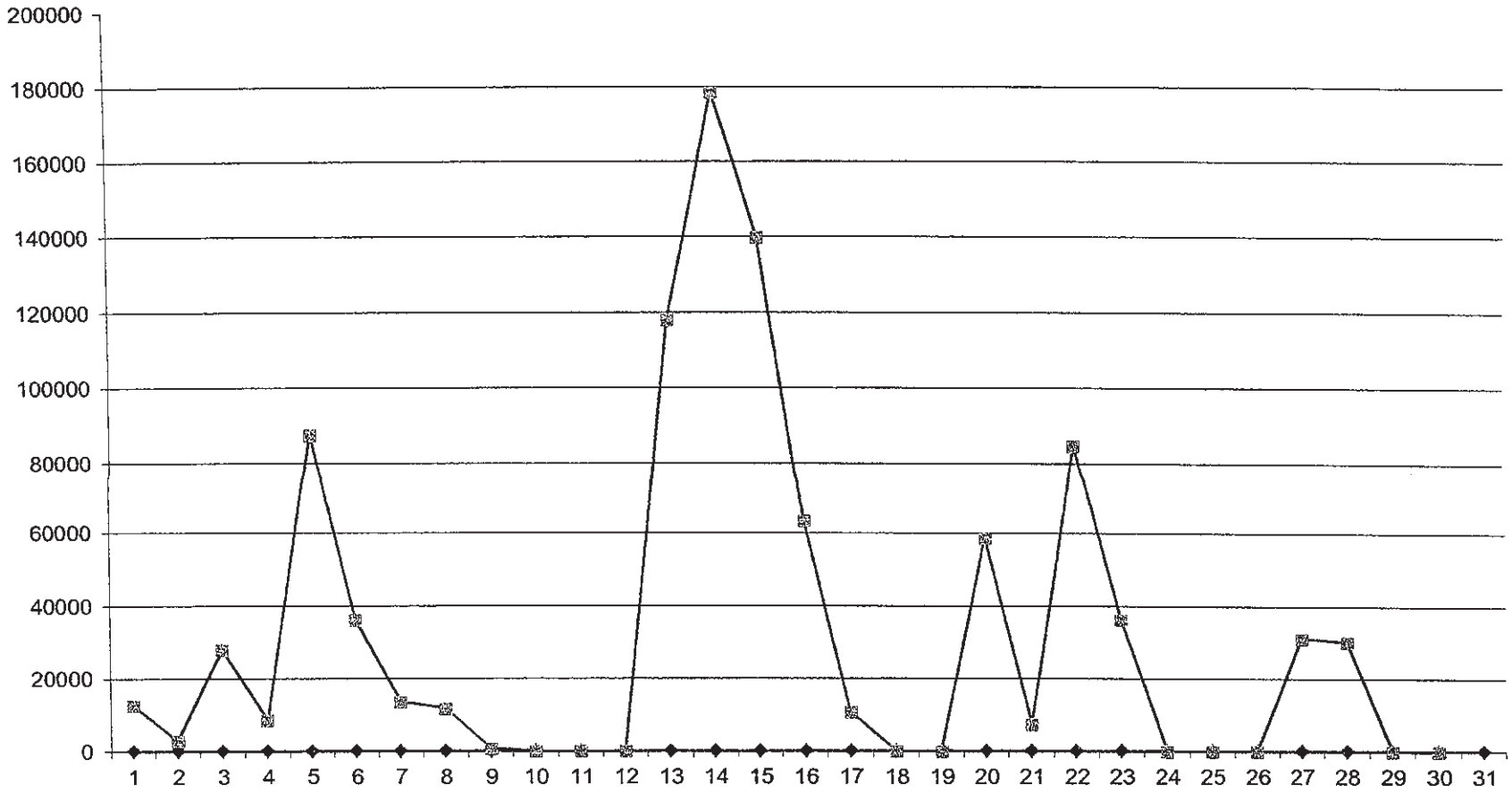
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

3/31/2013		10125301	10,678	10,125,321	
April-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		10137941	12,640	10,137,961	
2		10140740	2,799	10,140,760	
3		10168687	27,947	10,168,707	
4		10177279	8,592	10,177,299	
5		10264851	87,572	10,264,871	
6		10301001	36,150	10,301,021	
7		10314595	13,594	10,314,615	
8		10326345	11,750	10,326,365	
9		10327138	793	10,327,158	
10		10327138	0	10,327,158	
11		10327138	0	10,327,158	
12		10327138	0	10,327,158	
13		10445112	117,974	10,445,132	
14		10623672	178,560	10,623,692	
15		10763522	139,850	10,763,542	
16		10826882	63,360	10,826,902	
17		10837552	10,670	10,837,572	
18		10837552	0	10,837,572	
19		10837552	0	10,837,572	
20		10896365	58,813	10,896,385	
21		10903726	7,361	10,903,746	
22		10988479	84,753	10,988,499	
23		11024712	36,233	11,024,732	
24		11024712	0	11,024,732	
25		11024712	0	11,024,732	
26		11024712	0	11,024,732	
27		11055860	31,148	11,055,880	
28		11086044	30,184	11,086,064	
29		11086044	0	11,086,064	
30		11086044	0	11,086,064	
31					
		960,743	**960,743**	**960,743**	

April
2013


200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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

April 6, 2013

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 2013 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.

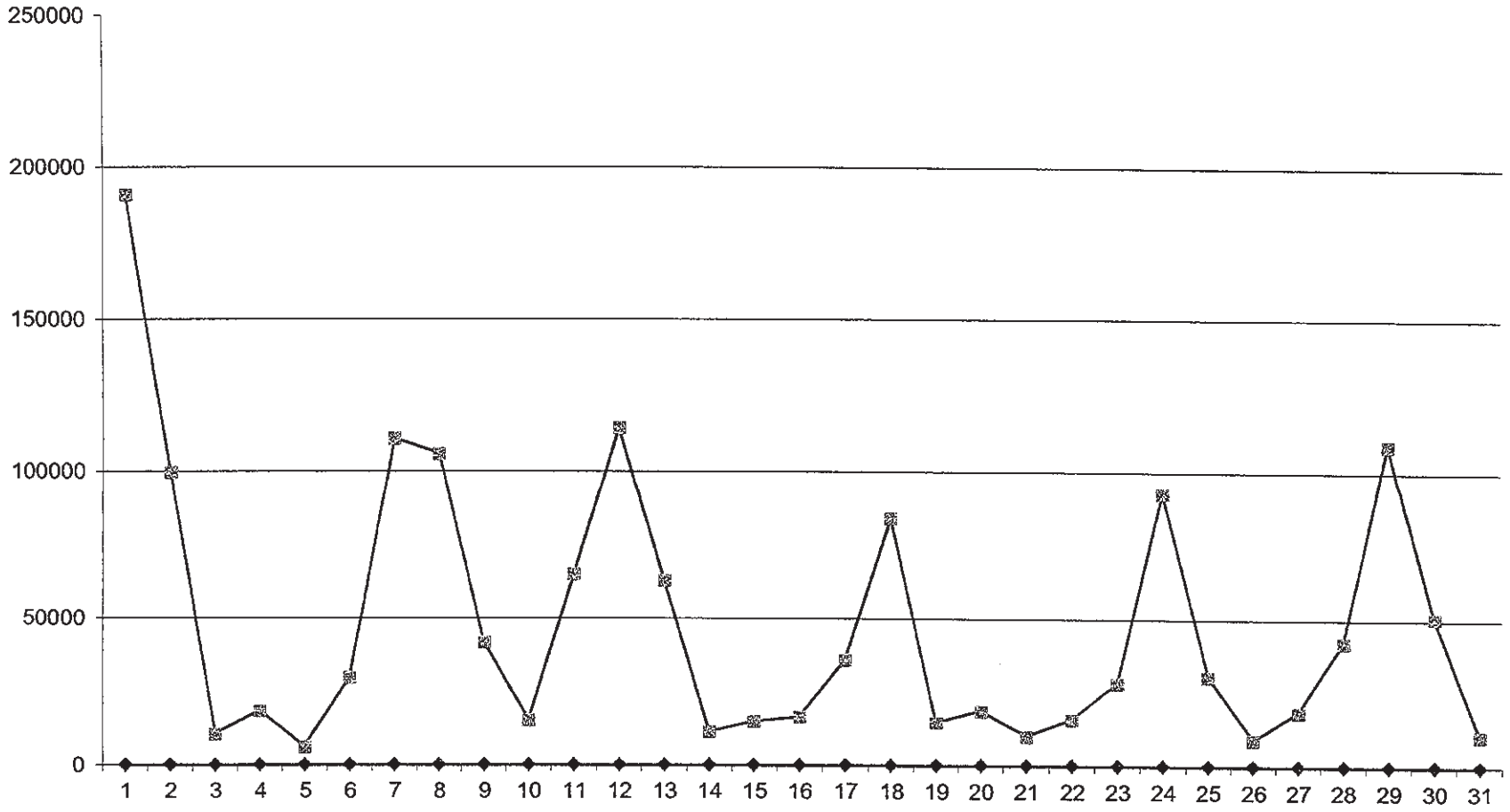
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

2/28/2013		8640522	89,397	8,640,542	
March-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		8831345	190,823	8,831,365	
2		8930939	99,594	8,930,959	
3		8941559	10,620	8,941,579	
4		8960042	18,483	8,960,062	
5		8966305	6,263	8,966,325	
6		8996035	29,730	8,996,055	
7		9106819	110,784	9,106,839	
8		9212639	105,820	9,212,659	
9		9254291	41,652	9,254,311	
10		9269683	15,392	9,269,703	
11		9334325	64,642	9,334,345	
12		9448599	114,274	9,448,619	
13		9511369	62,770	9,511,389	
14		9522788	11,419	9,522,808	
15		9537706	14,918	9,537,726	
16		9554257	16,551	9,554,277	
17		9590195	35,938	9,590,215	
18		9673969	83,774	9,673,989	
19		9688722	14,753	9,688,742	
20		9707448	18,726	9,707,468	
21		9717600	10,152	9,717,620	
22		9733545	15,945	9,733,565	
23		9761730	28,185	9,761,750	
24		9854298	92,568	9,854,318	
25		9884883	30,585	9,884,903	
26		9894064	9,181	9,894,084	
27		9912606	18,542	9,912,626	
28		9954785	42,179	9,954,805	
29		10063784	108,999	10,063,804	
30		10114623	50,839	10,114,643	
31		10125301	10,678	10,125,321	
		1,484,779	**1,484,779**	**1,484,779**	

March
2013


250000
200000
150000
100000
50000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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 2, 2013

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 2013 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.

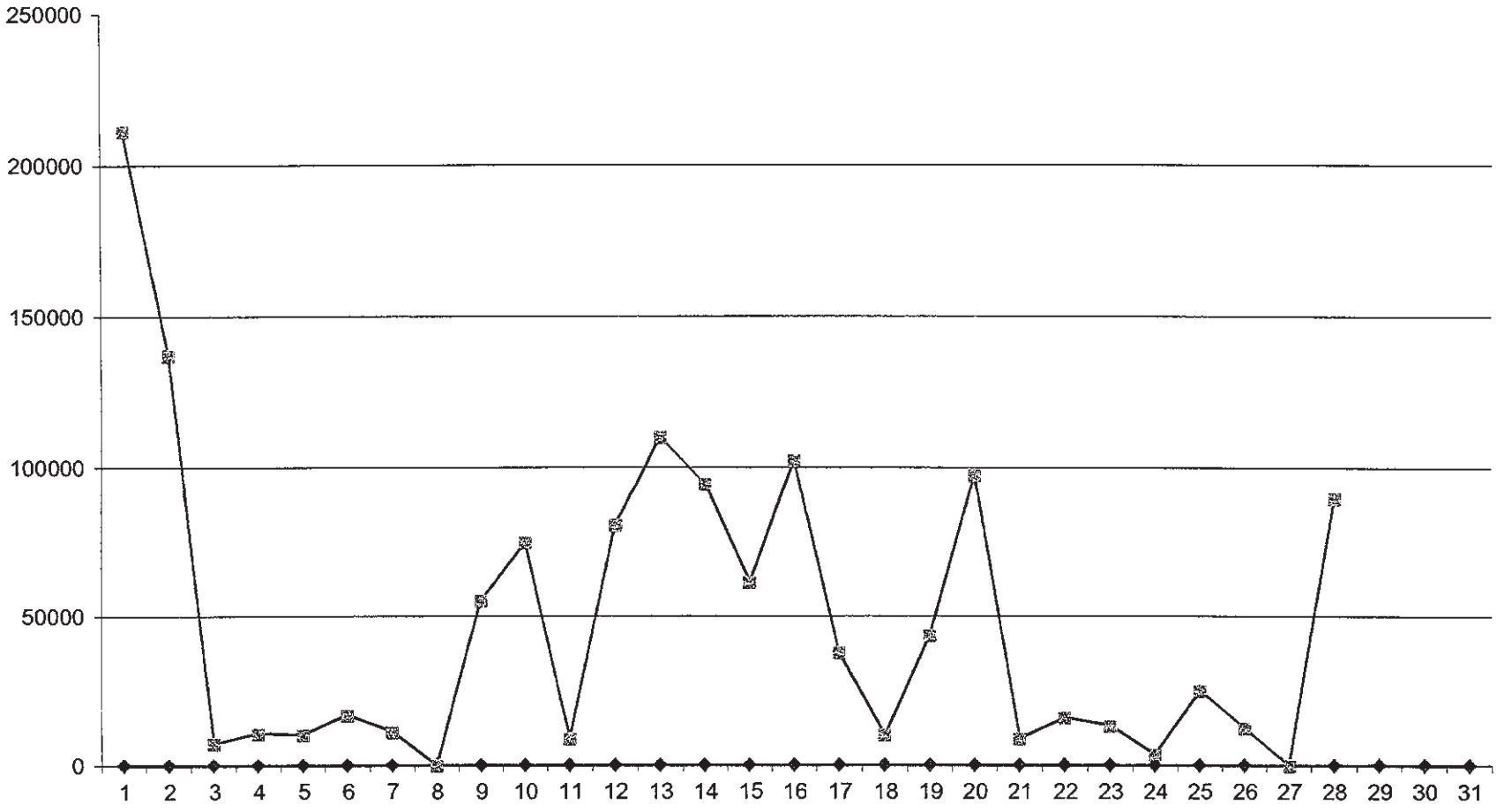
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

1/31/2013		7291492	70,179	7,291,508	
February-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		7502867	211,376	7,502,884	
2		7639962	137,095	7,639,979	
3		7647382	7,420	7,647,399	
4		7658224	10,842	7,658,241	
5		7668603	10,379	7,668,620	
6		7685567	16,964	7,685,584	
7		7696931	11,364	7,696,948	
8		7696931	0	7,696,948	
9		7751867	54,936	7,751,884	
10		7826311	74,444	7,826,328	
11		7835360	9,049	7,835,377	0302 inhibit
12		7915635	80,276	7,915,653	0615 enable
13		8025641	110,006	8,025,659	
14		8119925	94,284	8,119,943	2128 inhibit
15		8181107	61,183	8,181,126	1328 enable
16		8283363	102,256	8,283,382	
17		8320912	37,549	8,320,931	
18		8331137	10,225	8,331,156	
19		8374551	43,414	8,374,570	0841inhibit 1832enable
20		8471802	97,252	8,471,822	
21		8480745	8,943	8,480,765	
22		8496742	15,997	8,496,762	
23		8510014	13,272	8,510,034	
24		8513684	3,670	8,513,704	
25		8538612	24,928	8,538,632	
26		8551125	12,513	8,551,145	2002 inhibit
27		8551125	0	8,551,145	
28		8640522	89,397	8,640,542	1159 enable
29					
30					
31					
		1,349,030	**1,349,034**	**1,349,034**	

February
2013



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 7, 2013

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 2013 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.

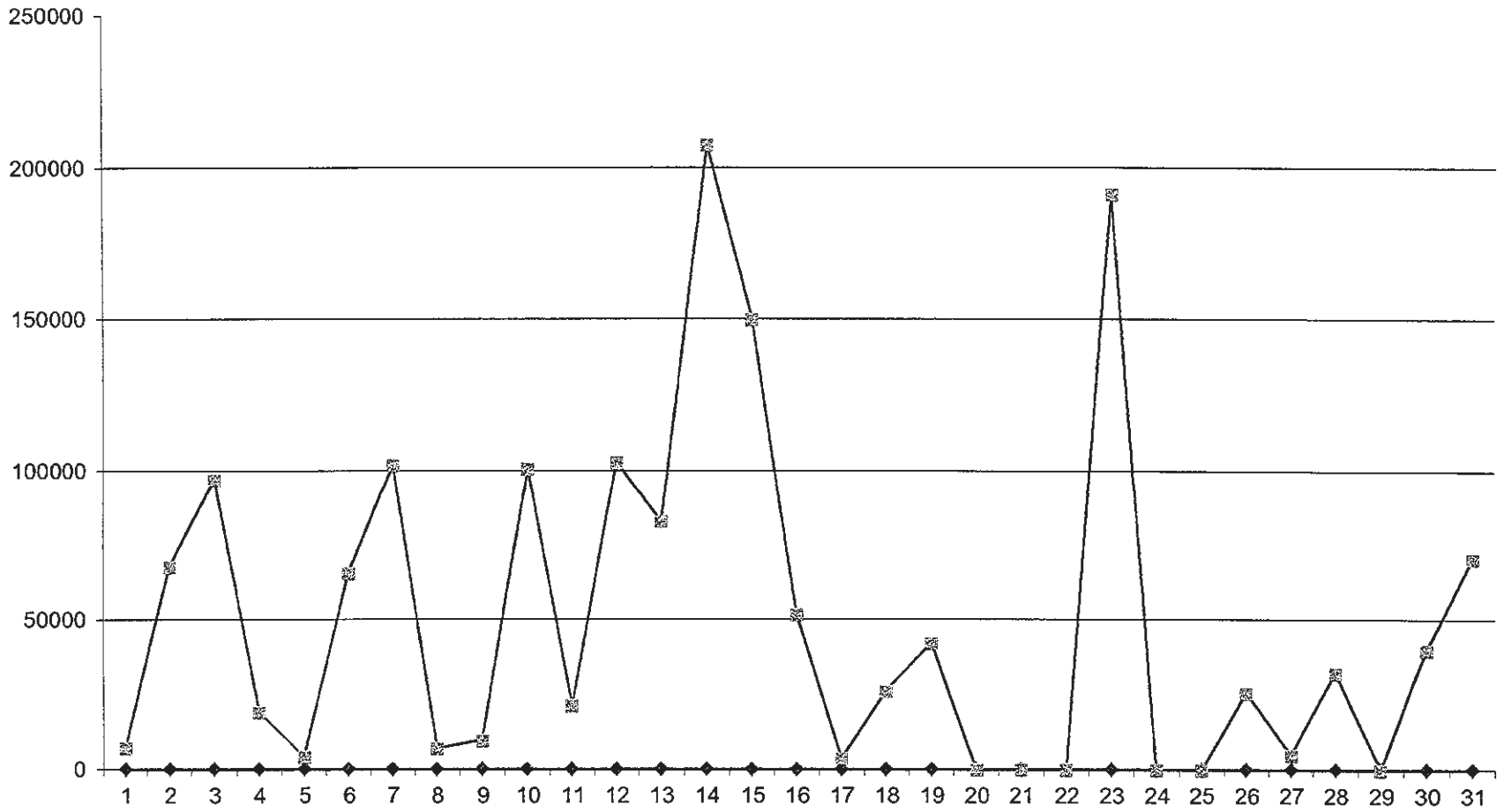
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

12/31/2012		5760787	30,294	5,760,799	
January-13	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		5767997	7,210	5,768,009	
2		5835467	67,470	5,835,479	
3		5932350	96,884	5,932,363	
4		5951536	19,186	5,951,549	
5		5955797	4,262	5,955,811	
6		6020989	65,192	6,021,003	
7		6122854	101,866	6,122,869	
8		6129908	7,054	6,129,923	
9		6139683	9,776	6,139,699	1555inhibit
10		6240327	100,644	6,240,343	
11		6261606	21,279	6,261,622	1306enable1504inhibit
12		6364392	102,786	6,364,408	1047enable
13		6447080	82,688	6,447,096	0439inhibit 1902enable
14		6654571	207,491	6,654,587	
15		6804376	149,806	6,804,393	
16		6855853	51,477	6,855,870	
17		6859536	3,683	6,859,553	
18		6885671	26,136	6,885,689	
19		6927658	41,987	6,927,676	
20		6927658	0	6,927,676	
21		6927658	0	6,927,676	
22		6927658	0	6,927,676	
23		6927658	191,160	7,118,836	
24		6927658	0	7,118,836	
25		6927658	0	7,118,836	
26		7144353	25,532	7,144,368	
27		7149298	4,946	7,149,314	
28		7181516	32,218	7,181,532	1358inhibit
29		7181516	0	7,181,532	
30		7221313	39,797	7,221,329	0724enable 1221inhibit
31		7291492	70,179	7,291,508	1446enable
		1,530,705	**1,530,709**	**1,530,709**	

January
2013



APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2013

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								3/27/2013 1421	2.80	693.32	0.00	693.32	
MNW								5/8/2013 0947	3.48	692.64	0.00	692.64	
MNW								6/24/2013 1621	3.17	692.95	0.00	692.95	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								3/27/2013 1421	3.75	692.44	0.00	692.44	
MNW								5/8/2013 0949	4.29	691.90	0.00	691.90	
MNW								6/24/2013 1621	4.42	691.77	0.00	691.77	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								3/27/2013 1258	2.15	691.73	0.00	691.73	
MNW								5/8/2013 0843	2.35	691.53	0.00	691.53	
MNW								6/24/2013 1524	2.20	691.68	0.00	691.68	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								3/27/2013 1257	2.52	691.28	0.00	691.28	
MNW								5/8/2013 0842	2.99	690.81	0.00	690.81	
MNW								6/24/2013 1524	6.89	686.91	0.00	686.91	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								3/27/2013 1432	12.95	679.80	0.00	679.80	
MNW								5/8/2013 0957	12.88	679.87	0.00	679.87	
MNW								6/24/2013 1628	12.91	679.84	0.00	679.84	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								3/27/2013 1423	4.58	688.14	0.00	688.14	
MNW								5/8/2013 0958	4.90	687.82	0.00	687.82	
MNW								6/24/2013 1628	4.69	688.03	0.00	688.03	

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 2013

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								3/27/2013 1350	48.08	651.86	0.00	651.86	
MNW								5/8/2013 1005	45.33	654.61	0.00	654.61	
MNW								6/24/2013 1611	55.57	644.37	0.00	644.37	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								3/27/2013 1350	4.93	694.58	0.00	694.58	
MNW								5/8/2013 1005	5.3	694.21	0.00	694.21	
MNW								6/24/2013 1611	4.87	694.64	0.00	694.64	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								3/27/2013 1315	6.12	691.67	0.00	691.67	
MNW								5/8/2013 0902	6.36	691.43	0.00	691.43	
MNW								6/24/2013 1535	6.20	691.59	0.00	691.59	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								3/27/2013 1315	5.31	692.19	0.00	692.19	
MNW								5/8/2013 0902	5.48	692.02	0.00	692.02	
MNW								6/24/2013 1535	5.35	692.15	0.00	692.15	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								3/27/2013 1341	6.96	691.54	0.00	691.54	
MNW								5/8/2013 0935	7.19	691.31	0.00	691.31	
MNW								6/24/2013 1600	7.03	691.47	0.00	691.47	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								3/27/2013 1322	9.08	691.87	0.00	691.87	
MNW								5/8/2013 0910	9.68	691.27	0.00	691.27	
MNW								6/24/2013 1542	9.23	691.72	0.00	691.72	

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 2013

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								3/27/2013 1331	8.21	691.42	0.00	691.42	
MNW								5/8/2013 0917	9.00	690.63	0.00	690.63	
MNW								6/24/2013 1550	8.43	691.20	0.00	691.20	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								3/27/2013 1334	7.93	688.65	0.00	688.65	
MNW								5/8/2013 0919	8.10	688.48	0.00	688.48	
MNW								6/24/2013 1551	8.04	688.54	0.00	688.54	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								3/27/2013 1336	3.02	695.60	0.00	695.60	
MNW								5/8/2013 0924	4.65	693.97	0.00	693.97	
MNW								6/24/2013 1555	3.72	694.90	0.00	694.90	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								3/27/2013 1338	3.07	695.30	0.00	695.30	
MNW								5/8/2013 0927	4.51	693.86	0.00	693.86	
MNW								6/24/2013 1558	3.89	694.48	0.00	694.48	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								3/27/2013 1345	4.50	693.74	0.00	693.74	
MNW								5/8/2013 0939	6.30	691.94	0.00	691.94	
MNW								6/24/2013 1603	5.47	692.77	0.00	692.77	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								3/27/2013 1250	2.62	692.15	0.00	692.15	
MNW								5/8/2013 0836	3.21	691.56	0.00	691.56	
MNW								6/24/2013 1518	3.33	691.44	0.00	691.44	

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 2013

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								3/27/2013 1342	3.54	693.85	0.00	693.85	
MNW								5/8/2013 0935	4.16	693.23	0.00	693.23	
MNW								6/24/2013 1600	4.26	693.13	0.00	693.13	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								3/27/2013 1306	10.35	688.27	0.00	688.27	
MH								5/8/2013 0839	10.47	688.15	0.00	688.15	
MH								6/24/2013 1521	9.95	688.67	0.00	688.67	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								3/27/2013 1302	11.22	688.18	0.00	688.18	
MH								5/8/2013 0848	11.23	688.17	0.00	688.17	
MH								6/24/2013 1528	10.82	688.58	0.00	688.58	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								3/27/2013 1309	9.41	687.41	0.00	687.41	
MH								5/8/2013 0859	9.46	687.36	0.00	687.36	
MH								6/24/2013 1530	9.03	687.79	0.00	687.79	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								3/27/2013 1317	14.47	688.54	0.00	688.54	
MH								5/8/2013 0907	14.46	688.55	0.00	688.55	
MH								6/24/2013 1538	14.55	688.46	0.00	688.46	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								3/27/2013 1331	14.70	684.32	0.00	684.32	
MH								5/8/2013 0917	14.29	684.73	0.00	684.73	
MH								6/24/2013 1550	14.70	684.32	0.00	684.32	

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 2013

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								3/27/2013 1333	14.49	684.08	0.00	684.08	
MH								5/8/2013 0919	13.87	684.70	0.00	684.70	
MH								6/24/2013 1551	14.47	684.10	0.00	684.10	
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA	1						
MH								3/27/2013 1335	18.10	684.06	0.00	684.06	
MH								5/8/2013 0924	17.47	684.69	0.00	684.69	
MH								6/24/2013 1555	18.12	684.04	0.00	684.04	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA	1						
MH								3/27/2013 1340	19.75	686.45	0.00	686.45	
MH								5/8/2013 0935	19.72	686.48	0.00	686.48	
MH								6/24/2013 1600	19.74	686.46	0.00	686.46	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA	1						
MH								3/27/2013 1344	9.00	689.05	0.00	689.05	
MH								5/8/2013 0939	9.05	689.00	0.00	689.00	
MH								6/24/2013 1603	9.04	689.01	0.00	689.01	
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA	1						
MH								3/27/2013 1234	9.98	688.19	0.00	688.19	
MH								5/8/2013 0830	10.10	688.07	0.00	688.07	
MH								6/24/2013 1514	9.54	688.63	0.00	688.63	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
SG								3/27/2013 1255	-0.94	690.94	0.00	690.94	
SG								5/8/2013 0830	NM	-	NM	-	DRY
SG								6/24/2013 1521	NM	-	NM	-	DRY

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 2013

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								3/27/2013 1313	-3.98	693.98	0.00	693.98	
SG								5/8/2013 0901	-2.90	692.90	0.00	692.90	
SG								6/24/2013 1534	-3.00	693.00	0.00	693.00	
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								3/27/2013 1145	-4.0	688.02	0.00	688.02	
MH								5/8/2013 0730	-3.9	687.92	0.00	687.92	
MH								6/24/2013 1440	-4.4	688.42	0.00	688.42	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								3/27/2013 1145	-4.70	688.88	0.00	688.88	
MH								5/8/2013 0730	-4.7	688.88	0.00	688.88	
MH								6/24/2013 1440	-4.6	688.78	0.00	688.78	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								3/27/2013 1145	-4.75	688.55	0.00	688.55	
MH								5/8/2013 0852	-4.13	687.93	0.00	687.93	
MH								6/24/2013 1440	-4.58	688.38	0.00	688.38	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								3/27/2013 1145	-7.0	683.62	0.00	683.62	
MH								5/8/2013 0730	-7.6	684.22	0.00	684.22	
MH								6/24/2013 1440	-7.0	683.62	0.00	683.62	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								3/27/2013 1145	-6.6	682.74	0.00	682.74	
MH								5/8/2013 0931	-8.58	684.72	0.00	684.72	
MH								6/24/2013 1440	-6.8	682.94	0.00	682.94	

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 2013

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								3/27/2013 1145	-6.9	688.79	0.00	688.79	
MH								5/8/2013 0730	-6.5	688.39	0.00	688.39	
MH								6/24/2013 1440	-7.0	688.89	0.00	688.89	

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 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)
3/27/2013	688.02	---	---	688.88	692.19	3.31	693.98	5.10
5/8/2013	687.92	---	---	688.88	692.02	3.14	692.90	4.02
6/24/2013	688.42	---	---	688.78	692.15	3.37	693.00	4.22

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)
3/27/2013	688.55	691.87	3.32	683.62	---	---
5/8/2013	687.93	691.27	3.34	684.22	---	---
6/24/2013	688.38	691.72	3.34	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)
3/27/2013	682.74	695.30	12.56	688.79	692.15	3.36
5/8/2013	684.72	693.86	9.14	688.39	691.56	3.17
6/24/2013	682.94	694.48	11.54	688.89	691.44	2.55

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)
3/27/2013	688.27	690.94	2.67	684.32	691.42	7.10
5/8/2013	688.15	DRY	NA	684.73	690.63	5.90
6/24/2013	688.67	DRY	NA	684.32	691.20	6.88

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)
3/27/2013	684.08	688.65	4.57	684.06	695.60	11.54
5/8/2013	684.70	688.48	3.78	684.69	693.97	9.28
6/24/2013	684.10	688.54	4.44	684.04	694.90	10.86

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)
3/27/2013	686.45	693.85	7.40	689.05	693.74	4.69
5/8/2013	686.48	693.23	6.75	689.00	691.94	2.94
6/24/2013	686.46	693.13	6.67	689.01	692.77	3.76

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: 5/10/2013 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: 3.88' Depth to Well Bottom: 14.94' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.8 Estimated Purge Volume (liters): 8.6

Sample ID: GW-1S Sample Time: 14:42 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)
14:06	7.07	13.83	0.978	0.00	517	-211	240	3.88
14:11	7.11	13.14	0.805	0.00	>800	-191	240	4.28
14:16	7.07	13.13	0.796	0.00	>800	-187	240	4.92
14:21	6.98	13.98	0.915	0.00	459	-182	240	4.82
14:26	6.96	13.82	0.945	0.00	364	-182	240	4.82
14:31	6.96	13.91	0.953	0.00	372	-178	240	4.82
14:36	6.95	13.66	0.963	0.00	312	-176	240	4.82
14:39	6.94	13.54	0.984	0.00	290	-175	240	4.82
14:42	6.88	13.46	0.992	0.00	286	-167	240	4.82
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: 5/10/2013 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: 2.85' Depth to Well Bottom: 39.65' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 90.9 Estimated Purge Volume (liters): 66.0

Sample ID: GW-1D Sample Time: 13:59 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Sulfur odor

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)
12:53	7.12	12.93	1.13	0.00	1.4	-116	1000	2.85
12:58	7.15	11.70	1.14	0.00	0.0	-129	1000	2.91
13:03	6.95	11.45	1.14	0.00	0.0	-122	1000	2.91
13:08	6.90	11.35	1.14	0.00	0.0	-120	1000	2.91
13:13	6.83	11.25	1.14	0.00	0.0	-119	1000	2.91
13:18	6.74	11.23	1.14	0.00	0.0	-122	1000	2.91
13:23	6.86	11.17	1.14	0.00	0.0	-154	1000	2.91
13:28	6.97	11.16	1.14	0.00	0.0	-167	1000	2.91
13:33	7.07	11.26	1.14	0.00	0.0	-185	1000	2.91
13:38	7.10	11.14	1.13	0.00	0.0	-197	1000	2.91
13:43	7.10	11.18	1.14	0.00	0.0	-207	1000	2.91
13:48	7.16	11.09	1.13	0.00	0.0	-216	1000	2.91
13:53	7.13	11.12	1.13	0.00	0.0	-222	1000	2.91
13:56	7.12	11.13	1.13	0.00	0.0	-225	1000	2.91
13:59	7.12	11.17	1.14	0.00	0.0	-228	1000	2.91
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: 5/8/2013 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: 2.99' Depth to Well Bottom: 13.22' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.3 Estimated Purge Volume (liters): 7.4

Sample ID: GW-3S 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)
12:15	7.47	11.72	1.75	0.00	49.9	25	315	2.99
12:20	7.10	10.88	1.69	0.00	15.8	9	250	6.11
12:25	6.94	10.99	1.70	0.00	11.3	14	250	6.88
12:30	6.83	11.00	1.70	0.00	16.0	23	190	7.66
12:35	6.80	11.27	1.70	0.00	16.7	27	190	8.31
12:40	6.76	11.52	1.70	0.00	16.9	33	145	8.66
12:45	6.75	11.86	1.68	0.00	13.6	37	145	8.73
12:50	6.75	12.15	1.68	0.00	11.1	42	145	8.72
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: 5/8/2013 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: 2.35' Depth to Well Bottom: 35.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 82.4 Estimated Purge Volume (liters): 60.0

Sample ID: GW-3D Sample Time: 14:15 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)
13:15	6.93	11.01	1.39	0.00	1.6	-32	1000	2.35
13:20	6.99	10.72	1.39	0.00	0.0	-68	1000	2.37
13:25	6.78	10.66	1.39	0.00	0.0	-62	1000	2.37
13:30	6.72	10.71	1.39	0.00	11.8	-62	1000	2.37
13:35	6.68	10.73	1.39	0.00	3.7	-62	1000	2.37
13:40	6.67	10.67	1.39	0.00	3.4	-62	1000	2.37
13:45	6.61	10.67	1.39	0.00	0.7	-60	1000	2.37
13:50	6.59	10.63	1.39	0.00	0.1	-59	1000	2.37
13:55	6.56	10.57	1.39	0.00	0.0	-59	1000	2.37
14:00	6.54	10.59	1.39	0.00	0.0	-58	1000	2.37
14:05	6.53	10.59	1.39	0.00	0.0	-58	1000	2.37
14:10	6.52	10.59	1.39	0.00	0.0	-58	1000	2.37
14:15	6.51	10.60	1.39	0.00	0.0	-58	1000	2.37
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: 5/9/2013 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: 4.90' Depth to Well Bottom: 16.23' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.0 Estimated Purge Volume (liters): 15.1

Sample ID: GW-4S Sample Time: 11:45 VOCs/ 13:30 SVOCs & Metals QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/27/13, sampled VOCs from PDB at 11:45 on 5/9/13. Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 13:30.

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)
11:47	7.79	13.69	0.497	2.76	29.1	99	Initial	4.90
11:50	7.68	11.25	0.490	1.67	212	94	2 Gal. Purged	-
11:53	7.51	10.68	0.490	1.45	642	39	4 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: 5/9/2013 Sampling Personnel: Tim Ifkovich, Kevin McGovern 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: 12.79' Depth to Well Bottom: 45.57' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 81.0 Estimated Purge Volume (liters): 10.8

Sample ID: GW-4D Sample Time: 13:09 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)
12:09	7.28	12.94	1.61	0.00	188	-57	180	12.79
12:14	7.17	12.50	1.64	3.32	46.0	-104	180	13.14
12:19	7.16	12.27	1.62	2.66	18.6	-132	180	13.36
12:24	7.14	12.14	1.62	2.07	14.1	-153	180	13.54
12:29	7.12	12.15	1.66	0.00	8.3	-184	180	13.77
12:34	7.12	12.31	1.66	0.00	7.9	-197	180	13.87
12:39	7.13	12.46	1.67	0.00	7.6	-210	180	13.96
12:44	7.12	12.41	1.67	0.00	4.1	-225	180	14.05
12:49	7.13	12.37	1.68	0.00	9.3	-237	180	14.14
12:54	7.14	12.34	1.68	0.00	0.0	-247	180	14.23
12:59	7.15	12.09	1.69	0.00	0.0	-252	180	14.30
13:04	7.14	12.25	1.67	0.00	0.0	-255	180	14.33
13:09	7.11	12.47	1.66	0.00	0.0	-257	180	14.35
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): 5/8/13, 5/9/13

			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.)	=	5.30	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	29.74	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	3	4	5	7					
pH	8.66	8.31	7.89	7.46	7.25	7.47					
SPEC. COND. (mS/cm)	0.626	0.599	0.600	0.601	0.603	0.584					
DO (mg/l)	6.02	4.62	4.60	6.55	2.39	2.74					
TEMPERATURE (^{0}C)	13.11	12.27	11.89	12.41	12.82	14.12					
TURBIDITY (NTU)	20.6	18.9	21.4	37.8	131	225					
ORP (millivolts)	68	57	56	69	56	36					
TIME	10:29	10:33	10:35	10:37	10:39	10:43					

COMMENTS:
10:15 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/27/13
10:29 - Begin handbailing well.
10:43 - Well dry after removing 7 gallons.
5/9/2013 11:00 - Return to well, depth to water = 5.35 feet.
11:05 - 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): 5/8/13, 5/9/13

			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.)	=	45.33	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.12	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)	=	10.0	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10.0	8"	2.60

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

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Init	2	4	6	8	10					
pH	7.24	7.33	7.30	7.35	7.30	7.68					
SPEC. COND. (mS/cm)	0.820	0.690	0.738	0.770	0.810	0.826					
DO (mg/l)	0.00	1.46	1.93	2.22	1.80	3.55					
TEMPERATURE (^{0}C)	14.74	14.26	14.20	14.29	14.07	14.61					
TURBIDITY (NTU)	11.5	13.8	15.0	17.7	20.2	56.3					
ORP (millivolts)	-84	-77	-75	-79	-94	-93					
TIME	11:00	11:07	11:13	11:19	11:24	11:31					

COMMENTS: 10:25 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/27/13
11:00 - Begin handbailing well.
11:31 - Well dry after removing 10 gallons
5/9/2013 10:50 - return to well, depth to water = 59.13 feet.
10:55 - 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: 5/8/2013 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: 5.48' 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): 5.6

Sample ID: GW-8SR Sample Time: 16:33 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)
16:03	6.56	12.81	3.22	0.00	110	-26	200	5.48
16:08	6.32	11.77	3.31	0.00	90.8	-48	200	6.77
16:13	6.28	11.79	3.31	0.00	75.9	-54	200	7.23
16:18	6.26	11.82	3.32	0.00	66.6	-57	170	7.48
16:23	6.26	12.30	3.33	0.00	63.9	-59	170	7.45
16:28	6.25	12.38	3.34	0.00	62.0	-61	170	7.42
16:33	6.24	12.47	3.34	0.00	61.2	-61	170	7.42
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: 5/8/2013 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: 6.36' Depth to Well Bottom: 36.54' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 74.5 Estimated Purge Volume (liters): 57.0

Sample ID: GW-8D Sample Time: 15:50 QA/QC: Duplicate (FD-050813)

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)
14:50	6.80	11.72	2.40	0.00	77.1	54	950	6.36
14:55	6.89	11.31	1.76	0.00	10.0	29	950	6.37
15:00	6.87	11.12	1.55	0.00	3.1	34	950	6.37
15:05	6.76	11.05	1.54	0.00	3.1	41	950	6.37
15:10	6.67	10.99	1.53	0.00	1.8	49	950	6.37
15:15	6.67	10.98	1.54	0.00	0.8	52	950	6.37
15:20	6.68	10.96	1.54	0.00	0.9	53	950	6.37
15:25	6.67	10.95	1.54	0.00	0.8	56	950	6.37
15:30	6.67	10.95	1.54	0.00	0.7	58	950	6.37
15:35	6.76	10.95	1.54	0.00	0.0	55	950	6.37
15:40	6.82	10.95	1.54	0.00	0.0	53	950	6.37
15:45	6.82	10.94	1.54	0.00	0.0	54	950	6.37
15:50	6.82	10.98	1.54	0.00	0.0	55	950	6.37
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: 5/9/2013 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: 6.92' Depth to Well Bottom: 40.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 83.4 Estimated Purge Volume (liters): 56.4

Sample ID: GW-26D Sample Time: 14:58 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)
13:58	7.24	13.11	2.41	0.53	588	-85	940	6.92
14:03	6.88	12.77	2.43	0.00	242	-78	940	6.92
14:08	6.69	12.46	2.44	0.00	76.4	-70	940	6.92
14:13	6.62	12.47	2.44	0.00	27.2	-68	940	6.92
14:18	6.50	12.47	2.44	0.00	0.0	-62	940	6.92
14:23	6.35	12.43	2.44	0.00	0.0	-57	940	6.92
14:28	6.33	12.43	2.44	0.00	0.0	-57	940	6.92
14:33	6.31	12.44	2.44	0.00	0.0	-56	940	6.92
14:38	6.28	12.45	2.44	0.00	0.0	-55	940	6.92
14:43	6.31	12.45	2.44	0.00	0.0	-58	940	6.92
14:48	6.40	12.44	2.44	0.00	0.0	-62	940	6.92
14:53	6.45	12.43	2.44	0.00	0.0	-65	940	6.92
14:58	6.46	12.51	2.44	0.00	0.0	-66	940	6.92
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: 5/9/2013 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: 9.67' Depth to Well Bottom: 15.52' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.6 Estimated Purge Volume (liters): 8.8

Sample ID: GW-28S Sample Time: 9:14 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)
8:29	8.13	11.53	0.629	0.34	23.7	131	280	9.67
8:34	7.11	10.41	0.590	0.00	18.0	142	185	11.04
8:39	7.11	10.43	0.585	0.00	12.7	131	185	11.07
8:44	6.92	10.41	0.598	0.00	10.5	134	185	11.08
8:49	6.79	10.41	0.606	0.00	8.5	134	185	11.11
8:54	6.68	10.37	0.613	0.00	7.6	132	185	11.11
8:59	6.61	10.35	0.617	0.00	6.8	130	185	11.14
9:04	6.55	10.35	0.621	0.00	5.8	125	185	11.17
9:09	6.50	10.39	0.625	0.00	4.8	119	185	11.21
9:14	6.48	10.38	0.626	0.00	4.7	116	185	11.24
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: 5/9/2013 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: 8.89' Depth to Well Bottom: 20.04' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.9 Estimated Purge Volume (liters): 8.0

Sample ID: GW-29S Sample Time: 16:51 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)
16:06	6.84	12.47	1.19	0.00	401	-54	200	8.89
16:11	6.51	11.74	1.21	0.00	217	-43	200	10.43
16:16	6.47	11.66	1.22	0.00	173	-45	200	10.84
16:21	6.46	11.60	1.23	0.00	118	-48	200	11.22
16:26	6.38	12.09	1.25	0.00	77.1	-52	160	11.40
16:31	6.36	12.03	1.26	0.00	57.3	-54	160	11.45
16:36	6.36	12.12	1.26	0.00	52.1	-57	160	11.49
16:41	6.36	12.16	1.26	0.00	43.9	-57	160	11.52
16:46	6.39	11.99	1.26	0.00	41.6	-60	160	11.60
16:51	6.43	12.04	1.26	0.00	40.8	-63	160	11.63
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: 5/10/2013 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: 8.05' 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): 21.0

Sample ID: GW-30S Sample Time: 8:46 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)
8:16	6.86	11.19	2.17	0.00	>800	-66	700	8.05
8:21	6.56	9.71	1.09	0.00	65.6	-54	700	8.17
8:26	6.43	9.65	1.09	0.00	20.2	-52	700	8.17
8:31	6.33	9.61	1.09	0.00	16.8	-51	700	8.17
8:36	6.28	9.55	1.09	0.00	23.4	-51	700	8.17
8:41	6.25	9.54	1.08	0.00	13.4	-51	700	8.17
8:46	6.21	9.52	1.09	0.00	12.5	-51	700	8.17
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: 5/10/2013 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: 4.21' Depth to Well Bottom: 9.57' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.3 Estimated Purge Volume (liters): 3.7

Sample ID: GW-31S Sample Time: 9:31 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)
9:01	7.16	12.73	0.736	0.00	39.3	-30	230	4.21
9:06	6.74	11.94	0.724	0.00	20.7	12	100	5.94
9:11	6.58	12.51	0.709	0.00	18.9	22	100	6.17
9:16	6.81	12.53	0.701	0.00	10.9	10	100	6.35
9:21	6.79	12.54	0.695	0.00	8.0	7	100	6.50
9:26	6.78	12.42	0.689	0.00	8.3	5	100	6.62
9:31	6.78	12.33	0.674	0.00	8.1	4	100	6.75
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: 5/10/2013 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: 4.11' 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): 6.9

Sample ID: GW-32S Sample Time: 10:39 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)
10:09	7.29	13.14	0.556	0.00	25.7	85	230	4.11
10:14	7.18	13.20	0.546	0.00	12.1	81	230	4.42
10:19	7.07	13.27	0.536	0.00	0.7	74	230	4.78
10:24	7.04	13.03	0.536	0.00	0.0	72	230	4.84
10:29	7.02	12.97	0.537	0.00	0.0	71	230	4.85
10:34	7.00	12.91	0.538	0.00	0.0	70	230	4.86
10:39	6.96	12.84	0.538	0.00	0.0	71	230	4.87
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: 5/10/2013 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: 5.52' Depth to Well Bottom: 8.21' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 1.7 Estimated Purge Volume (liters): 6.9

Sample ID: GW-33S Sample Time: 11:59 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)
11:04	6.84	12.74	0.714	0.00	0.8	110	220	5.52
11:09	6.82	12.36	0.680	0.00	2.0	107	115	6.48
11:14	6.66	12.84	0.712	0.00	0.6	119	115	6.58
11:19	6.63	13.19	0.683	0.00	0.0	118	115	6.67
11:24	6.65	13.32	0.659	0.00	0.0	113	115	6.76
11:29	6.67	13.62	0.676	0.00	0.0	107	115	6.84
11:34	6.68	13.98	0.715	0.00	0.0	100	115	6.91
11:39	6.74	14.05	0.668	0.00	0.0	92	115	6.98
11:44	6.79	14.27	0.662	0.00	0.0	85	115	7.04
11:49	6.83	14.67	0.661	0.00	0.0	79	115	7.12
11:54	6.84	14.81	0.672	0.00	0.0	74	115	7.18
11:59	6.84	15.11	0.671	0.00	0.0	72	115	7.24
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: 5/9/2013 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: 2.70' Depth to Well Bottom: 10.01' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.5 Estimated Purge Volume (liters): 5.4

Sample ID: GW-34S Sample Time: 10:24 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)
9:49	6.88	13.15	1.050	0.00	34.9	111	155	2.70
9:54	6.84	12.63	0.974	0.00	17.7	29	155	4.20
9:59	6.81	12.42	0.961	0.00	12.1	27	155	4.40
10:04	6.79	12.35	0.960	0.00	8.6	24	155	4.48
10:09	6.76	12.27	0.957	0.00	2.4	23	155	4.58
10:14	6.76	12.31	0.951	0.00	1.0	25	155	4.63
10:19	6.76	12.31	0.940	0.00	1.6	24	155	4.63
10:24	6.75	12.31	0.940	0.00	1.3	25	155	4.67
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: 5/9/2013 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: 4.16' Depth to Well Bottom: 7.46' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 2.0 Estimated Purge Volume (liters): 6.4

Sample ID: GW-35S Sample Time: 15:39 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)
15:09	7.53	14.54	0.561	0.00	45.3	-42	260	4.16
15:14	7.02	14.41	0.524	0.00	11.4	-21	205	4.30
15:19	6.96	14.48	0.526	0.00	4.8	-18	205	4.40
15:24	6.94	14.23	0.525	0.00	3.5	-15	205	4.41
15:29	6.93	14.07	0.524	0.00	2.2	-12	205	4.42
15:34	6.92	14.02	0.525	0.00	1.2	-10	205	4.42
15:39	6.90	14.12	0.525	0.00	0.8	-8	205	4.42
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 ($vol_{cyl} = \pi r^2 h$)

APPENDIX E

GROUNDWATER TREND ANALYSIS

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

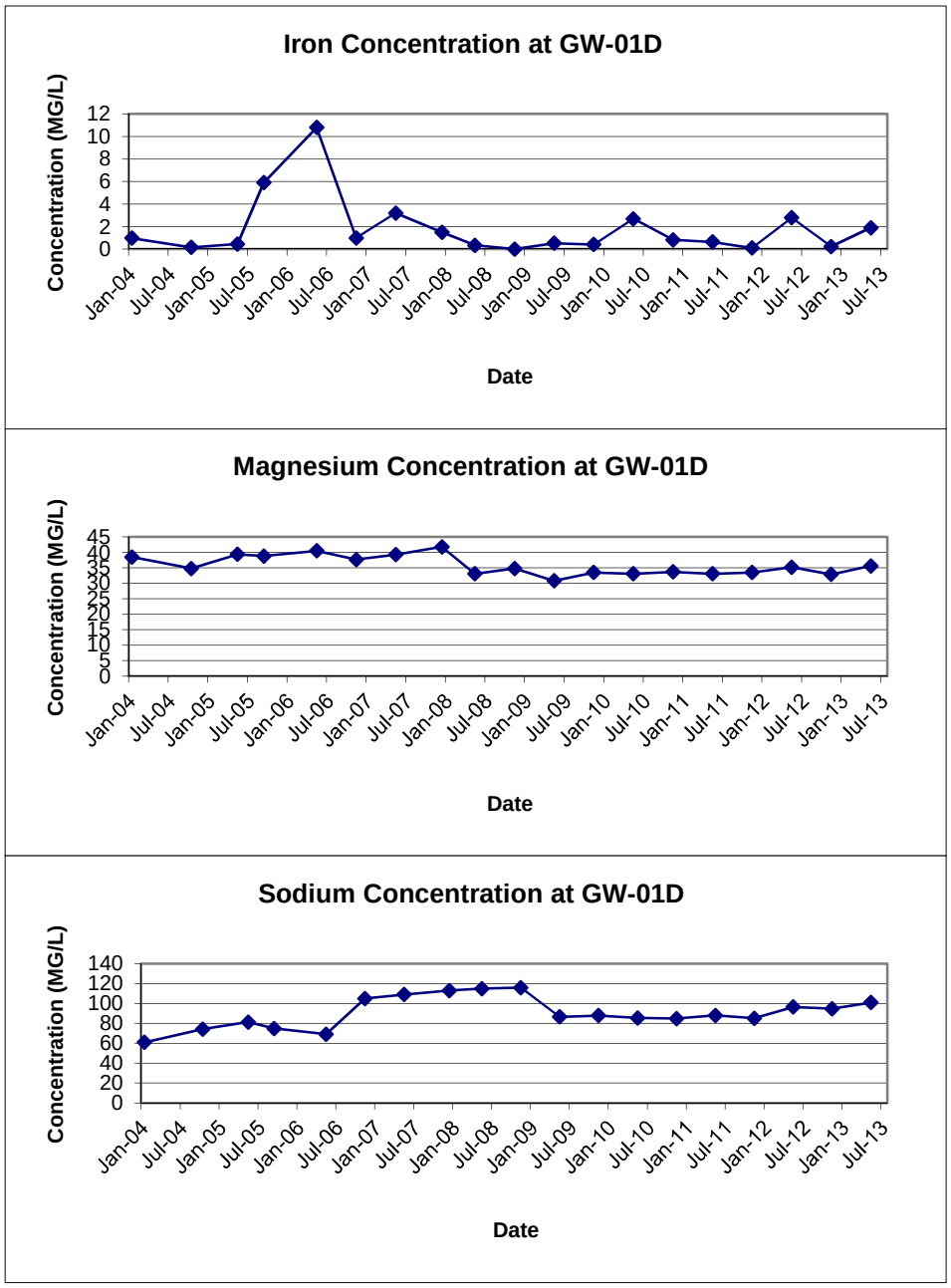


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1S

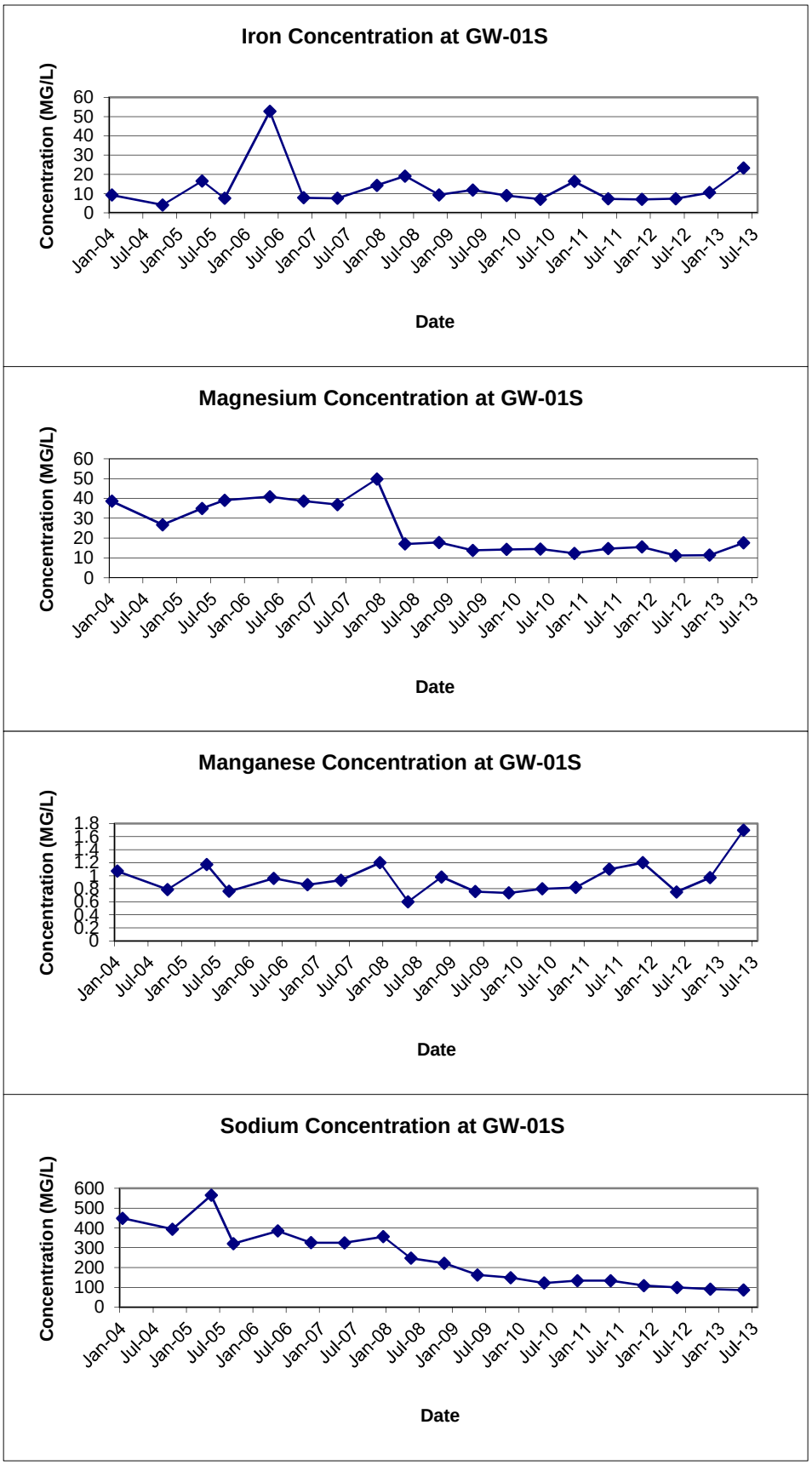


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3D

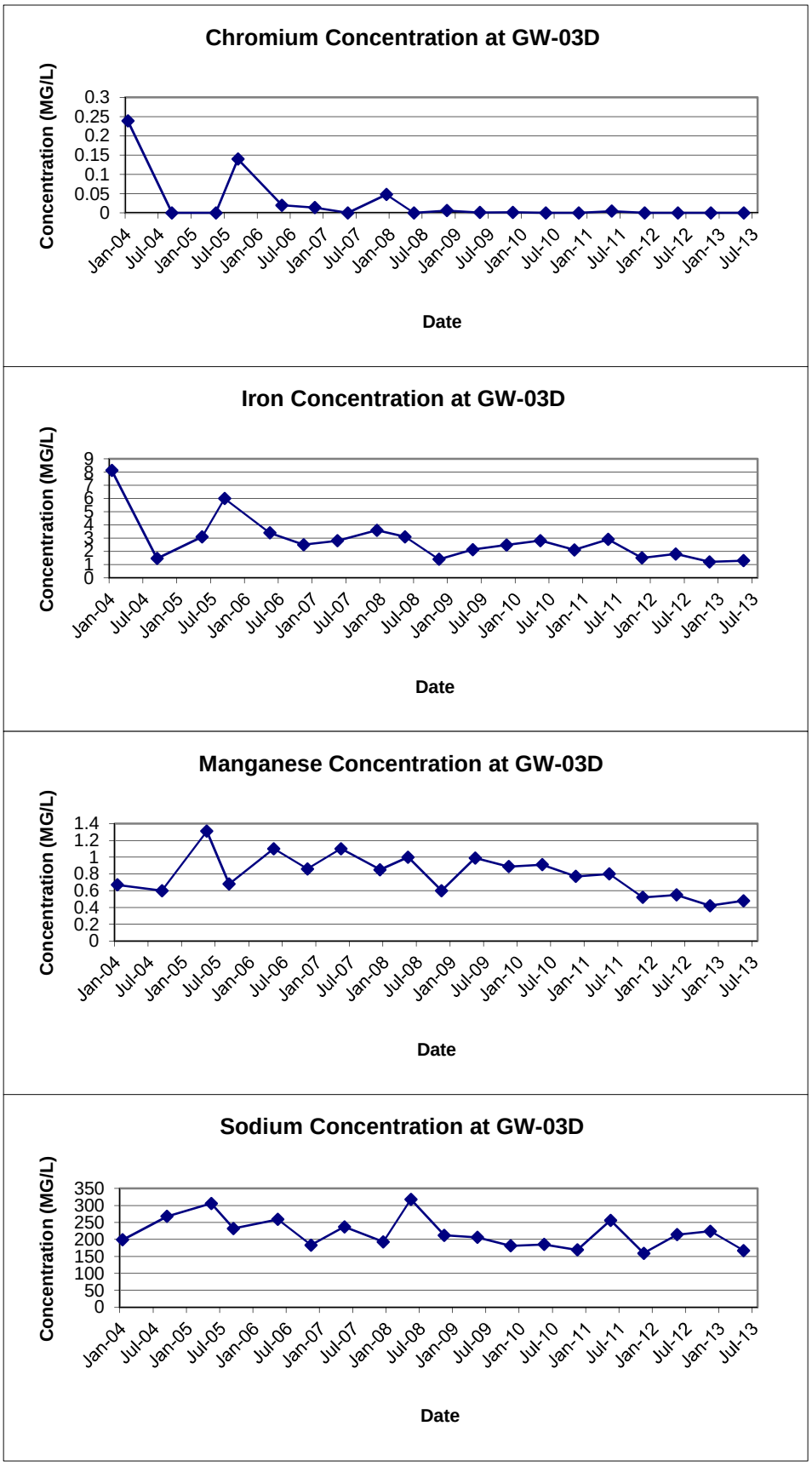


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

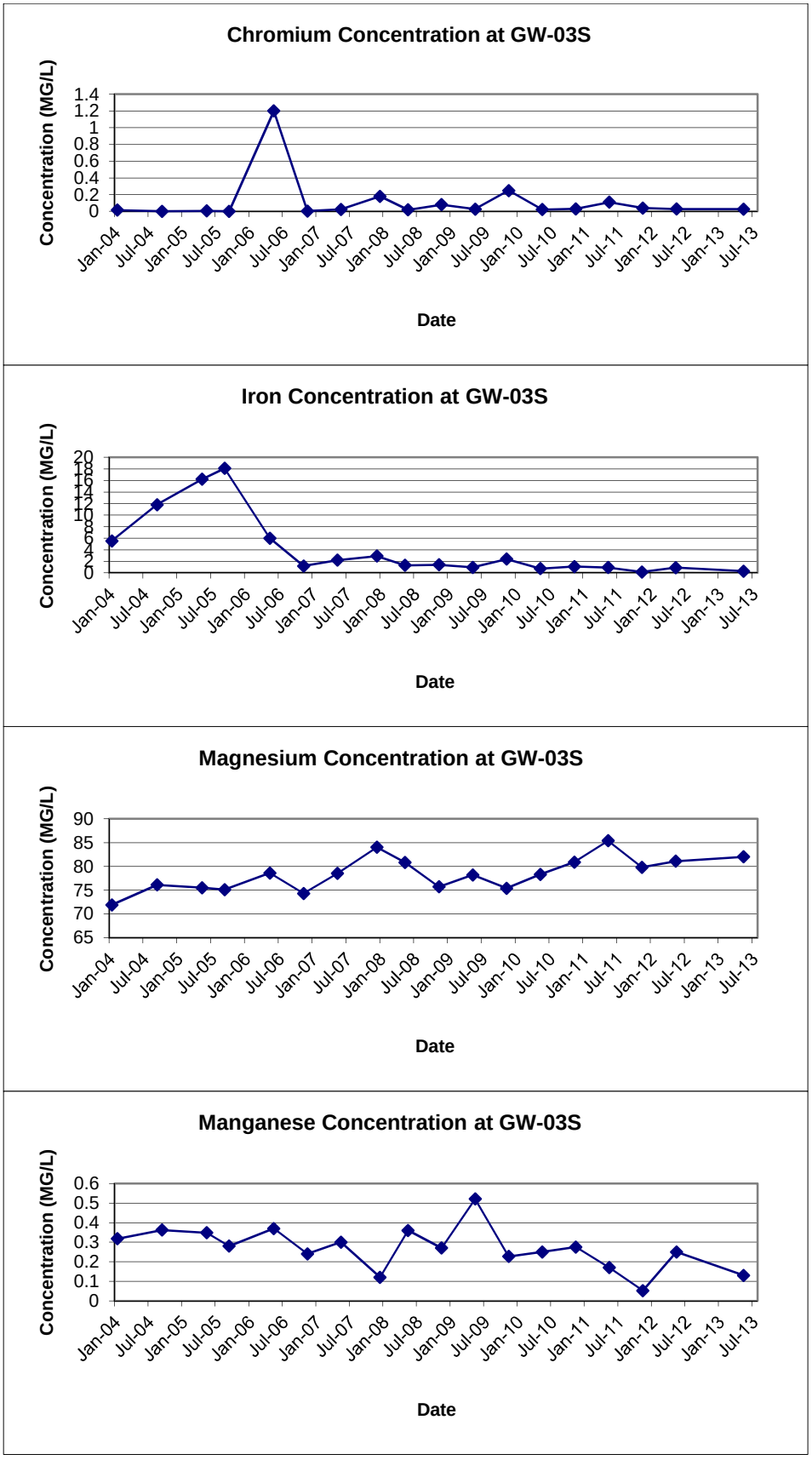


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

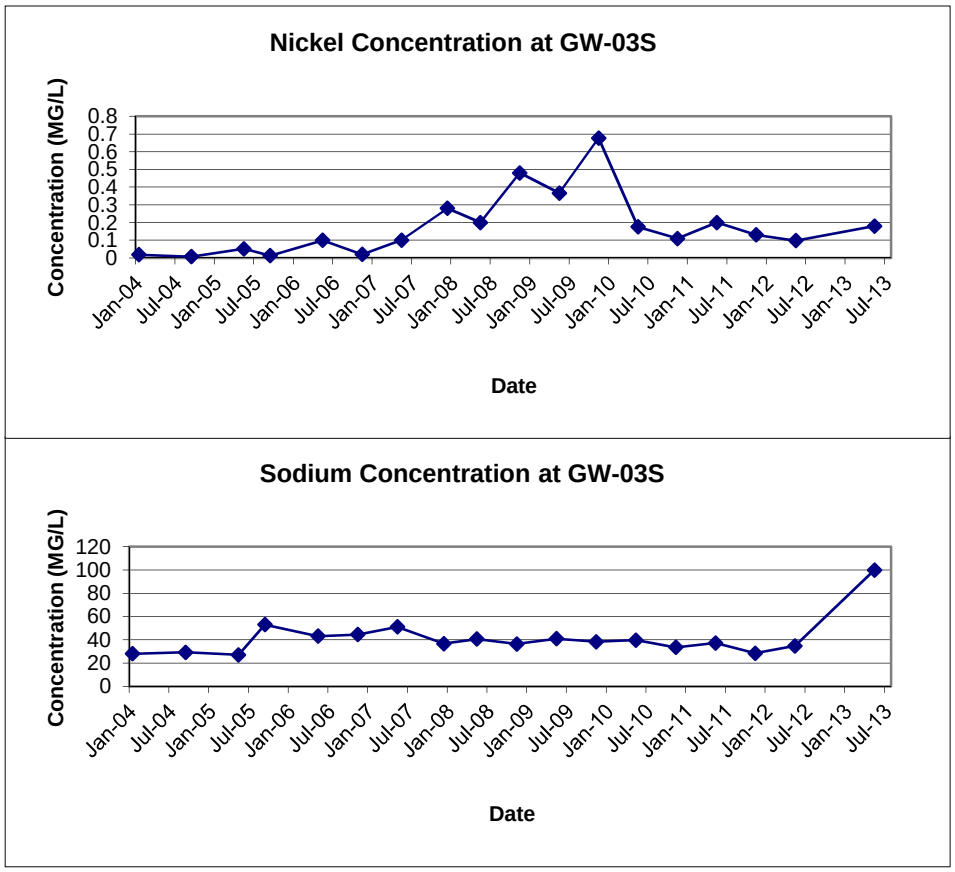


FIGURE E-5
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4D

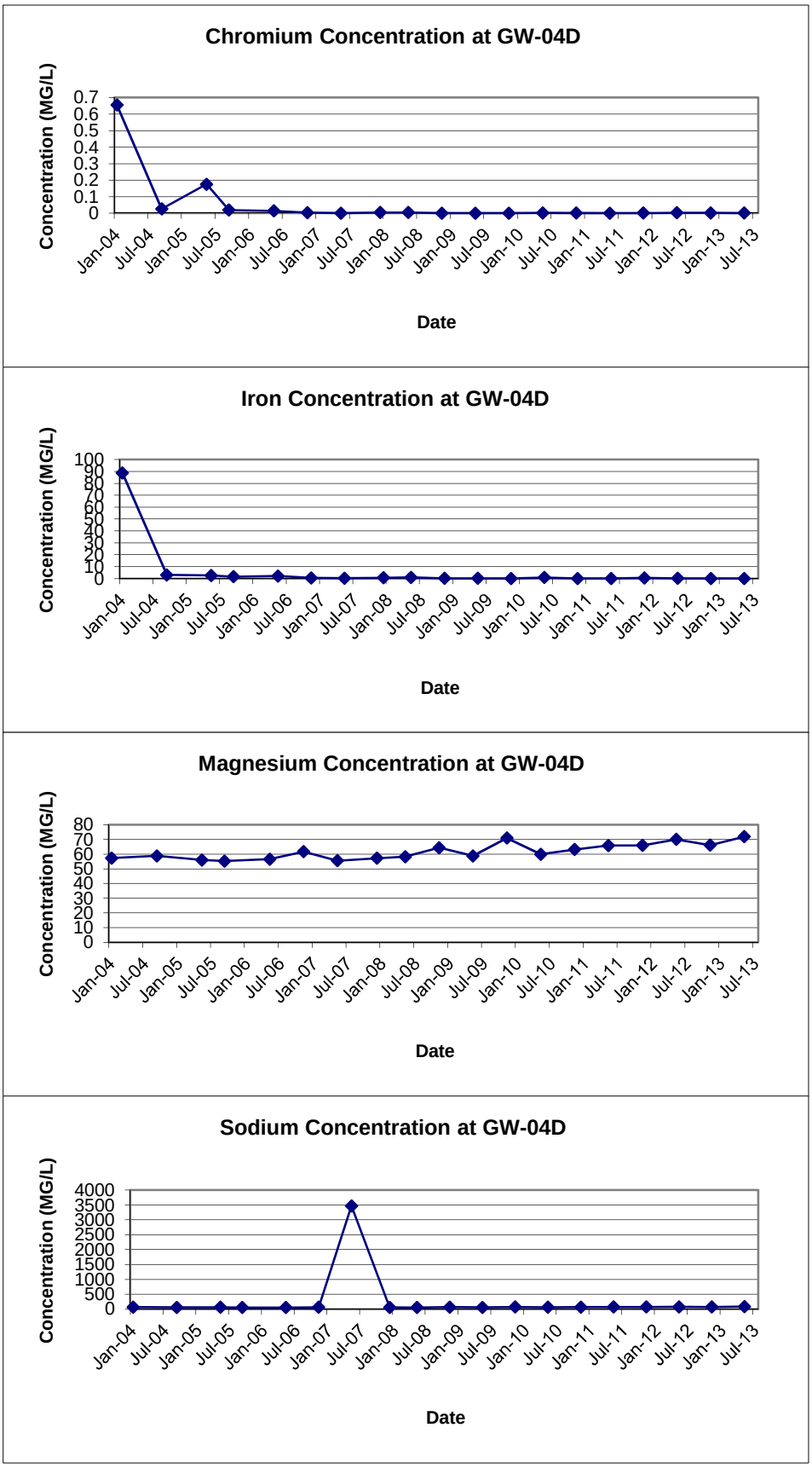


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4S

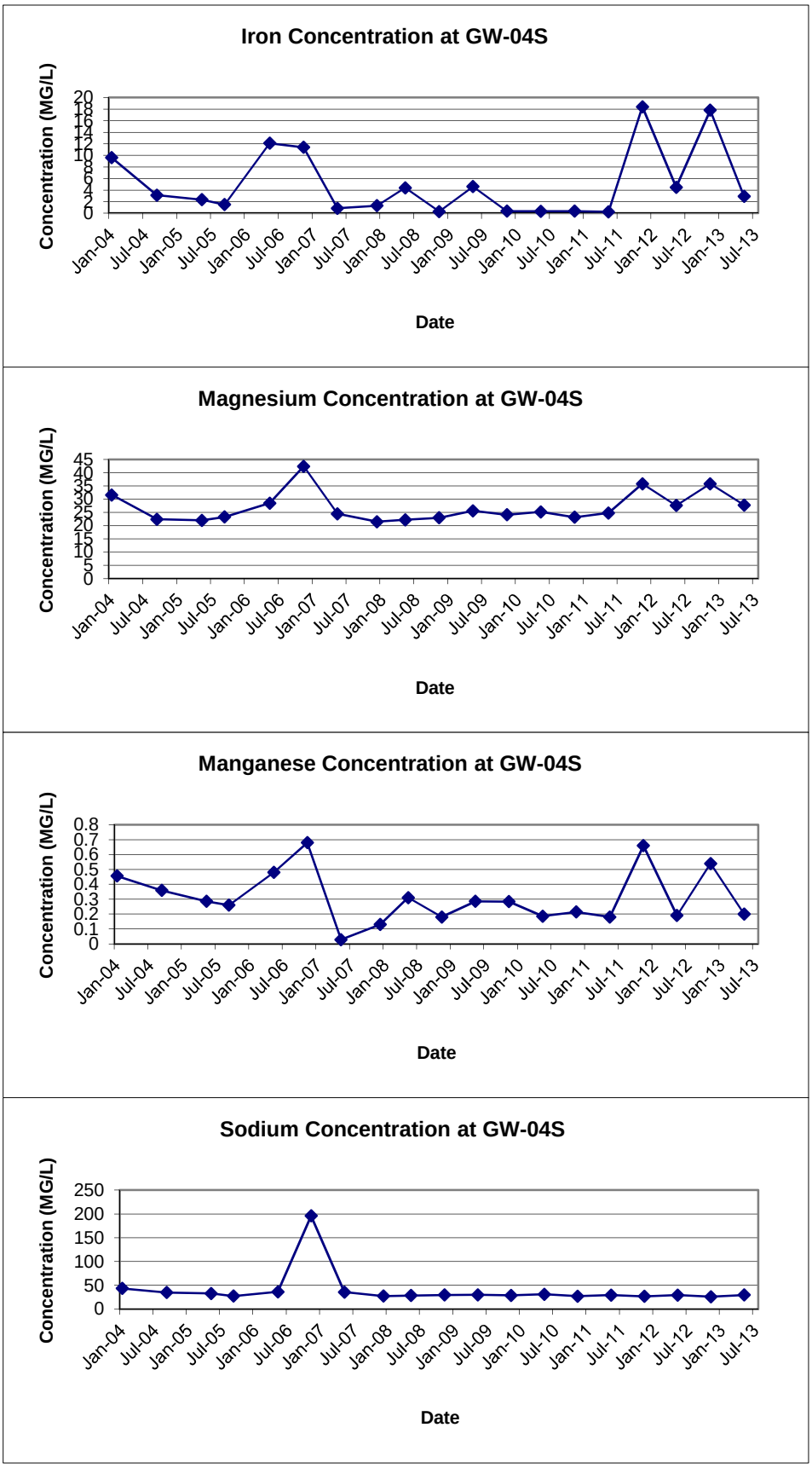


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7D

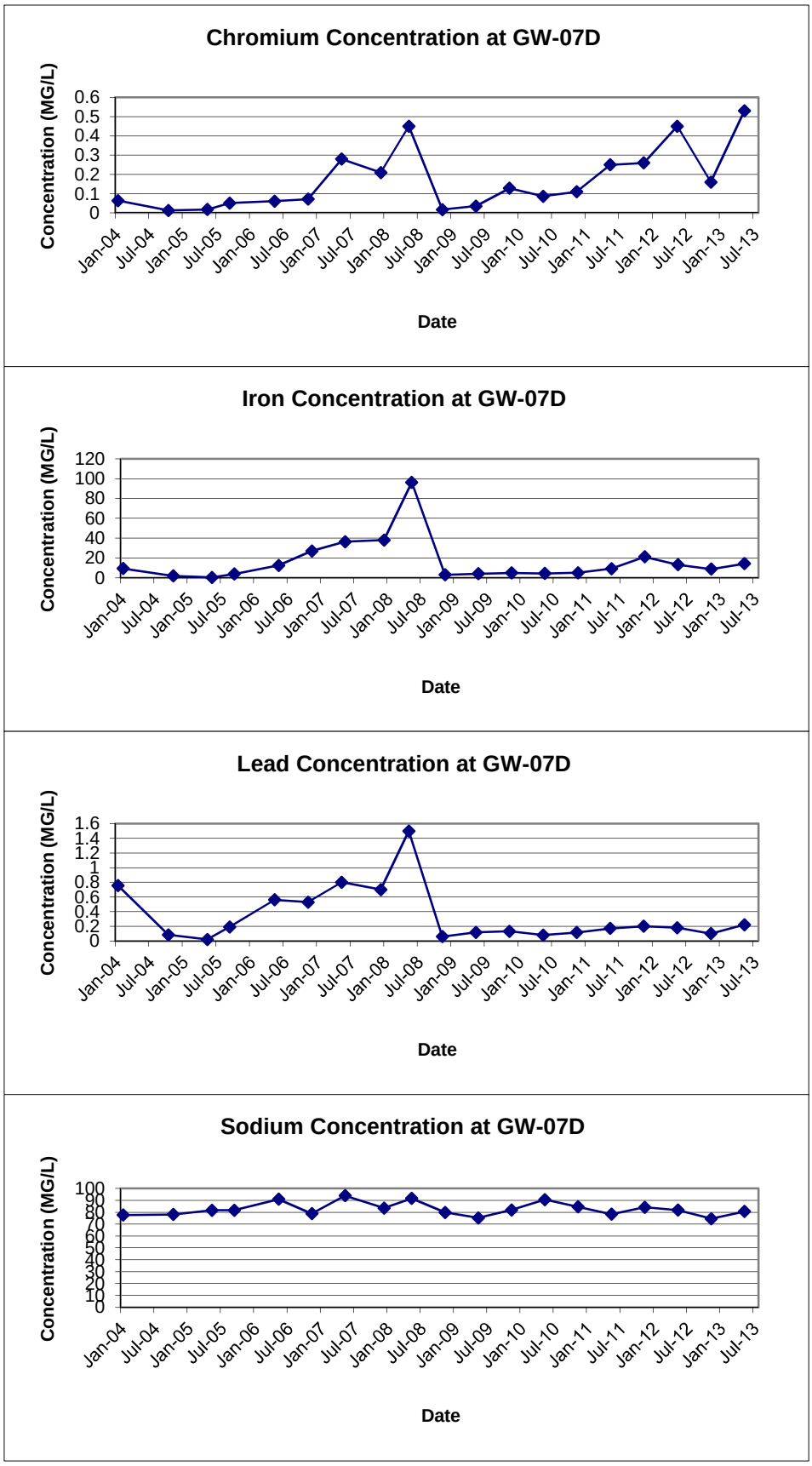


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7S

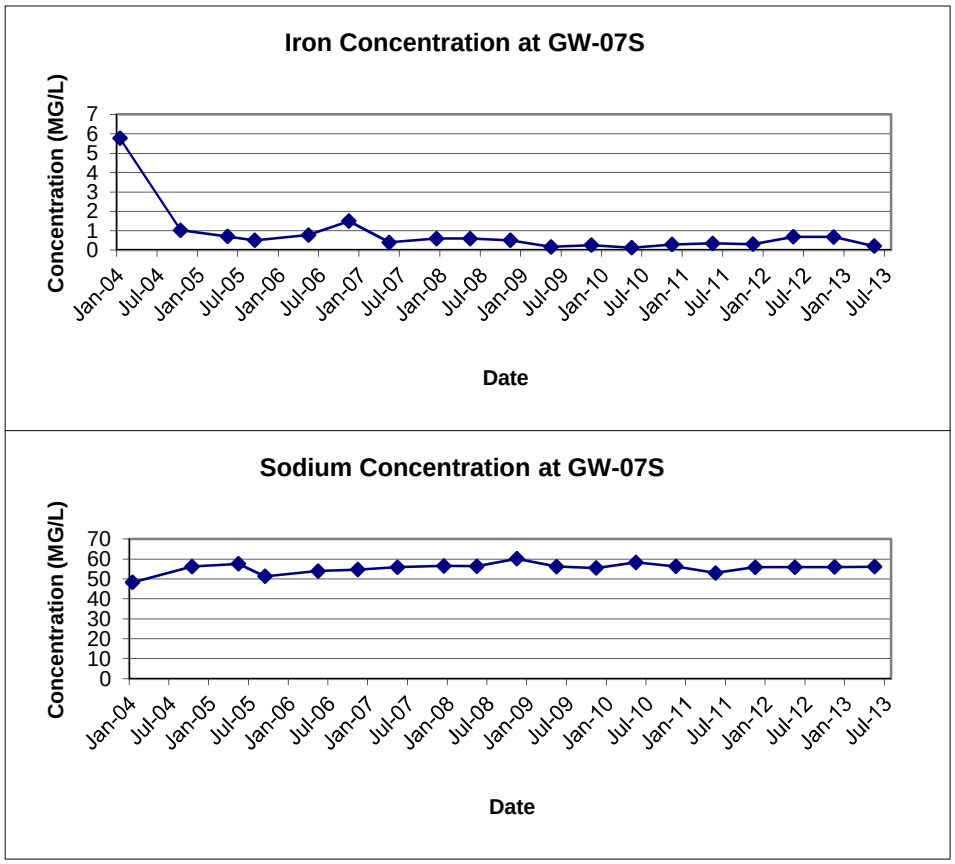


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8D

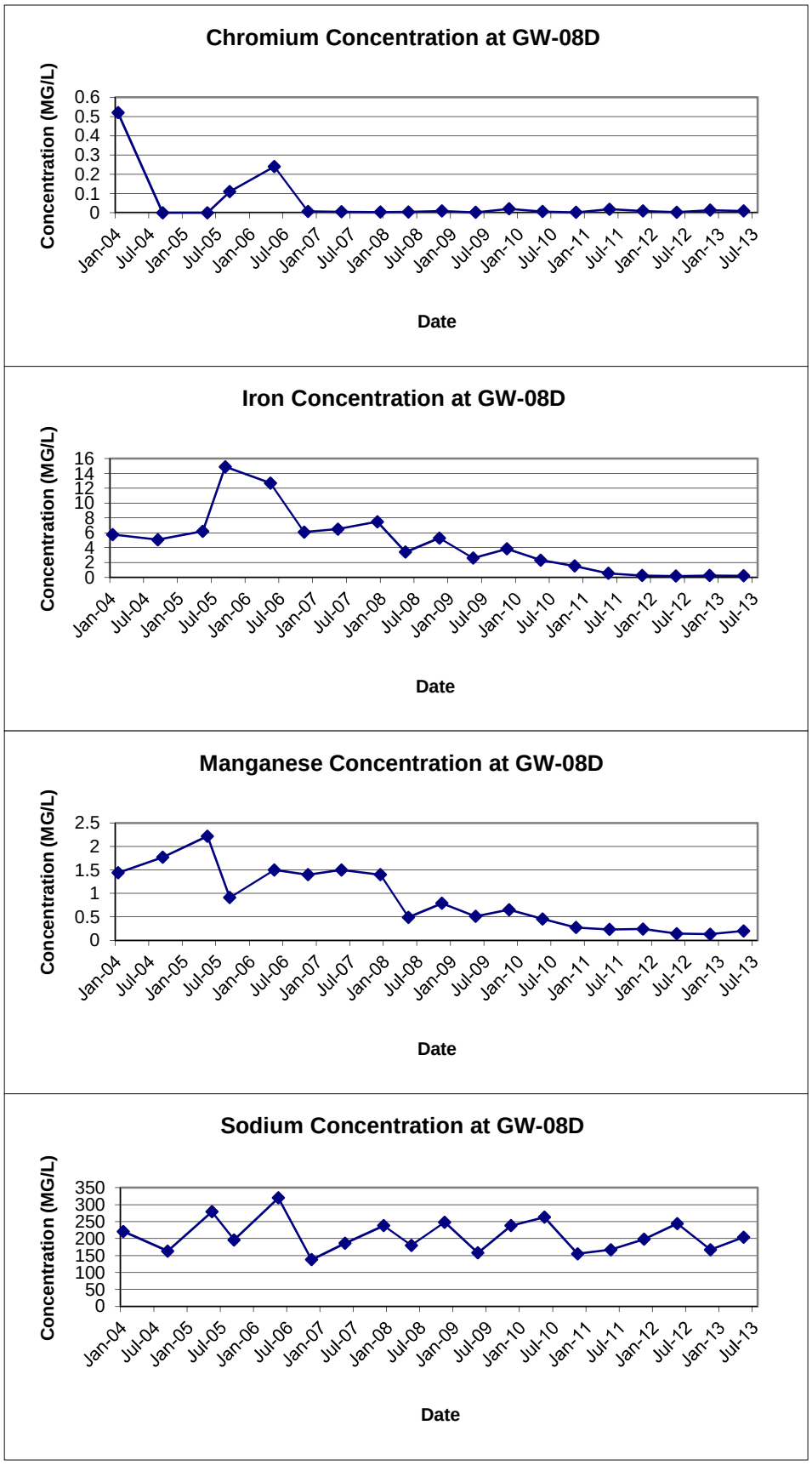


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8SR

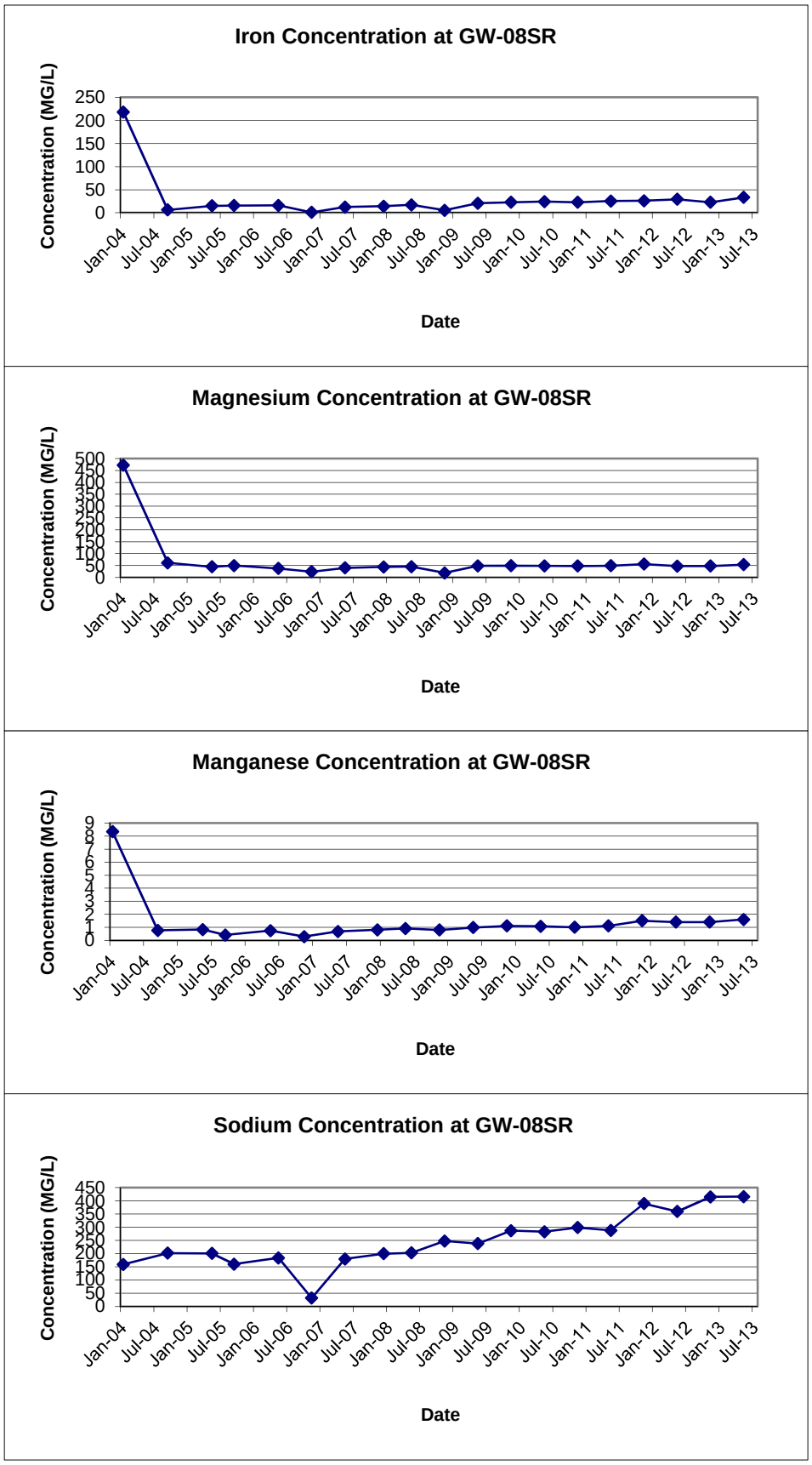


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

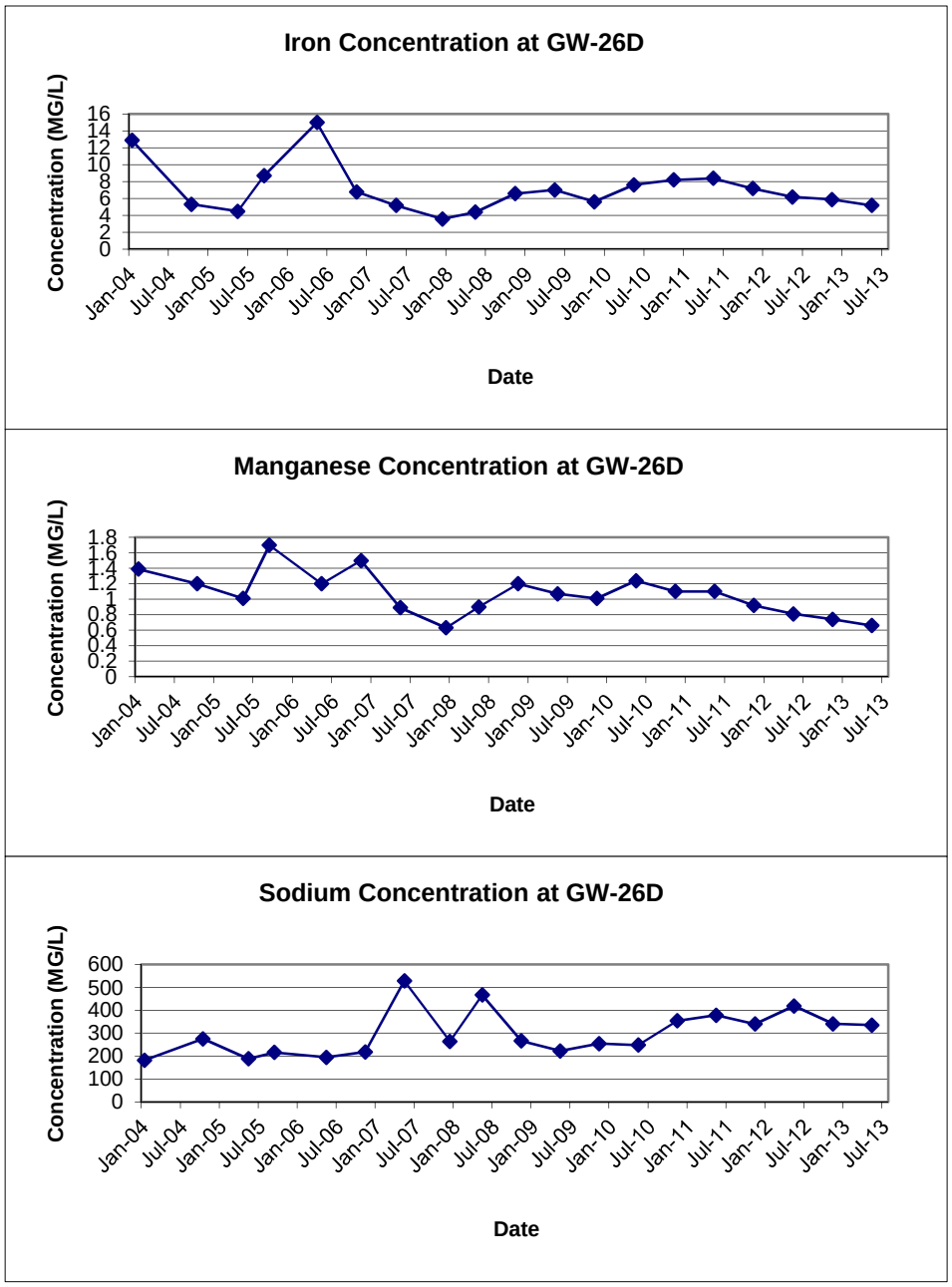


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

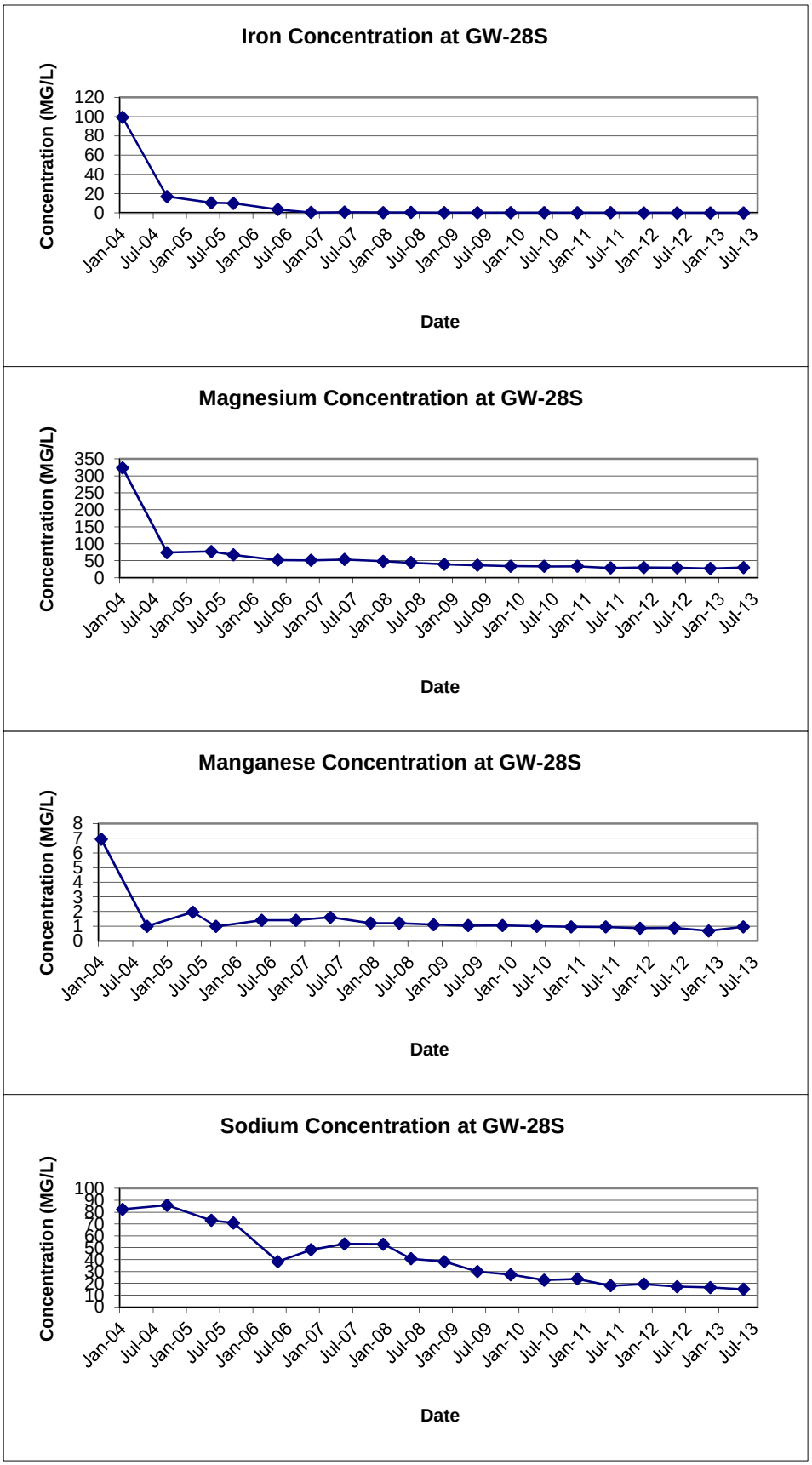


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

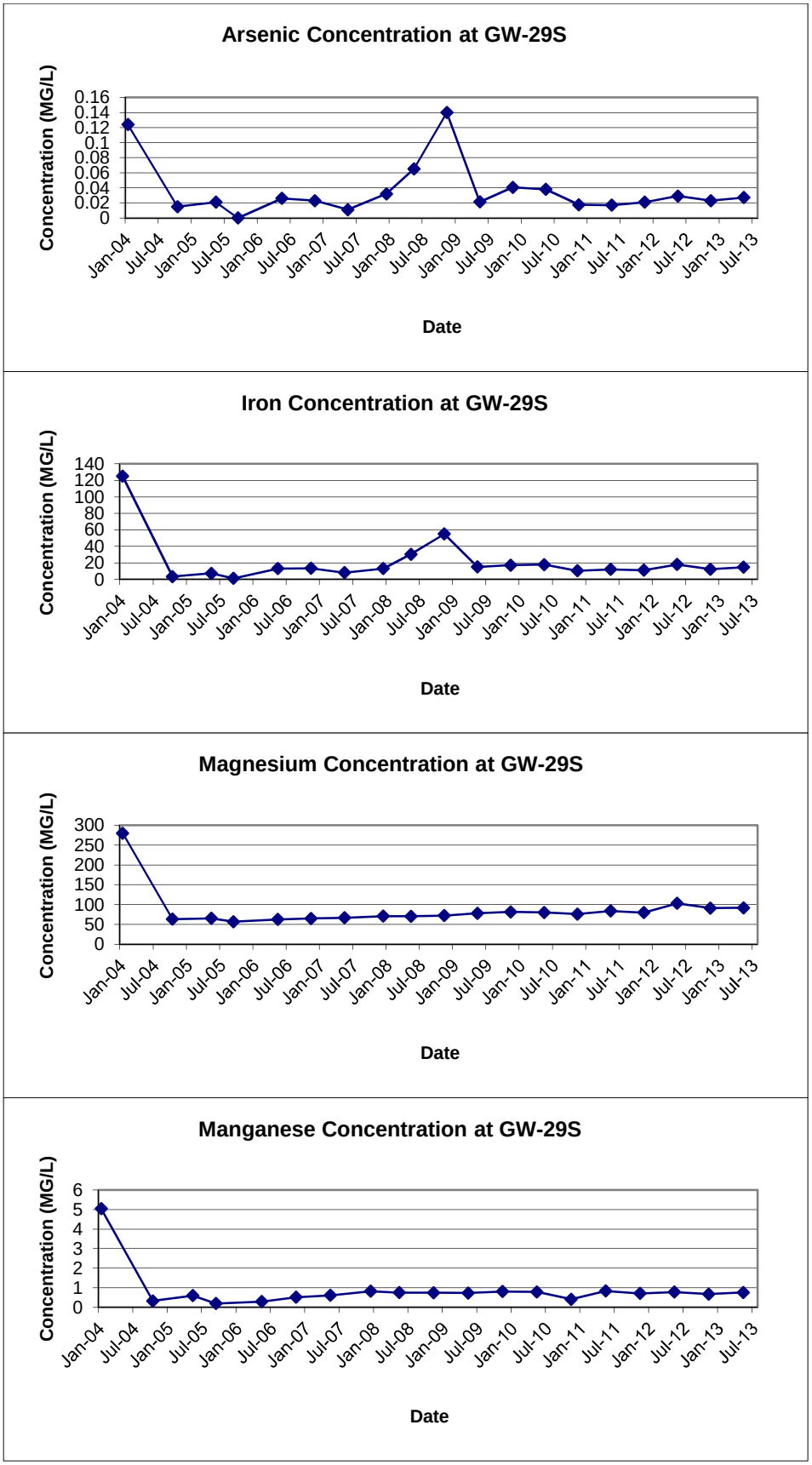


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

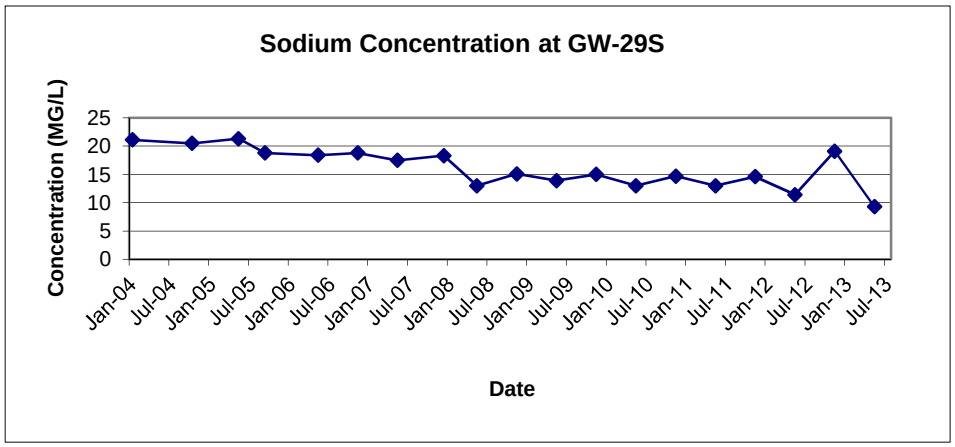


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

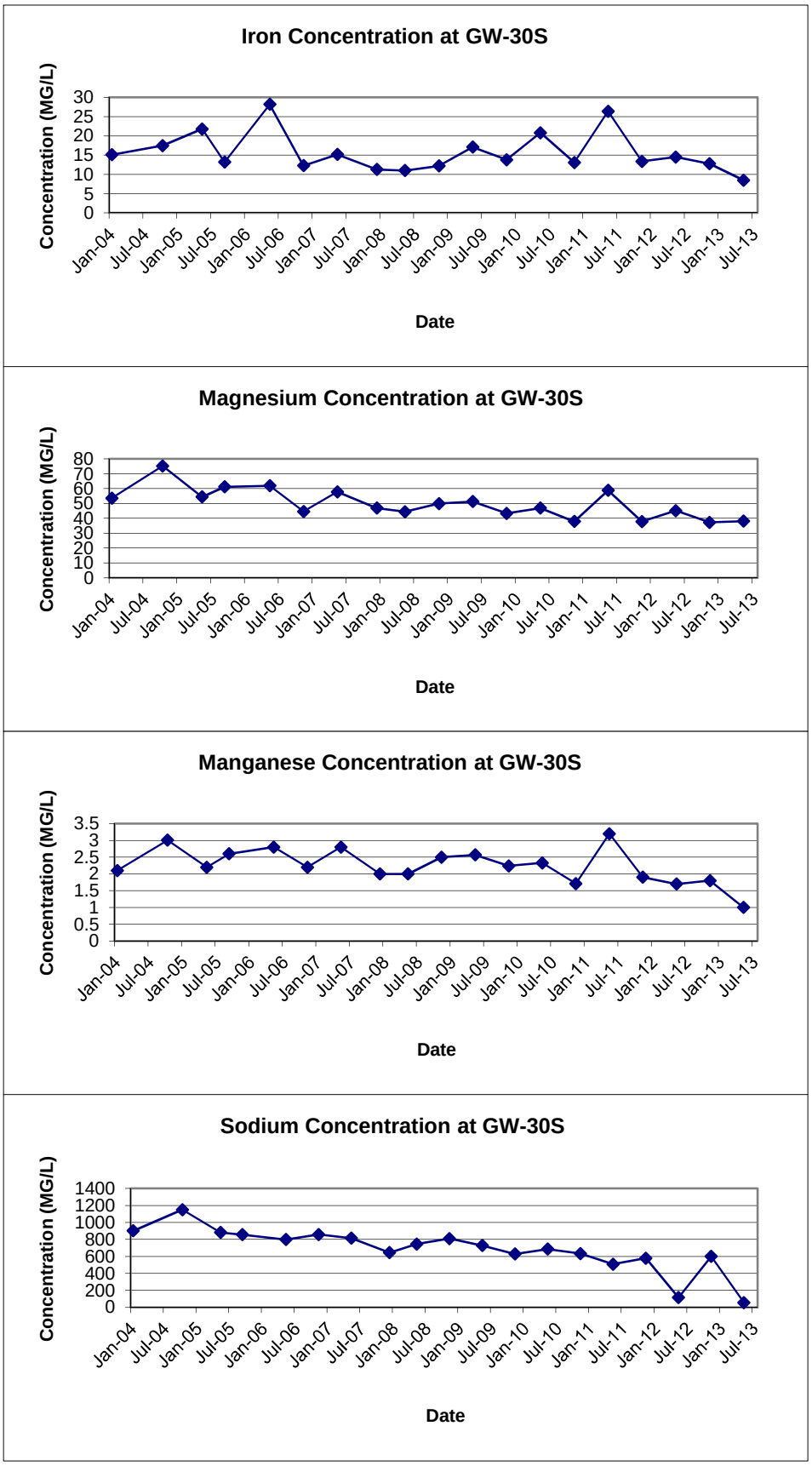


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

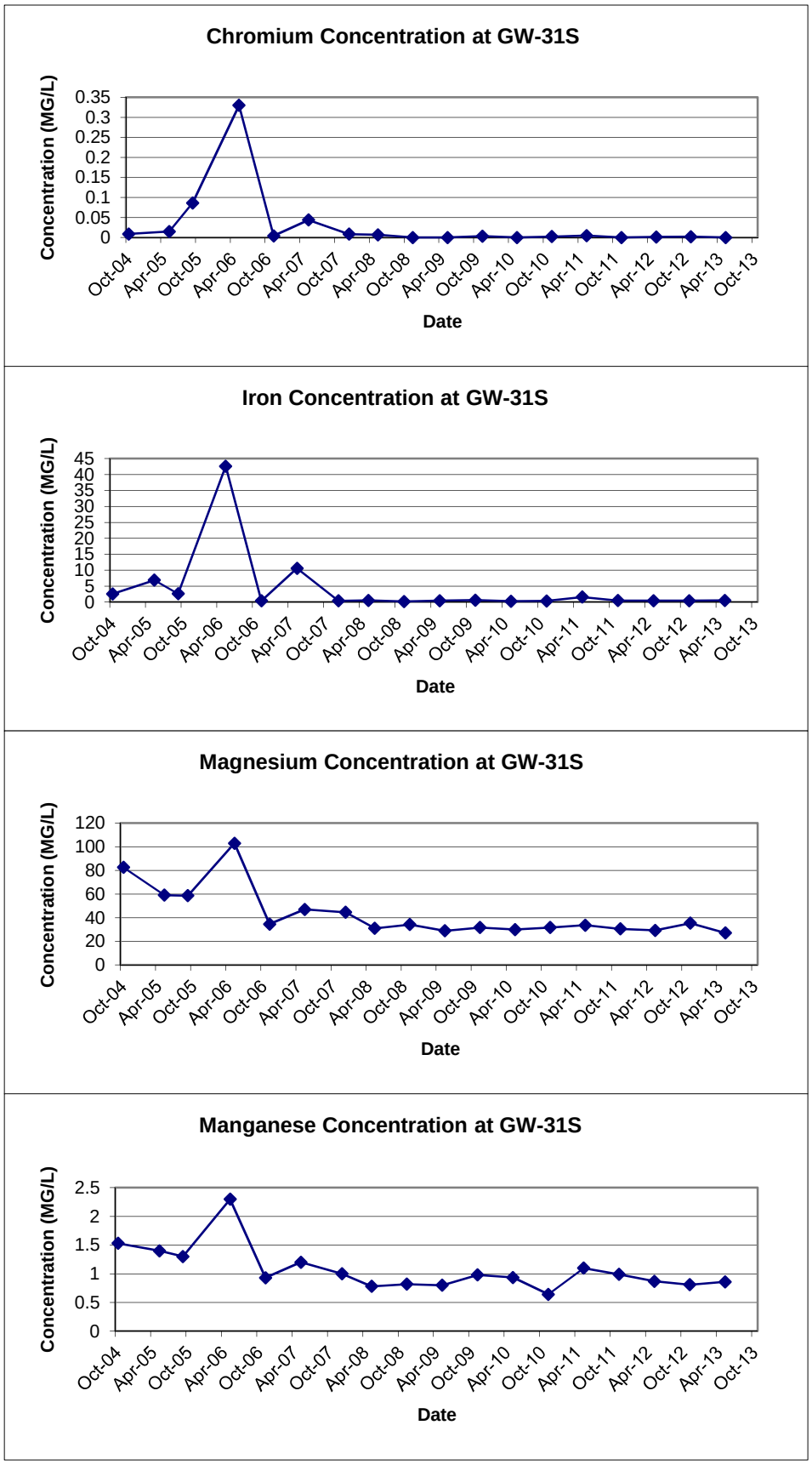


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

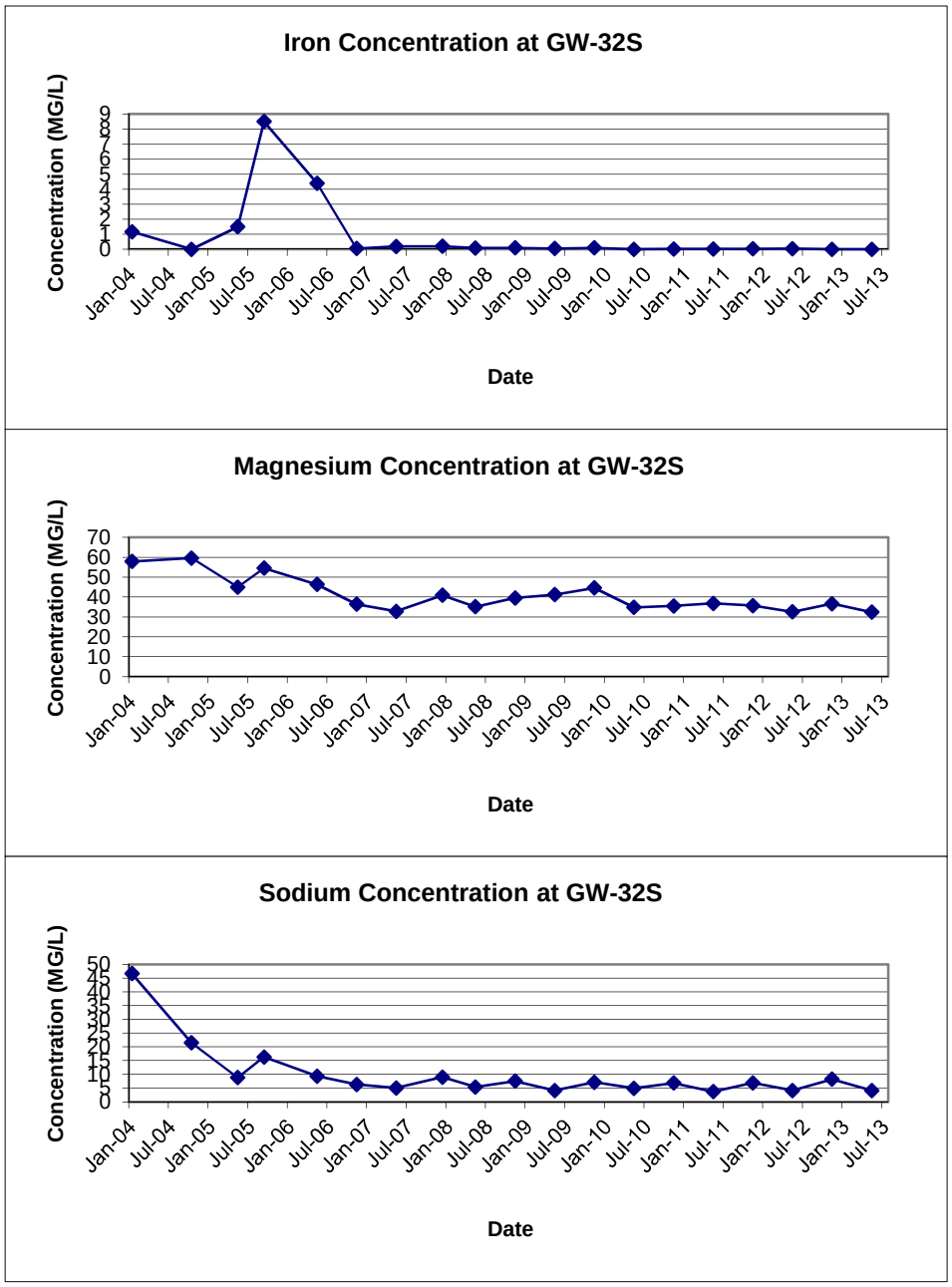


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

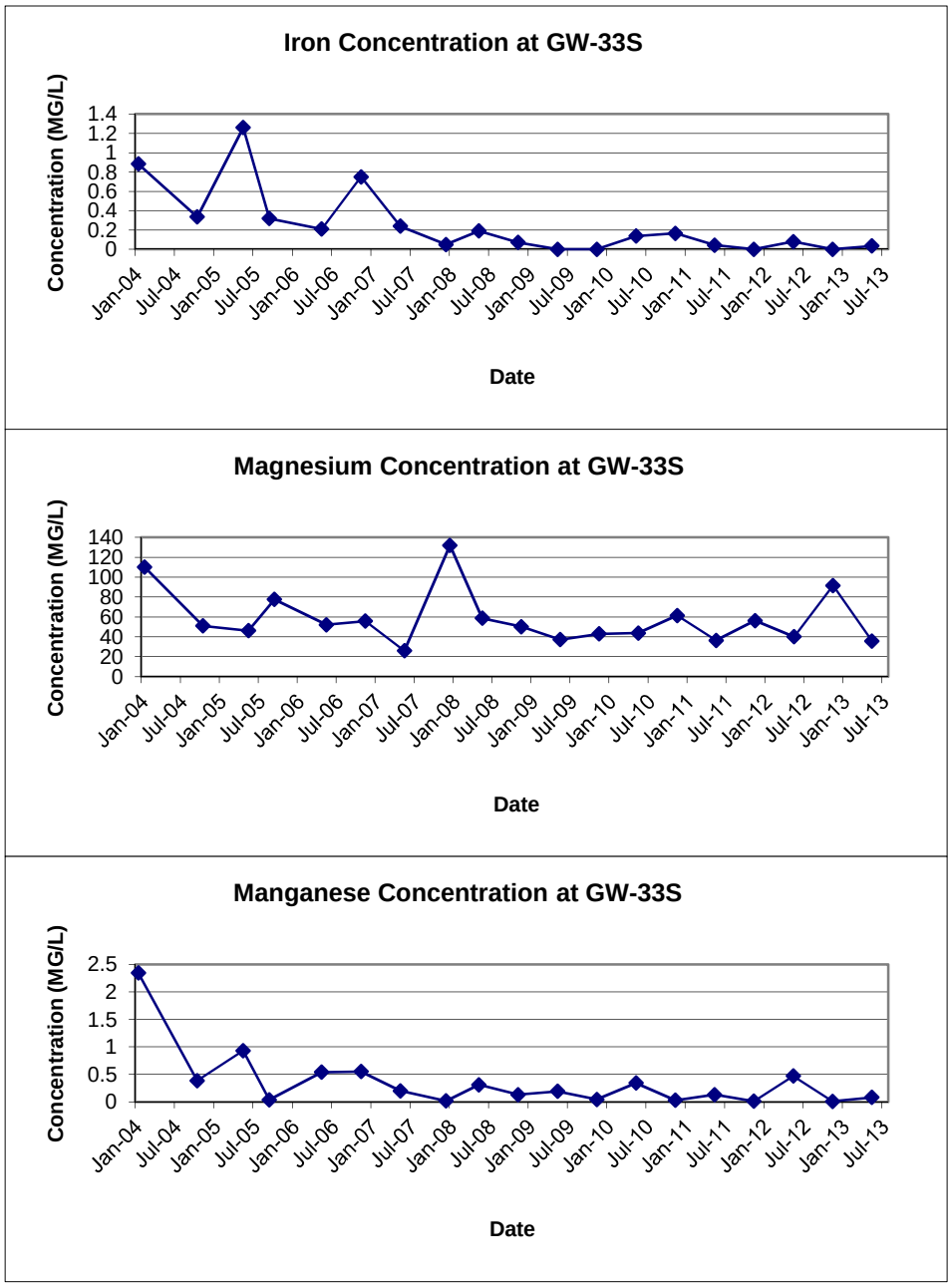


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

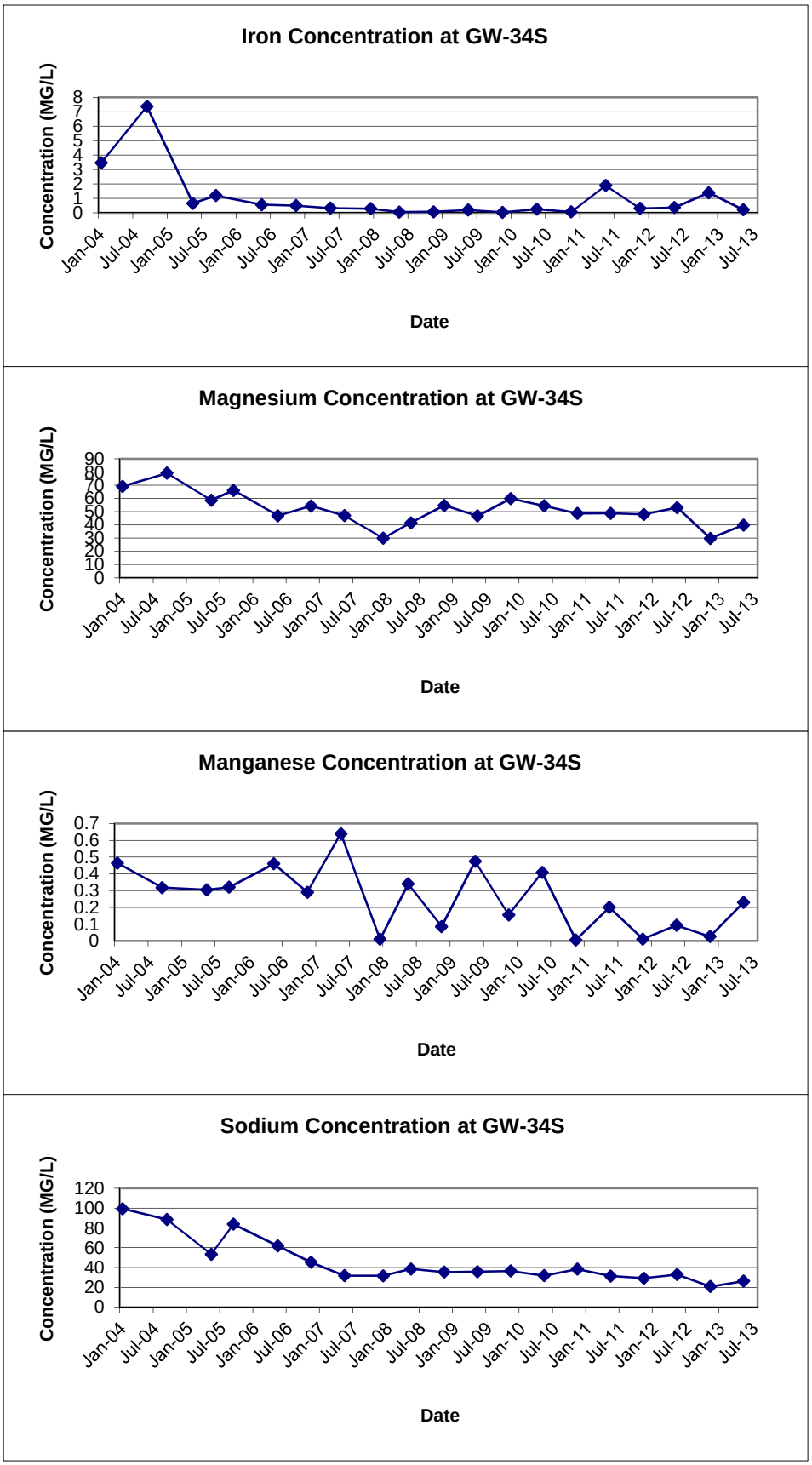
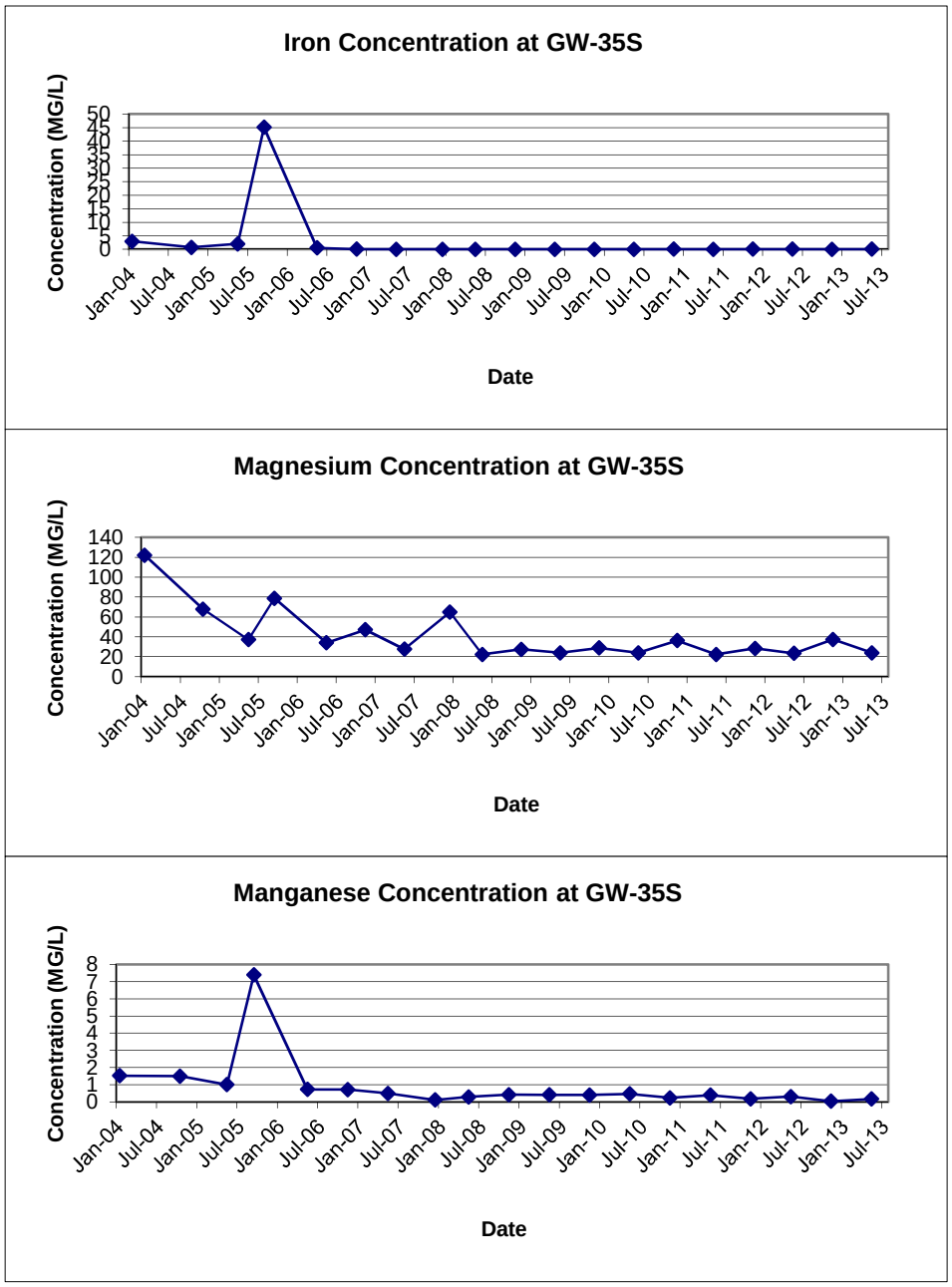


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 13-04-CH016

AUTHORIZATION TO DISCHARGE UNDER THE BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT NO. 13-04-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 **February 11, 2013** 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 April, 2013

To Expire the 31st day of March, 2016

General Manager

Signed this 12th **day of** March **, 2013**

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.

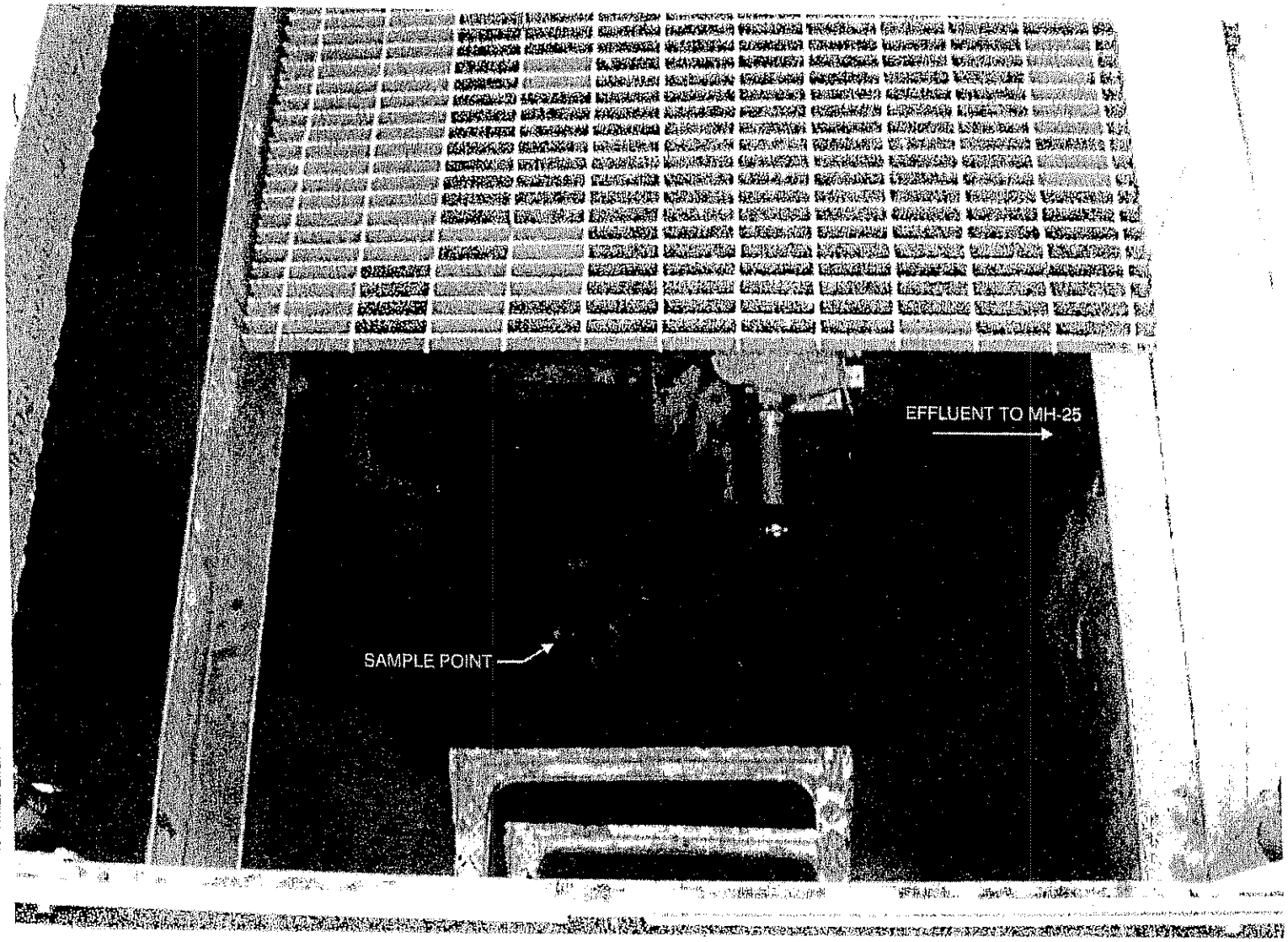
2. Composite samples may be time proportioned.

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: 6/24/13 Crew: R. Murphy, S. Moeller, T. Ifkovich

Weather: 85° F, Clear

Sampling Device: NA

Time of Installation: 15:05 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: No wells were running at the time of sample setup.
PLC display volumes: WW-01 (1,062,839 gals), WW-02 (37,022 gals), WW-03 (818,919 gals),
WW-04 (972,031 gals), WW-05 (3,696,970 gals), WW-06 (6,288,144 gals) & MH-25 (12,880,882 gals).

Date: 6/25/13 Crew: R. Murphy, S. Moeller, K. McGovern

Weather: 80° F, Cloudy

Time of Collection: 15:05

Field Measurements:

15:05/RJM
(time/initial)

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

pH Measurement: 7.7

Temperature: 19.2°C

Identification: EFF-062513

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (1,062,839 gals), WW-02 (37,022 gals), WW-03 (818,919 gals),
WW-04 (972,031 gals), WW-05 (3,698,226 gals), WW-06 (6,288,144 gals) & MH-25 (12,882,176 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2013

Sample ID	EFF-062513			
Matrix	Effluent Water			
Date Sampled	6/25/2013			
Parameter	**Result**	**Mass Loading**	**Discharge Limitation**	**Violations**
	(mg/L)	**(lbs/day)**	**(lbs/day)**	**(Y/N)**
Total Barium	0.25	0.003	2.34	No
Total Cadmuim	<(1) 0.0005	< 0.000005	1.17	No
Total Chromium	< 0.001	< 0.00001	1.17	No
Total Copper	0.0048	0.0001	3.74	No
Total Lead	< 0.003	< 0.00003	1.17	No
Total Nickel	0.004	0.00004	3.27	No
Total Zinc	0.012	0.0001	5.84	No
Total Suspended Solids	12.0	NA	250 (3)	No
pH (4)	7.7	NA	5.0 - 12.0	No
Total Flow (5)		1,294	140,100	No

Notes:

(1) < = Compound not detected, method detection limit shown
(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: 9/10/13 Crew: R. Murphy, K. McGovern, T. Ifkovich

Weather: 89° F, Partly Cloudy

Sampling Device: NA

Time of Installation: 13:55 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: WW-4 was running at the time of sample set-up.
PLC display volumes: WW-01 (271,783 gals), WW-02 (-900 gals), WW-03 (24,193 gals),
WW-04 (49,097 gals), WW-05 (829,770 gals), WW-06 (293,406 gals) & MH-25 (1,512,843 gals).

Date: 9/11/13 Crew: R. Murphy, S. Moeller, T. Ifkovich

Weather: 90° F, Clear

Time of Collection: 14:30

Field Measurements:

14:35/RJM
(time/initial)

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

pH Measurement: 7.5

Temperature: 23.4°C

Identification: EFF-091113

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (271,783 gals), WW-02 (-901 gals), WW-03 (24,193 gals),
WW-04 (49,204 gals), WW-05 (829,770 gals), WW-06 (293,590 gals) & MH-25 (1,513,063 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS SEPTEMBER 2013

Sample ID	EFF-091113			
Matrix	Effluent Water			
Date Sampled	9/11/2013			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.58	0.001	2.34	No
Total Cadmuim	<(1) 0.0005	< 0.000001	1.17	No
Total Chromium	0.0018	0.000003	1.17	No
Total Copper	0.069	0.0001	3.74	No
Total Lead	0.0083	0.00002	1.17	No
Total Nickel	0.0082	0.00002	3.27	No
Total Zinc	0.11	0.0002	5.84	No
Total Suspended Solids	68.9	NA	250 (3)	No
pH (4)	7.5	NA	5.0 - 12.0	No
Total Flow (5)		220	140,100	No

Notes:

(1) < = Compound not detected, method detection limit shown
(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 8, 2013*

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	4.29	14.94	
GW-1D	OK	OK	OK	Bulged	3.48	39.65	
GW-3S	OK	OK	OK	OK	2.99	13.22	
GW-3D	OK	OK	OK	OK	2.35	35.70	
GW-4S	OK	OK	OK	OK	4.9	16.23	
GW-4D	OK	OK	OK	OK	12.88	45.57	
GW-7S	OK	OK	OK	OK	5.30	35.04	
GW-7D	OK	OK	OK	Damaged	45.33	60.45	

Additional Comments: _____

_____

_____

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 8, 2013*

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	5.48	13.02	
GW-8D	OK	OK	OK	OK	6.36	36.54	
GW-26D	OK	OK	OK	OK	7.19	40.70	
GW-28S	OK	OK	OK	OK	9.68	15.52	
GW-29S	OK	OK	OK	OK	9.00	20.04	
GW-30S	OK	OK	OK	OK	8.10	17.97	
GW-31S	OK	OK	OK	OK	4.65	9.57	
GW-32S	OK	OK	OK	OK	4.51	9.93	

Additional Comments:

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 8, 2013*

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	6.30	8.21	
GW-34S	OK	OK	OK	OK	3.21	10.01	
GW-35S	OK	OK	OK	OK	4.16	7.46	

Additional Comments: _____

_____

_____