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Project Site numbers will be proceeded by the following:

Municipal Brownfields - B
Superfund - HW
Spills - SP
ERP - E
VCP - V
BCP - C

915043

DSS

URS

November 26, 2014

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

Re: Semi-Annual Report January 2014 – June 2014
Pfohl Brothers Landfill, Town of Cheektowaga, New York

Dear Mr. Walia:

Enclosed is one copy of the twenty-first 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)
Patrick Bowen, P.E. – Town of Cheektowaga (w/attachments)
File 11172700 (C-1)

URS Corporation
257 West Genesee St.
Suite 400
Buffalo, NY 14202
Tel: 716.856.5636
Fax: 716.856.2545

915043

SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2014 TO JUNE 2014
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
257 WEST GENESEE STREET, SUITE 400
BUFFALO, NEW YORK 14202-2657

Prepared for:

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

NOVEMBER
2014

URS

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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 twenty-first 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 2014 through June 2014 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 2014 through June 2014, 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.
- Replaced discharge hose at WW-5 (February 2014).

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 twenty-first 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 twenty-first semi-annual round of groundwater sampling was conducted between May 21, 2014 and May 23, 2014. 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-04S, GW-07S, and GW-07D) on March 20, 2014. 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

No VOCs or 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.

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.

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 twenty-one semi-annual sampling events except as described below. Figure E-2 for GW-01S, indicates a recent upward trend in manganese concentrations, and a downward trend in sodium concentration over the twenty-one sampling events. Figure E-3 for GW-03D indicates a downward trend for manganese. Figure E-4 indicates a slight upward trend for magnesium in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-7 for GW-07D shows concentrations for chromium, iron, and lead decreased significantly this event after increasing steadily for the previous eleven events. Figure E-9 for GW-08D shows a decreasing trend for both iron and manganese since monitoring began. Figure E-10 for GW-08SR shows an upward trend in sodium concentrations since monitoring began. Figure E-11 for GW-26D indicates downward trends for iron and manganese. Figures E-12 for GW-28S indicates a decreasing trend for sodium since monitoring began. Figure E-13 for GW-29S show a downward trend for sodium since monitoring began. Figure E-14 for GW-30S indicates a downward trend for iron, 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, respectively, indicate a seasonal fluctuation in manganese concentration. Figure E-18 also shows an upward trend in magnesium concentrations over the last four sampling events in GW-34S.

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 August 2014 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2014 and June 2014) 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 2014 and June 2014, 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 2014 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 twenty-second round of groundwater sampling will be conducted in November 2014. Low flow sampling techniques will be used. Passive diffusion bags will be used again for VOC analyses at the three wells (GW-04S, GW-07S, and GW-07D) 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 2014

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			05/23/14	05/23/14	05/21/14	05/21/14	05/22/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			1.1 J		
1,4-Dichlorobenzene	UG/L	3			1.7 J		
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Arsenic	MG/L	0.025		0.0068 J			
Barium	MG/L	1	0.071	0.17	0.091	0.14	0.079
Cadmium	MG/L	0.005		0.0013		0.00085 J	
Chromium	MG/L	0.05	0.0017 J			0.016	0.0025 J
Copper	MG/L	0.2				0.0031 J	
Iron	MG/L	0.3	0.91	7.3	1.9	1.7	0.32
Lead	MG/L	0.025				0.0030 J	
Magnesium	MG/L	35	33.8	21.6	18.6	103	72.6
Manganese	MG/L	0.3	0.019	1.5	0.48	0.21	0.025
Nickel	MG/L	0.1		0.0013 J	0.0036 J	0.10	0.0014 J
Sodium	MG/L	20	99.3	106	188	80.8	84.1
Zinc	MG/L	2		0.0029 J	0.0021 J		0.0024 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes April 2000 and June 2004 Addenda). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

J - The analyte was positively identified, the quantitation is an estimation. Empty clee - Not Detected.
NA - Not Analyzed.

Only Detected Results Reported.

J:\Projects\11172700.00000\GIS\cdb\Program\EDMS.mde
Printed: 11/14/2014 9:54:18 AM
[LOCID] LIKE 'GW*' AND [LOGDATE] BETWEEN #3/21/2014# AND #6/19/2014#

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2014

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			05/22/14	05/21/14	05/22/14	05/21/14	05/22/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			NA		NA
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3		NA		NA	
1,4-Dichlorobenzene	UG/L	3		NA		NA	
bis(2-Ethylhexyl)phthalate	UG/L	5		NA		NA	
Metals							
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.10	NA	0.067	NA	0.29
Cadmium	MG/L	0.005	0.00080 J	NA		NA	
Chromium	MG/L	0.05	0.0056	NA	0.031	NA	0.0055
Copper	MG/L	0.2		NA		NA	
Iron	MG/L	0.3	1.6	NA	0.96	NA	0.22
Lead	MG/L	0.025		NA	0.021	NA	
Magnesium	MG/L	35	26.8	NA	32.9	NA	36.2
Manganese	MG/L	0.3	0.14	NA	0.034	NA	0.10
Nickel	MG/L	0.1	0.0071 J	NA	0.022	NA	0.012
Sodium	MG/L	20	31.9	NA	81.3	NA	55.8
Zinc	MG/L	2	0.012	NA	0.015	NA	0.0092 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes April 2000 and June 2004 Addenda). Class GA.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2014

Location ID			GW-08D	GW-08SR	GW-26D	GW-26D	GW-28S
Sample ID			GW-8D	GW-8SR	FD-052214	GW-26D	GW-28S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/21/14	05/21/14	05/22/14	05/22/14	05/22/14
Parameter	Units	Criteria*			Field Duplicate (1-1)		
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			1.4 J	1.5 J	
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
bis(2-Ethylhexyl)phthalate	UG/L	5	2.0 J				
Metals							
Arsenic	MG/L	0.025		0.0086 J		0.0059 J	
Barium	MG/L	1	0.11	0.38	0.12	0.12	0.076
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0089	0.0030 J			0.0018 J
Copper	MG/L	0.2	0.0031 J				
Iron	MG/L	0.3	0.18	28.1	4.4	4.5	0.47
Lead	MG/L	0.025					
Magnesium	MG/L	35	19.5	48.4	17.3	17.5	25.6
Manganese	MG/L	0.3	0.069	1.3	0.53	0.54	0.90
Nickel	MG/L	0.1	0.0042 J	0.0054 J	0.0020 J	0.0016 J	0.0028 J
Sodium	MG/L	20	266	343	286	289	12.0
Zinc	MG/L	2					0.0074 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes April 2000 and June 2004 Addenda). Class GA.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2014

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			05/22/14	05/23/14	05/23/14	05/23/14	05/23/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
bis(2-Ethylhexyl)phthalate	UG/L	5			2.7 J		
Metals							
Arsenic	MG/L	0.025	0.024				
Barium	MG/L	1	0.18	0.12	0.048	0.056	0.032
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0017 J				
Copper	MG/L	0.2			0.0022 J		
Iron	MG/L	0.3	13.2	12.0	0.58	0.029 J	
Lead	MG/L	0.025					
Magnesium	MG/L	35	63.2	32.2	25.3	32.7	35.5
Manganese	MG/L	0.3	0.78	1.2	0.73	0.53	0.028
Nickel	MG/L	0.1	0.0015 J		0.0036 J	0.0017 J	0.0013 J
Sodium	MG/L	20	8.1	72.7	3.7	3.3	3.4
Zinc	MG/L	2	0.0048 J	0.0018 J	0.0081 J	0.0037 J	0.0035 J

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2014

Location ID			GW-34S	GW-35S
Sample ID			GW-34S	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			05/22/14	05/22/14
Parameter	**Units**	**Criteria***		
Volatile Organic Compounds				
1,2-Dichloroethene (total)	UG/L	5		
Semivolatile Organic Compounds				
1,3-Dichlorobenzene	UG/L	3		
1,4-Dichlorobenzene	UG/L	3		
bis(2-Ethylhexyl)phthalate	UG/L	5		
Metals				
Arsenic	MG/L	0.025		
Barium	MG/L	1	0.12	0.084
Cadmium	MG/L	0.005		
Chromium	MG/L	0.05	0.0035 J	
Copper	MG/L	0.2		
Iron	MG/L	0.3	1.0	0.071
Lead	MG/L	0.025		
Magnesium	MG/L	35	65.2	22.9
Manganese	MG/L	0.3	0.32	0.21
Nickel	MG/L	0.1	0.0086 J	0.0013 J
Sodium	MG/L	20	45.6	2.5
Zinc	MG/L	2	0.0041 J	0.0037 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes April 2000 and June 2004 Addenda). Class GA.

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TABLE 3-2

APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

LOCATIONS

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

FREQUENCY

semi-annually for overburden and bedrock groundwater

PARAMETERS

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

TABLE 3-2 (continued)

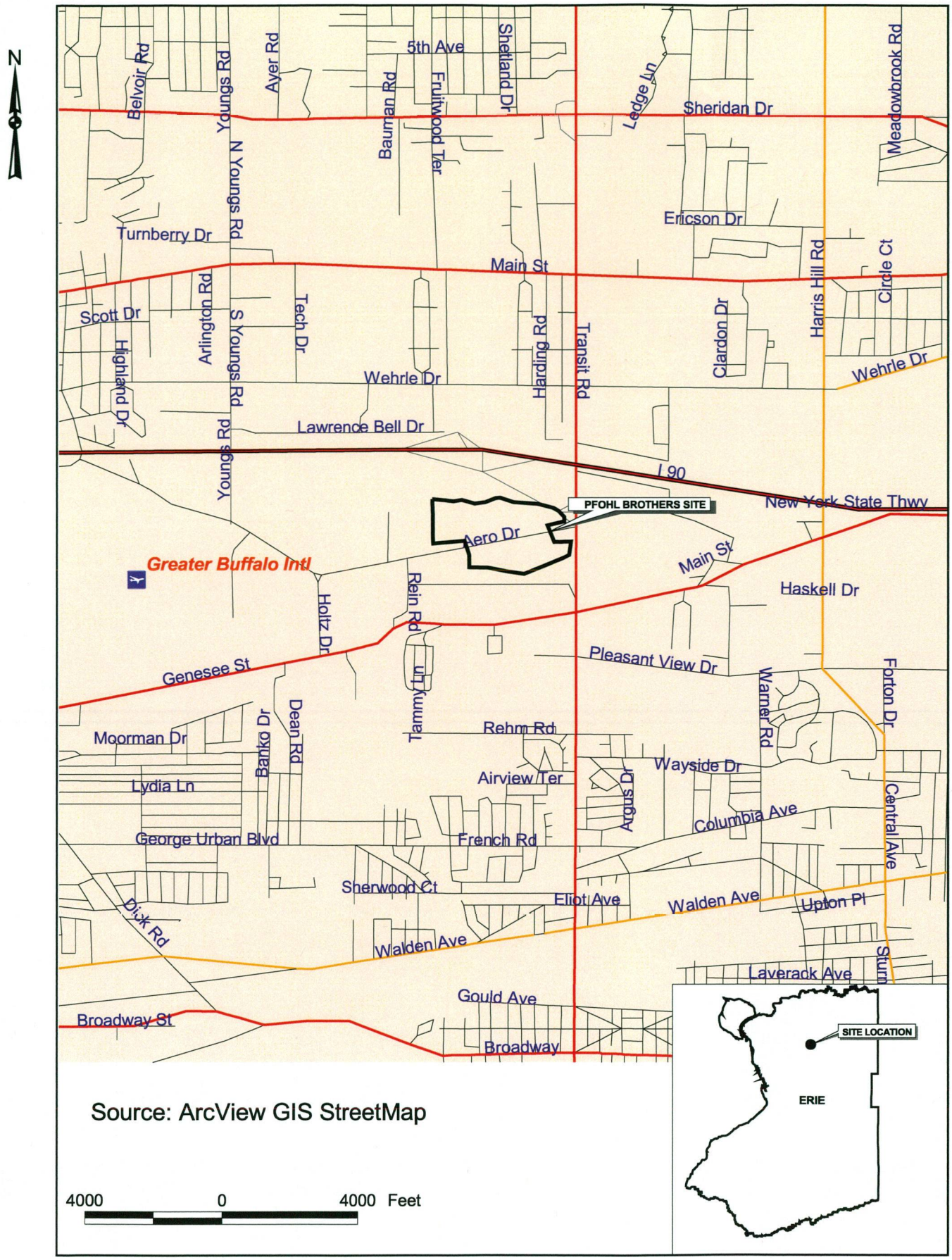
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

PARAMETERS (cont'd)

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

FIGURES

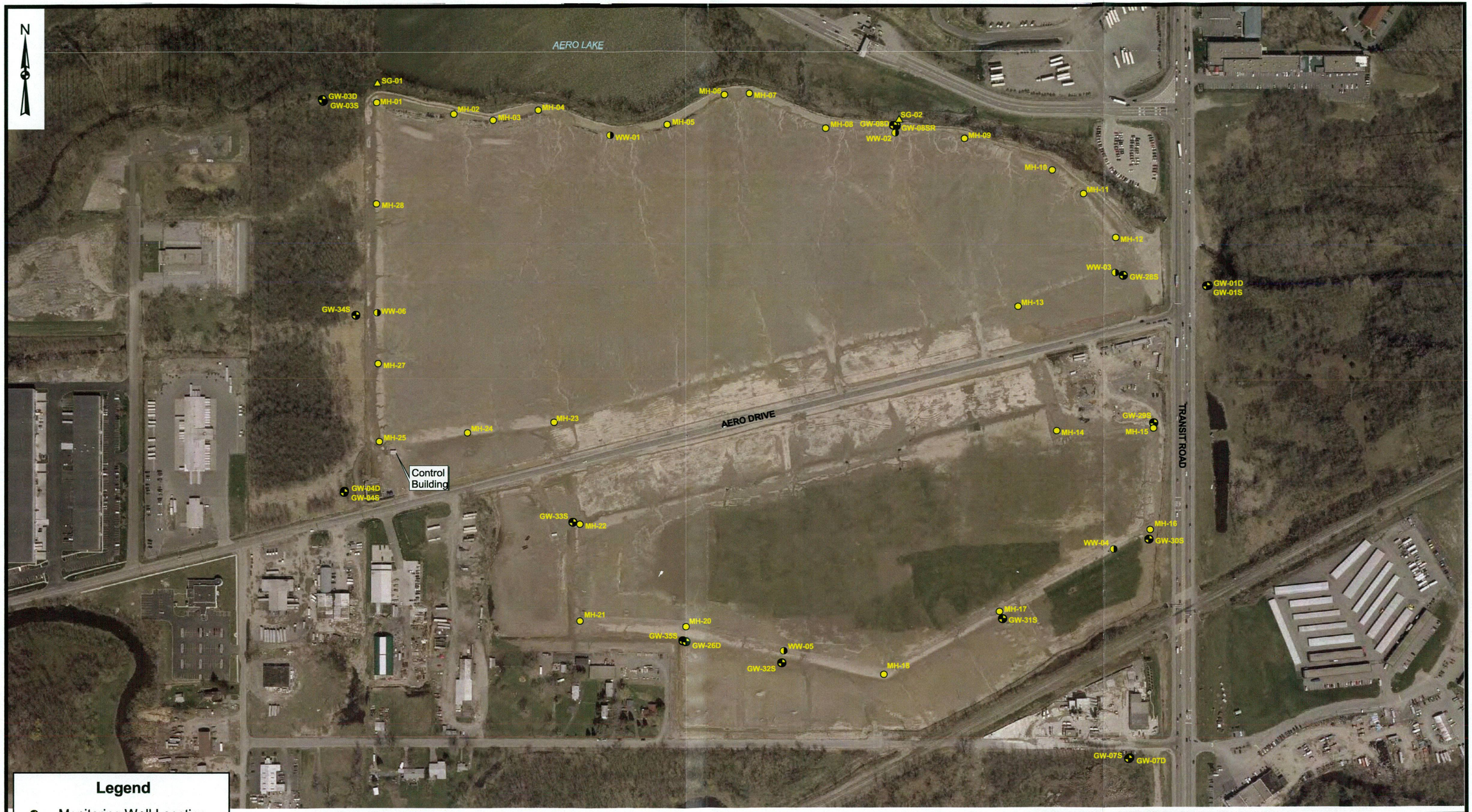


r:\11172700.00000\gis\arcview\pfohl_sitelocation.apr Pfohl Bros Location Map 12/15/2005

URS

PFOHL BROTHERS LANDFILL
SITE LOCATION MAP

FIGURE 1-1



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

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

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheet — Town of Cheektowaga

Date: 2/6/14 — Weather conditions: COLD, CLEAR 15°

Time: 9:00 AM — Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.3	38.9	240,347	2709
WW-2	4.6	0	-20,625	144
WW-1	4.1	-35.4	1,363,380	3326
WW-6	7.1	62.9	3,048,196	10,368
WW-4	6.9	0	794,509	6083
WW-5	6.8	0	2,895,324	11,835

Flow Totalizer at Meter chamber: 8,657,463

Heat Trace

Outside temp T = 14

Current A = 2.3A

Set point SP = 40

Surge Suppressor events: 415,692

Motor Control Center

Volts 480 volts

Amps 9 amps

Which WW was running?

1☐ 2☐ 3☑ 4☐ 5☐ 6☑

3 MANUAL

Filter: Checked ☐ Changed ☐

Comments and/or Current Conditions

RESET LEVEL INVALID ALARM WW6 - WW6 BEGAN PUMPING ON AUTO, RAN WW3 MANUAL FOR 45 MIN.

NEGATIVE FLOW INTO WW1 WHEN WW3 ALONE, OR WW6 ALONE PUMPING. - NEED TO SERVICE BALL/CHECK VALVE WW1 WHEN WEATHER PERMITS. - 8" SNOW FALL YESTERDAY ON TOP OF SEVERAL EXISTING INCHES ACROSS SITE.

Pfohl Brothers Landfill Site

Daily Logsheet — Town of Cheektowaga

Date 3/14/14 — Weather conditions SUNNY 52°

Time 1:30 — Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.8	0 (26.0)	311,038	2758
WW-2	4.7	0	-20,625	144
WW-1	5.3	0	1,450,786	3392
WW-6	8.4	0 (46.6)	3,411,251	10,477
WW-4	8.1	0 (24.8)	794,509	6083
WW-5	8.7	0 (30.6)	3,362,018	11,997

Flow Totalizer at Meter chamber — ARRIVAL | DEPARTURE 9,672,269

Heat Trace

Outside temp T = 52°

Current A = 0

Set point SP = 40

Surge Suppressor events 415,708

Motor Control Center

Volts 480 volts

Amps 3 amps

Which WW was running?

1☑ 2☐ 3☐ 4☑ 5☑ 6☑

Filter Checked ☐ Changed ☐

Comments and/or Current Conditions

SYSTEM SET TO INHIBIT FLOW AT ARRIVAL

RESET LEVEL INVALID ALARM WW 6

8" TO 10" OF SNOWFALL FELL ON 3/12/14 —

MELTING RAPIDLY TODAY

SPOKE TO JON N. AND ME

DE-ACTIVATED INHIBIT AND WW 1, 6, 4, & 5 NOW

PUMPING IN AUTO MODE

Pfohl Brothers Landfill Site

Daily Logsheet — Town of Cheektowaga

Date 6/2/14 — Weather conditions SUNNY 80°

Time 2:30 — Read by: BILL PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	5.6	0	31,201	2758
WW-2	4.7	0	-20,624	144
WW-1	4.8	0	2,160,332	3869
WW-6	7.4	54.5	4,733,017	10,909
WW-4	8.1	33.5	1,176,216	6390
WW-5	8.7	35.1	4,670,766	12,510

Flow Totalizer at Meter chamber: 13,481,576

Heat Trace

Outside temp T = 80

Current A = 0

Set point SP = 40

Surge Suppressor events: 415,719

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

SITE INHIBIT FEATURE ON UPON ARRIVAL —
CONTACTED JON N. AND CANCELED
NEG FLOW ALARM WW 4 CANCELED
PUMP FAILURE ALARM WW 3 - DOES NOT CLEAR

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2014 – JUNE 2014

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

February 8, 2014

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 2014 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

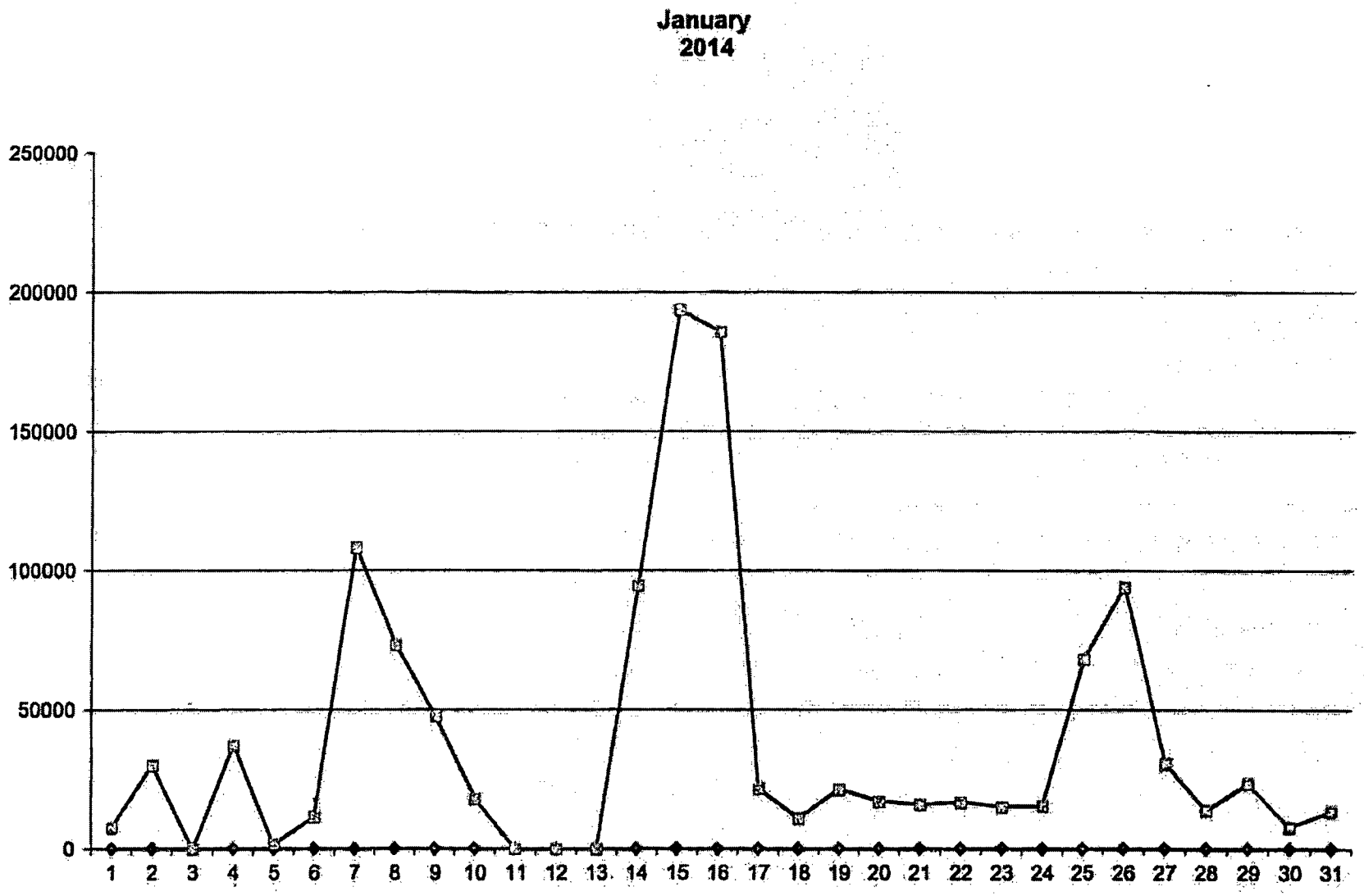
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

12/31/2013		7198832	35,778	7,198,845	
Jan-14	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		7206603	7,772	7,206,617	
2		7236400	29,797	7,236,414	
3		7236400	0	7,236,414	
4		7273356	36,956	7,273,370	
5		7275119	1,763	7,275,133	
6		7286707	11,589	7,286,722	12:19inhibit 21:26enable
7		7395123	108,416	7,395,138	
8		7468082	72,959	7,468,097	
9		7515720	47,638	7,515,735	
10		7533636	17,916	7,533,651	21:39 inhibit
11		7533636	0	7,533,651	
12		7533636	0	7,533,651	
13		7533636	0	7,533,651	
14		7628197	94,561	7,628,212	10:37 enable
15		7822014	193,818	7,822,030	
16		8007764	185,750	8,007,780	
17		8029356	21,592	8,029,372	
18		8040473	11,118	8,040,490	
19		8061808	21,335	8,061,825	
20		8078970	17,162	8,078,987	
21		8094978	16,008	8,094,995	
22		8111744	16,767	8,111,762	
23		8126994	15,250	8,127,012	
24		8142465	15,471	8,142,483	
25		8210208	67,743	8,210,226	
26		8304441	94,233	8,304,459	
27		8334913	30,473	8,334,932	
28		8349023	14,110	8,349,042	
29		8372425	23,402	8,372,444	
30		8380427	8,002	8,380,446	
31		8394006	13,580	8,394,026	
		1,195,174	1,195,181	1,195,181	


January
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The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

March 5, 2014

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 2014 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

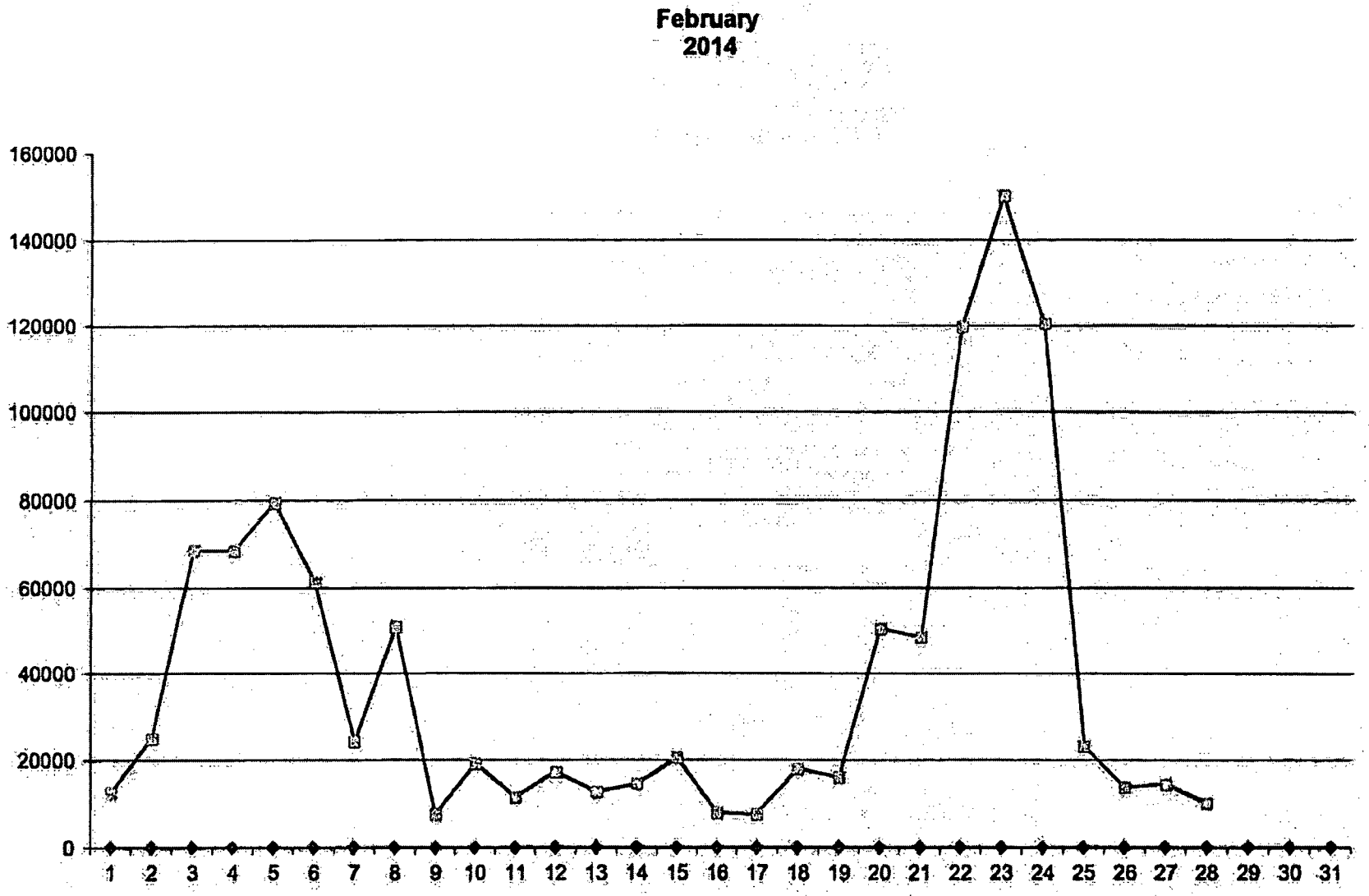
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

1/31/2014		8394006	13,580	8,394,026	
Feb-14	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		8406614	12,608	8,406,634	20:48 inhibit
2		8431596	24,982	8,431,616	12:50 enable
3		8500393	68,797	8,500,413	
4		8569086	68,693	8,569,106	
5		8648631	79,545	8,648,651	
6		8710075	61,444	8,710,095	
7		8734427	24,352	8,734,447	
8		8785341	50,914	8,785,361	
9		8792997	7,656	8,793,017	
10		8812269	19,272	8,812,289	
11		8823786	11,517	8,823,806	
12		8841132	17,346	8,841,152	
13		8853906	12,774	8,853,926	
14		8868509	14,603	8,868,529	
15		8889215	20,706	8,889,235	
16		8897225	8,010	8,897,245	
17		8904871	7,646	8,904,891	
18		8922927	18,056	8,922,947	
19		8939009	16,082	8,939,029	
20		8989436	50,427	8,989,456	17:45 inhibit
21		9037847	48,411	9,037,867	
22		9157675	119,828	9,157,695	7:31 enable
23		9307805	150,130	9,307,825	
24		9428376	120,571	9,428,396	
25		9451537	23,161	9,451,557	
26		9465259	13,722	9,465,279	
27		9479814	14,555	9,479,834	
28		9489955	10,141	9,489,975	
29					
30					
31					
		1,095,949	**1,095,949**	**1,095,949**	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The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

April 10, 2014

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 2014 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

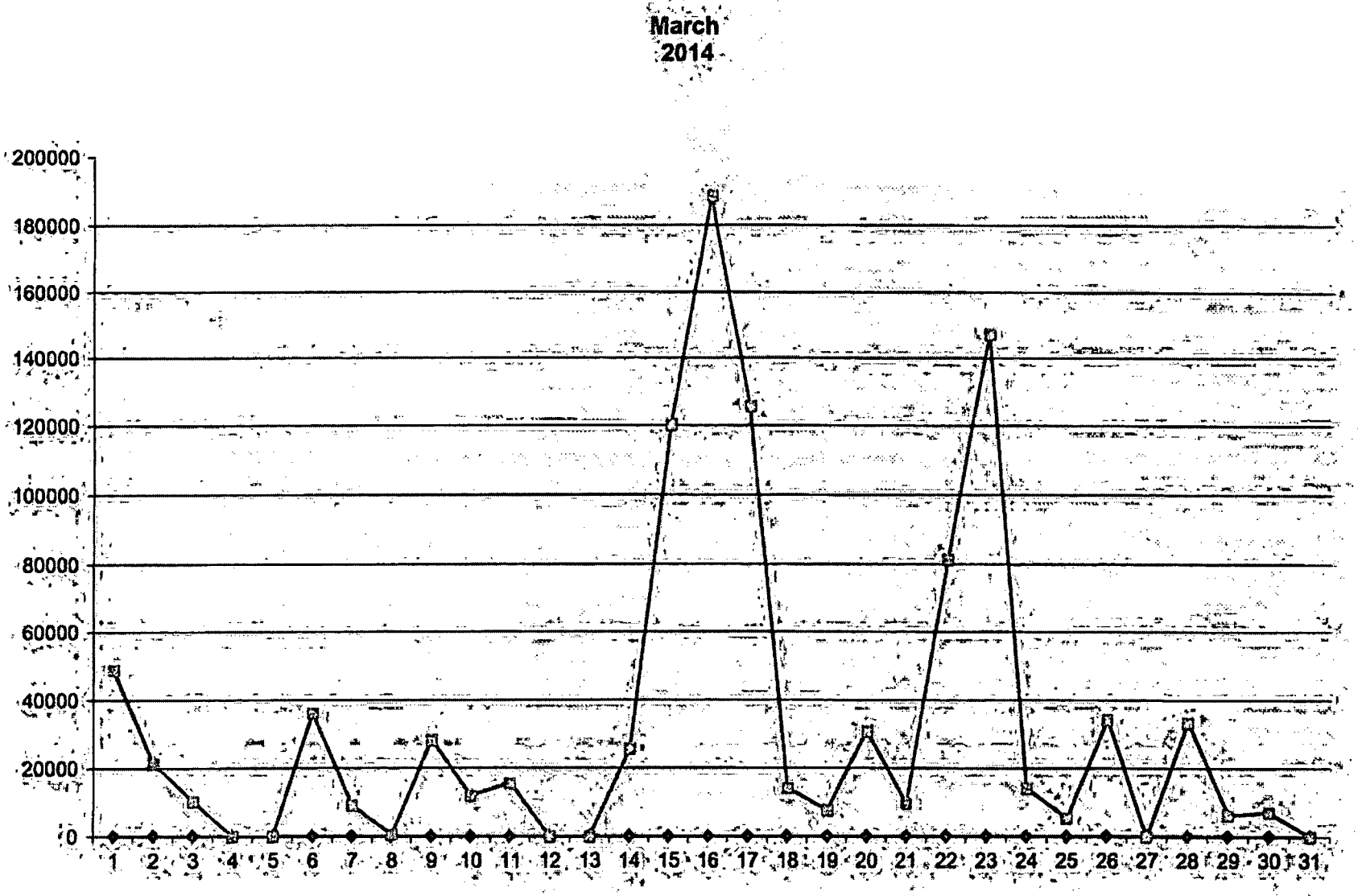
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

2/28/2014		9489955	10,141	94,989,975	
Mar-14	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Total Direct Discharge (Gallons)	Notes
1		9538885	48,930	95,038,805	
2		9560300	21,415	95,060,320	
3		9570596	10,296	95,070,616	
4		9570596	0	95,070,616	
5		9570596	0	95,070,616	
6		9606733	36,137	95,106,753	
7		9615870	9,137	95,115,890	
8		9616467	597	95,116,487	
9		9644649	28,182	95,144,669	
10		9656608	11,959	95,156,628	
11		9672269	15,661	95,172,289	
12		9672269	0	95,172,289	
13		9672269	0	95,172,289	
14		9697909	25,640	95,197,929	
15		9818231	120,322	95,318,251	
16		10006772	188,541	95,506,792	
17		10132381	125,609	95,632,401	
18		10146564	14,183	95,646,584	
19		10154273	7,709	95,654,293	
20		10185087	30,814	95,685,107	
21		10194819	9,732	95,694,839	
22		10276159	81,340	95,776,179	
23		10423241	147,082	95,923,261	
24		10437386	14,145	95,937,406	
25		10442884	5,498	95,942,904	
26		10477113	34,229	95,977,133	
27		10477113	0	95,977,133	
28		10510508	33,395	96,010,528	
29		10516813	6,305	96,016,833	
30		10523988	7,175	96,024,008	
31		10523988	0	96,024,008	
		1,034,033	**1,034,033**	**1,034,033**	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The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

May 7, 2014

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 2014 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

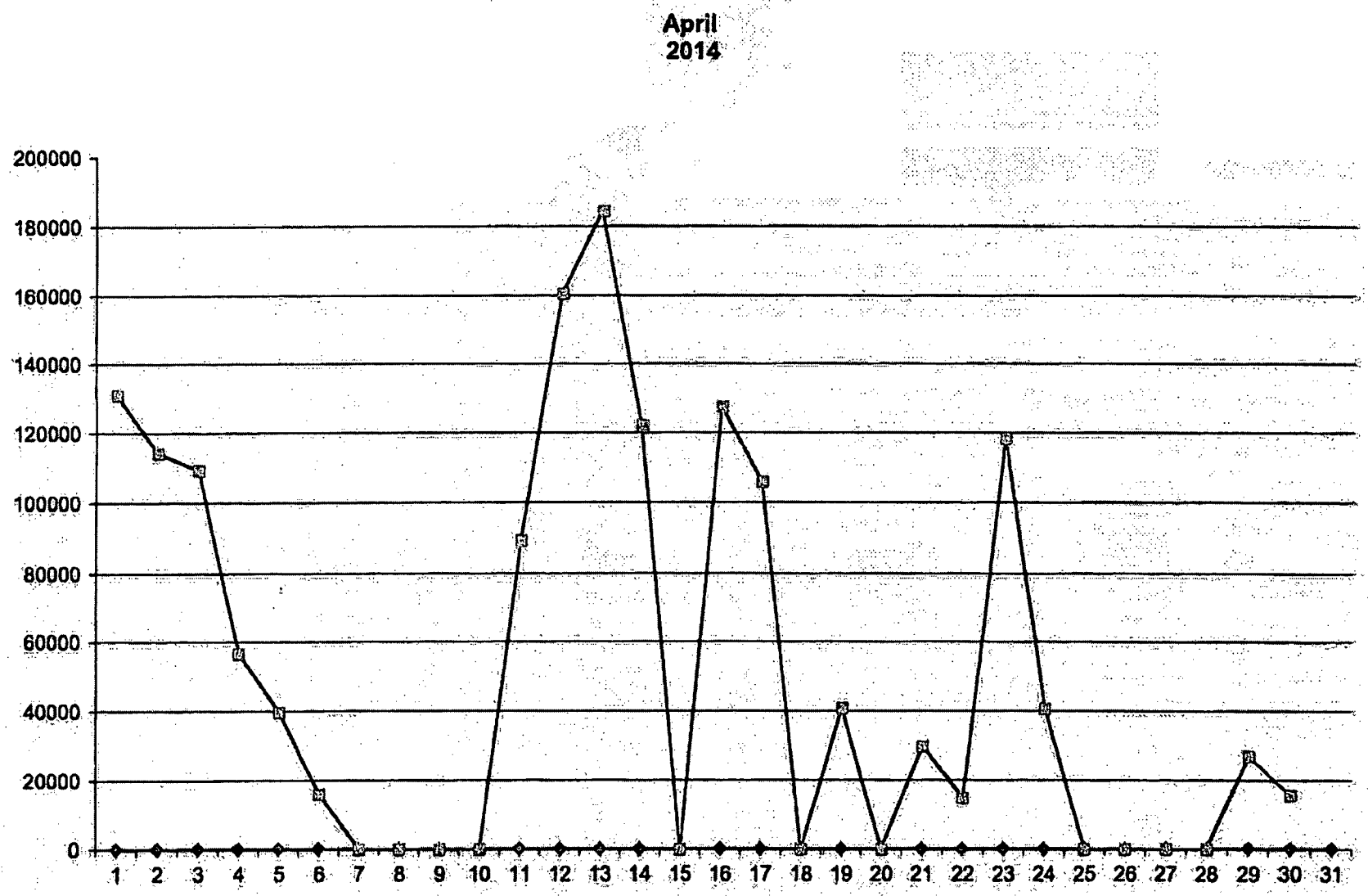
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

3/31/2014		10523988	0	10,524,008	
Apr-14	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		10354950	130,962	10,654,970	
2		10769222	114,272	10,769,242	
3		10878654	109,432	10,878,674	
4		10935338	56,684	10,935,358	14:44 inhibit
5		10975013	39,675	10,975,033	10:01 enable
6		10991107	16,094	10,991,127	
7		10991107	0	10,991,127	17:33 inhibit
8		10991107	0	10,991,127	
9		10991107	0	10,991,127	
10		10991107	0	10,991,127	
11		11080525	89,418	11,080,545	06:25 enable
12		11241030	160,505	11,241,050	
13		11425350	184,320	11,425,370	
14		11547507	122,157	11,547,527	
15		11547507	0	11,547,527	18:45 inhibit
16		11674945	127,438	11,674,965	23:54 enable
17		11781070	106,125	11,781,090	
18		11781070	0	11,781,090	
19		11821970	40,900	11,821,990	
20		11821970	0	11,821,990	
21		11851801	29,831	11,851,821	
22		11866662	14,861	11,866,682	11:01inhibit 14:51enable
23		11985005	118,343	11,985,025	
24		12125679	40,674	12,025,699	
25		12125679	0	12,025,699	21:25inhibit
26		12125679	0	12,025,699	
27		12125679	0	12,025,699	
28		12125679	0	12,025,699	
29		12052692	27,013	12,052,712	06:25enable 11:32inhibit
30		12068322	15,630	12,068,342	07:57enable 10:56inhibit
31					
		1,544,334	1,544,334	1,544,334	


April
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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 17, 2014

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 2014 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

4/30/2014		12068322	15,630	12,068,342	
May-14	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		12068322	0	12,068,342	07:19enable
2		12158008	89,686	12,158,028	
3		12315367	157,359	12,315,387	
4		12499584	184,217	12,499,604	
5		12631939	132,355	12,631,959	
6		12636678	4,739	12,636,698	
7		12648352	11,674	12,648,372	
8		12649117	765	12,649,137	04:18inhibit 19:22enable
9		12688741	39,624	12,688,761	
10		12688741	0	12,688,761	
11		12727005	38,264	12,727,025	
12		12731176	4,171	12,731,196	
13		12757748	26,572	12,757,768	08:58inhibit
14		12771647	13,899	12,771,667	
15		12857004	85,357	12,857,024	
16		12918732	61,728	12,918,752	15:34enable
17		13102526	183,794	13,102,546	
18		13237505	134,979	13,237,525	
19		13271962	34,457	13,271,982	
20		13274137	2,175	13,274,157	
21		13332293	58,156	13,332,313	12:04inhibit 08:55enable
22		13346080	13,787	13,346,100	
23		13346080	0	13,346,100	
24		13415561	69,481	13,415,581	
25		13415561	0	13,415,581	
26		13419926	4,365	13,419,946	
27		13480598	60,672	13,480,618	20:19inhibit
28		13480598	0	13,480,618	
29		13480598	0	13,480,618	
30		13480598	0	13,480,618	
31		13480598	0	13,480,618	
		1,412,276	**1,412,276**	**1,412,276**	

Direct Discharge Flow Data

4/30/2014		12068322	15,630	12,068,342	
May-14	**Time: 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		12068322	0	12,068,342	07:19enable
2		12158008	89,686	12,158,028	
3		12315367	157,359	12,315,387	
4		12499584	184,217	12,499,604	
5		12631939	132,355	12,631,959	
6		12636678	4,739	12,636,698	
7		12648352	11,674	12,648,372	
8		12649117	765	12,649,137	04:18inhibit 19:22enable
9		12688741	39,624	12,688,761	
10		12688741	0	12,688,761	
11		12727005	38,264	12,727,025	
12		12731176	4,171	12,731,196	
13		12757748	26,572	12,757,768	08:58inhibit
14		12771647	13,899	12,771,667	
15		12857004	85,357	12,857,024	
16		12918732	61,728	12,918,752	15:34enable
17		13102526	183,794	13,102,546	
18		13237505	134,979	13,237,525	
19		13271962	34,457	13,271,982	
20		13274137	2,175	13,274,157	
21		13332293	58,156	13,332,313	12:04inhibit 08:55enable
22		13346080	13,787	13,346,100	
23		13346080	0	13,346,100	
24		13415561	69,481	13,415,581	
25		13415561	0	13,415,581	
26		13419926	4,365	13,419,946	
27		13480598	60,672	13,480,618	20:19inhibit
28		13480598	0	13,480,618	
29		13480598	0	13,480,618	
30		13480598	0	13,480,618	
31		13480598	0	13,480,618	
		1,412,276	1,412,276	1,412,276	

The
TOWN OF
CHEEKTOWAGA

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

July 1, 2014

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 2014 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

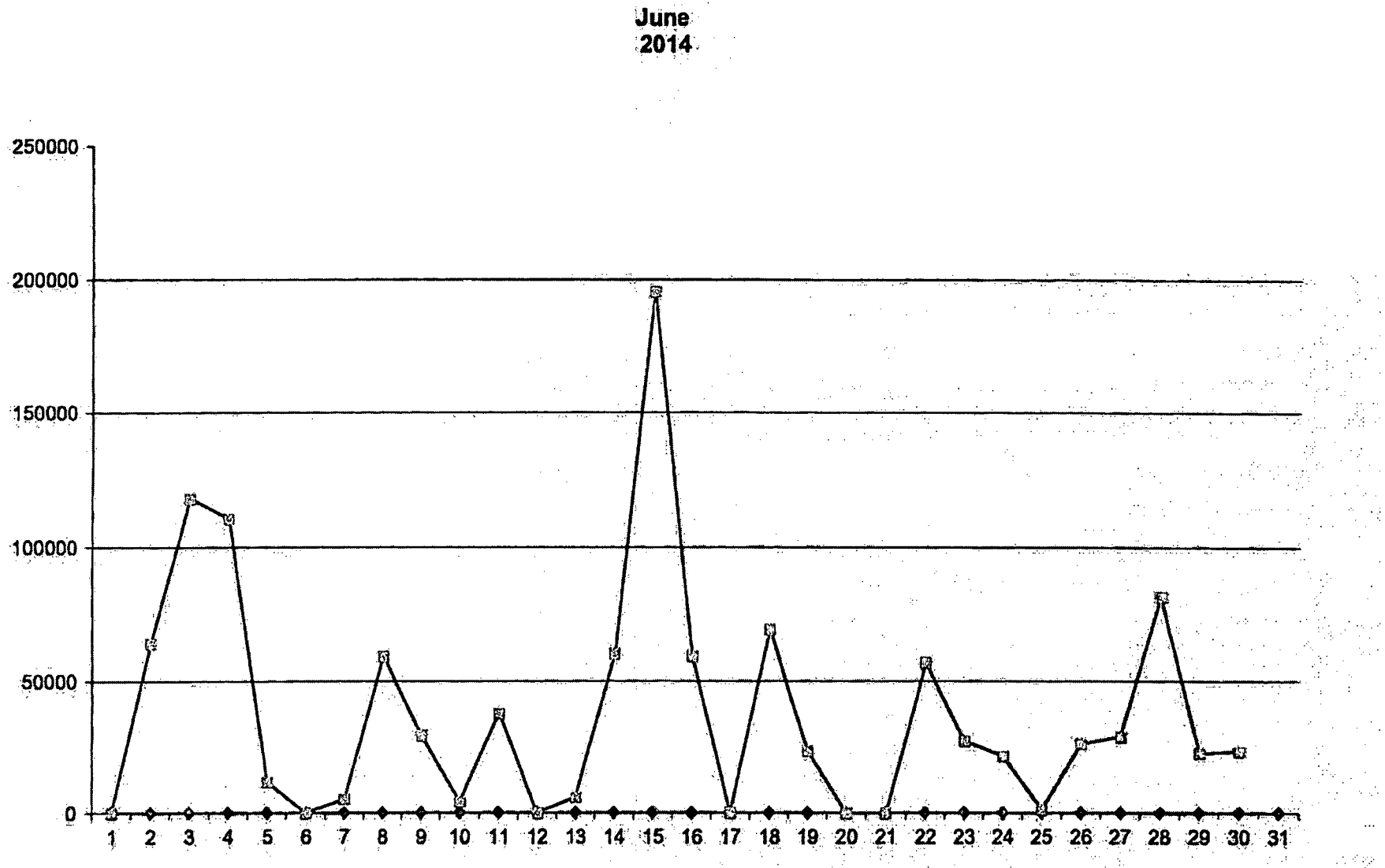
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

5/31/2014		13480598	0	12,068,342	
Jun-14	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Total Direct Discharge (Gallons)**	**Notes**
1		13480598	0	12,068,342	
2		13544313	63,715	12,132,057	14:33 enable
3		13662148	117,835	12,249,892	02:12 inhibit 13:00 enable
4		13772561	110,413	12,360,305	
5		13784470	11,909	12,372,214	
6		13784470	0	12,372,214	
7		13789717	5,247	12,377,461	
8		13849013	59,296	12,436,757	16:43 inhibit
9		13878466	29,453	12,466,210	12:39 enable
10		13882834	4,368	12,470,578	
11		13920663	37,829	12,508,407	
12		13920663	0	12,508,407	18:36 inhibit
13		13926672	6,009	12,514,416	
14		13986854	60,182	12,574,598	16:22 enable
15		14182259	195,405	12,770,003	
16		14241486	59,227	12,829,230	
17		14241486	0	12,829,230	
18		14310731	69,245	12,898,475	
19		14334166	23,435	12,921,910	
20		14334166	0	12,921,910	
21		14334166	0	12,921,910	
22		14390963	56,797	12,978,707	
23		14418169	27,206	13,005,913	
24		14439726	21,557	13,027,470	04:35 inhibit 19:11 enable
25		14441166	1,440	13,028,910	02:07 inhibit 13:19 enable
26		14467388	26,222	13,055,132	
27		14496253	28,865	13,083,997	
28		14577795	81,542	13,165,539	
29		14600260	22,465	13,188,004	
30		14623538	23,278	13,211,282	
31					
		1,142,940	**1,142,940**	**1,142,940**	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APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	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						
MNW							3/20/2014 1447	1.88	694.24	0.00	694.24	
MNW							5/21/2014 1001	2.49	693.63	0.00	693.63	
MNW							6/18/2014 0912	2.95	693.17	0.00	693.17	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S						
MNW							3/20/2014 1447	2.08	694.11	0.00	694.11	
MNW							5/21/2014 1001	3.33	692.86	0.00	692.86	
MNW							6/18/2014 0911	3.75	692.44	0.00	692.44	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D						
MNW							3/20/2014 1344	1.48	692.40	0.00	692.40	
MNW							5/21/2014 0902	1.73	692.15	0.00	692.15	
MNW							6/18/2014 0831	2.05	691.83	0.00	691.83	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S						
MNW							3/20/2014 1344	1.90	691.90	0.00	691.90	
MNW							5/21/2014 0901	2.08	691.72	0.00	691.72	
MNW							6/18/2014 0830	3.07	690.73	0.00	690.73	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D						
MNW							3/20/2014 1457	12.47	680.28	0.00	680.28	
MNW							5/21/2014 1010	12.40	680.35	0.00	680.35	
MNW							6/18/2014 0943	12.83	679.92	0.00	679.92	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S						
MNW							3/20/2014 1458	4.82	687.90	0.00	687.90	
MNW							5/21/2014 1009	4.15	688.57	0.00	688.57	
MNW							6/18/2014 0942	4.45	688.27	0.00	688.27	
GW-07D	1071242.458	1117669.925	697.15	NM	699.94	D						
MNW							3/20/2014 1431	49.78	650.16	0.00	650.16	
MNW							5/21/2014 0956	45.67	654.27	0.00	654.27	
MNW							6/18/2014 0904	57.35	642.59	0.00	642.59	

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 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S						
MNW							3/20/2014 1430	4.03	695.48	0.00	695.48	
MNW							5/21/2014 0954	4.11	695.40	0.00	695.40	
MNW							6/18/2014 0906	5.11	694.40	0.00	694.40	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D						
MNW							3/20/2014 1354	5.40	692.39	0.00	692.39	
MNW							5/21/2014 0918	5.70	692.09	0.00	692.09	
MNW							6/18/2014 0841	6.04	691.75	0.00	691.75	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S						
MNW							3/20/2014 1354	4.90	692.60	0.00	692.60	
MNW							5/21/2014 0917	5.16	692.34	0.00	692.34	
MNW							6/18/2014 0841	5.25	692.25	0.00	692.25	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D						
MNW							3/20/2014 1420	6.28	692.22	0.00	692.22	
MNW							5/21/2014 0945	6.54	691.96	0.00	691.96	
MNW							6/18/2014 0932	6.90	691.60	0.00	691.60	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S						
MNW							3/20/2014 1401	8.56	692.39	0.00	692.39	
MNW							5/21/2014 0924	8.29	692.66	0.00	692.66	
MNW							6/18/2014 0856	9.26	691.69	0.00	691.69	
GW-29S	1072552.638	1117761.993	697.50	NM	699.63	S						
MNW							3/20/2014 1409	7.80	691.83	0.00	691.83	
MNW							5/21/2014 0933	7.27	692.36	0.00	692.36	
MNW							6/18/2014 0921	8.58	691.05	0.00	691.05	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S						
MNW							3/20/2014 1411	7.04	689.54	0.00	689.54	
MNW							5/21/2014 0936	7.78	688.80	0.00	688.80	
MNW							6/18/2014 0923	8.02	688.56	0.00	688.56	

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 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S						
MNW							3/20/2014 1415	2.90	695.72	0.00	695.72	
MNW							5/21/2014 0939	2.55	696.07	0.00	696.07	
MNW							6/18/2014 0927	4.03	694.59	0.00	694.59	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S						
MNW							3/20/2014 1418	2.51	695.86	0.00	695.86	
MNW							5/21/2014 0942	2.46	695.91	0.00	695.91	
MNW							6/18/2014 0929	3.86	694.51	0.00	694.51	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S						
MNW							3/20/2014 1423	4.22	694.02	0.00	694.02	
MNW							5/21/2014 0949	3.83	694.41	0.00	694.41	
MNW							6/18/2014 0933	4.25	693.99	0.00	693.99	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S						
MNW							3/20/2014 1335	2.47	692.30	0.00	692.30	
MNW							5/21/2014 0851	2.58	692.19	0.00	692.19	
MNW							6/18/2014 0820	3.22	691.55	0.00	691.55	
GW-35S	1071701.925	1115985.585	696.19	NM	697.39	S						
MNW							3/20/2014 1420	3.31	694.08	0.00	694.08	
MNW							5/21/2014 0945	2.87	694.52	0.00	694.52	
MNW							6/18/2014 0936	4.91	692.48	0.00	692.48	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA						
MH							3/20/2014 1336	9.69	688.93	0.00	688.93	
MH							5/21/2014 0855	10.87	687.75	0.00	687.75	
MH							6/18/2014 0825	11.03	687.59	0.00	687.59	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA						
MH							3/20/2014 1346	10.56	688.84	0.00	688.84	
MH							5/21/2014 0908	11.24	688.16	0.00	688.16	
MH							6/18/2014 0834	11.26	688.14	0.00	688.14	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA						
MH							3/20/2014 1349	8.78	688.04	0.00	688.04	
MH							5/21/2014 0910	9.45	687.37	0.00	687.37	
MH							6/18/2014 0837	9.47	687.35	0.00	687.35	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA						
MH							3/20/2014 1356	14.44	688.57	0.00	688.57	
MH							5/21/2014 0921	14.45	688.56	0.00	688.56	
MH							6/18/2014 0853	14.44	688.57	0.00	688.57	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA						
MH							3/20/2014 1409	14.89	684.13	0.00	684.13	
MH							5/21/2014 0932	14.56	684.46	0.00	684.46	
MH							6/18/2014 0920	14.70	684.32	0.00	684.32	
MH-16	1072133.714	1117748.238	698.57	NM	698.57	NA						
MH							3/20/2014 1410	14.52	684.05	0.00	684.05	
MH							5/21/2014 0935	14.23	684.34	0.00	684.34	
MH							6/18/2014 0923	14.31	684.26	0.00	684.26	
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA						
MH							3/20/2014 1413	18.14	684.02	0.00	684.02	
MH							5/21/2014 0938	17.98	684.18	0.00	684.18	
MH							6/18/2014 0926	18.04	684.12	0.00	684.12	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA						
MH							3/20/2014 1419	19.72	686.48	0.00	686.48	
MH							5/21/2014 0943	19.73	686.47	0.00	686.47	
MH							6/18/2014 0931	19.75	686.45	0.00	686.45	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA						
MH							3/20/2014 1424	8.99	689.06	0.00	689.06	
MH							5/21/2014 0949	8.98	689.07	0.00	689.07	
MH							6/18/2014 0935	9.02	689.03	0.00	689.03	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA						
MH							3/20/2014 1329	9.20	688.97	0.00	688.97	
MH							5/21/2014 0845	10.44	687.73	0.00	687.73	
MH							6/18/2014 0815	10.59	687.58	0.00	687.58	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA						
SG							3/20/2014 1340	-1.13	691.13	0.00	691.13	
SG							5/21/2014 0856	-0.72	690.72	0.00	690.72	
SG							6/18/2014 0827	NM	-	0.00	-	Dry
SG-02	1073738.27	1116805.85	NM	NM	690.00	NA						
SG							3/20/2014 1354	-3.42	693.42	0.00	693.42	
SG							5/21/2014 0919	-3.20	693.20	0.00	693.20	
SG							6/18/2014 0851	-3.1	693.10	0.00	693.10	
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA						
MH							3/20/2014 1310	-4.7	688.72	0.00	688.72	
MH							5/21/2014 0800	-3.9	687.92	0.00	687.92	
MH							6/18/2014 0700	-3.9	687.92	0.00	687.92	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA						
MH							3/20/2014 1310	-4.7	688.88	0.00	688.88	
MH							5/21/2014 0800	-4.7	688.88	0.00	688.88	
MH							6/18/2014 0700	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA						
MH							3/20/2014 1310	-5.7	689.50	0.00	689.50	
MH							5/21/2014 0800	-5.6	689.40	0.00	689.40	
MH							6/18/2014 0700	-5.5	689.30	0.00	689.30	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA						
MH							3/20/2014 1310	-6.9	683.52	0.00	683.52	
MH							5/21/2014 0800	-7.2	683.82	0.00	683.82	
MH							6/18/2014 0700	-7.1	683.72	0.00	683.72	

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 2014

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA						
MH							3/20/2014 1310	-6.5	682.64	0.00	682.64	
MH							5/21/2014 0800	-7.8	683.94	0.00	683.94	
MH							6/18/2014 0700	-6.6	682.74	0.00	682.74	
WW-06	1072988.420	1114811.518	NM	NM	681.89	NA						
MH							3/20/2014 1310	-7.26	689.15	0.00	689.15	
MH							5/21/2014 0800	-6.3	688.19	0.00	688.19	
MH							6/18/2014 0700	-6.0	687.89	0.00	687.89	

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)
3/20/2014	688.72	---	---	688.88	692.60	3.72	693.42	4.54
5/21/2014	687.92	---	---	688.88	692.34	3.46	693.20	4.32
6/18/2014	687.92	---	---	688.88	692.25	3.37	693.10	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)
3/20/2014	689.50	692.39	2.89	683.52	---	---
5/21/2014	689.40	692.66	3.26	683.82	---	---
6/18/2014	689.30	691.69	2.39	683.72	---	---

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)
3/20/2014	682.64	695.86	13.22	689.15	692.30	3.15
5/21/2014	683.94	695.91	11.97	688.19	692.19	4.00
6/18/2014	682.74	694.51	11.77	687.89	691.55	3.66

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)
3/20/2014	688.93	691.13	2.20	684.13	691.83	7.70
5/21/2014	687.75	690.72	2.97	684.46	692.36	7.90
6/18/2014	687.59	DRY	NA	684.32	691.05	6.73

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)
3/20/2014	684.05	689.54	5.49	684.02	695.72	11.70
5/21/2014	684.34	688.80	4.46	684.18	696.07	11.89
6/18/2014	684.26	688.56	4.30	684.12	694.59	10.47

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)
3/20/2014	686.48	694.08	7.60	689.06	694.02	4.96
5/21/2014	686.47	694.52	8.05	689.07	694.41	5.34
6/18/2014	686.46	692.48	6.02	689.03	693.99	4.96

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: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 3.65' Depth to Well Bottom: 14.94' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.0 Estimated Purge Volume (liters): 11.0

Sample ID: GW-1S Sample Time: 13:05 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 (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:25	7.16	10.53	1.04	0.00	464	-81	275	3.65
12:30	7.32	9.90	1.09	0.00	273	-91	275	4.75
12:35	7.24	9.71	1.11	0.00	145	-82	275	4.83
12:40	7.19	9.61	1.12	0.00	103	-79	275	4.87
12:45	7.16	9.51	1.12	0.00	64.9	-77	275	4.95
12:50	7.14	9.50	1.11	0.00	59.8	-77	275	4.95
12:55	7.14	9.56	1.11	0.00	51.7	-76	275	4.92
13:00	7.13	9.60	1.11	0.00	42.3	-76	275	4.96
13:05	7.12	9.50	1.11	0.00	46.5	-78	275	5.00
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 2.75' Depth to Well Bottom: 39.65' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 91.1 Estimated Purge Volume (liters): 52.8

Sample ID: GW-1D Sample Time: 14:21 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Sulfur odor

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:15	7.32	10.30	1.06	0.00	5.3	-93	800	2.75
13:20	7.47	10.35	1.06	0.00	0.5	-112	800	2.80
13:25	7.51	10.20	1.06	0.00	0.0	-120	800	2.80
13:30	7.55	10.12	1.06	0.00	0.2	-127	800	2.80
13:35	7.55	10.06	1.06	0.00	0.0	-137	800	2.80
13:40	7.55	10.05	1.06	0.00	0.0	-154	800	2.80
13:45	7.55	10.00	1.05	0.00	0.0	-171	800	2.80
13:50	7.55	10.02	1.05	0.00	0.0	-189	800	2.80
13:55	7.53	10.03	1.05	0.00	0.0	-195	800	2.80
14:00	7.52	9.78	1.05	0.00	0.0	-204	800	2.80
14:05	7.52	9.90	1.05	0.00	0.0	-216	800	2.80
14:10	7.47	9.99	1.05	0.00	0.0	-222	800	2.80
14:15	7.48	9.96	1.05	0.00	0.0	-232	800	2.80
14:18	7.49	9.94	1.05	0.00	0.0	-237	800	2.80
14:21	7.48	10.00	1.05	0.00	0.0	-241	800	2.80
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: 5/21/2014 Sampling Personnel: Rob Murphy, 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: 2.05' Depth to Well Bottom: 13.22' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.9 Estimated Purge Volume (liters): 6.8

Sample ID: GW-3S Sample Time: 11:25 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:45	7.69	14.15	1.68	7.41	68.2	25	220	2.05
10:50	7.39	13.75	1.68	6.14	48.3	25	220	4.62
10:55	7.16	13.18	1.71	0.00	38.3	30	175	5.13
11:00	7.07	14.06	1.69	0.00	20.1	39	150	5.63
11:05	7.04	14.88	1.64	0.00	15.2	43	150	6.11
11:10	7.05	15.22	1.62	0.00	13.4	43	150	6.58
11:15	7.05	15.53	1.60	0.00	14.3	43	150	6.88
11:20	7.05	15.64	1.60	0.00	16.0	43	150	7.30
11:25	7.05	15.98	1.59	0.00	12.0	43	150	7.61
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: 5/21/2014 Sampling Personnel: Rob Murphy, 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: 1.75' Depth to Well Bottom: 35.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 83.9 Estimated Purge Volume (liters): 57.0

Sample ID: GW-3D Sample Time: 12:36 QA/QC: MS/MSD

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:36	7.11	10.66	1.53	0.00	22.1	-39	950	1.75
11:41	7.17	10.10	1.53	0.00	0.0	-67	950	1.75
11:46	7.14	10.05	1.53	0.00	0.0	-76	950	1.75
11:51	7.11	10.04	1.53	0.00	0.0	-77	950	1.75
11:56	7.19	9.98	1.53	0.00	8.8	-84	950	1.75
12:01	7.16	9.99	1.53	0.00	1.8	-85	950	1.75
12:06	7.16	9.99	1.53	0.00	1.3	-85	950	1.75
12:11	7.14	10.00	1.53	0.00	0.1	-85	950	1.75
12:16	7.18	9.94	1.53	0.00	0.0	-88	950	1.75
12:21	7.18	9.93	1.53	0.00	0.0	-89	950	1.75
12:26	7.17	9.91	1.53	0.00	0.0	-89	950	1.75
12:31	7.17	9.92	1.53	0.00	0.0	-89	950	1.75
12:36	7.17	9.95	1.53	0.00	0.0	-89	950	1.75
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-4S

Date: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 4.15' Depth to Well Bottom: 16.23' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.5 Estimated Purge Volume (liters): 15.0

Sample ID: GW-4S Sample Time: 10:45 VOCs/ 12:20 SVOCs & Metals QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/20/14, sampled VOCs from PDB at 10:45 on 5/22/14. Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 12:20.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:56	8.35	15.86	0.479	0.19	5.2	81	Initial	4.15
10:59	8.49	12.18	0.480	2.65	52.0	75	2 Gal. Purged	-
11:01	8.47	11.16	0.426	1.52	323	-11	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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 12.33' Depth to Well Bottom: 45.57' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 82.1 Estimated Purge Volume (liters): 9.6

Sample ID: GW-4D Sample Time: 12:10 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:10	7.95	16.60	1.44	0.00	68.9	-82	160	12.33
11:15	7.51	15.10	1.49	0.00	19.9	-153	160	12.65
11:20	7.47	14.41	1.51	0.00	12.7	-187	160	12.91
11:25	7.46	14.23	1.51	0.00	15.8	-208	160	13.00
11:30	7.46	14.32	1.51	0.00	14.2	-231	160	13.18
11:35	7.45	14.60	1.50	0.00	13.8	-256	160	13.34
11:40	7.44	14.00	1.53	0.00	11.7	-271	160	13.48
11:45	7.43	13.94	1.53	0.00	13.0	-281	160	13.58
11:50	7.41	13.38	1.55	0.00	13.4	-280	160	13.63
11:55	7.41	13.56	1.56	0.00	9.3	-287	160	13.73
12:00	7.40	13.48	1.58	0.00	9.1	-291	160	13.80
12:05	7.40	13.72	1.57	0.00	10.3	-291	160	13.84
12:10	7.40	13.94	1.56	0.00	10.1	-294	160	13.86
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, Kevin McGovern

DATE(S): 5/21/14, 5/22/14

			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.)	=	4.11	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.93	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)	=	5.26	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	8.0	8"	2.60

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

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Initial	2	4	6	8						
pH	8.46	8.43	8.41	8.28	8.21						
SPEC. COND. (mS/cm)	0.570	0.586	0.588	0.588	0.589						
DO (mg/l)	0.49	0.38	0.00	1.77	1.72						
TEMPERATURE (^{0}C)	12.63	11.96	12.17	12.97	13.25						
TURBIDITY (NTU)	3.5	5.4	4.8	42.7	93.3						
ORP (millivolts)	-92	-72	-57	-17	-2						
TIME	16:38	16:41	16:43	16:48	16:53						

COMMENTS: 15:45 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/20/14
16:37 - Begin hand bailing well.
16:53 - Well dry after removing 8 gallons.
5/22/2014 15:45 - Return to well, depth to water = 4.30 feet.
15:55 - 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, Kevin McGovern

DATE(S): 5/21/14, 5/22/14

			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.)	=	45.63	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	14.82	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)	=	9.78	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	9.8	8"	2.60

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

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Init	2	4	6	8	9.8					
pH	8.00	8.20	7.98	7.86	7.95	8.10					
SPEC. COND. (mS/cm)	0.643	0.640	0.705	0.757	0.807	0.815					
DO (mg/l)	8.25	0.81	0.98	1.08	3.85	9.49					
TEMPERATURE (^{0}C)	22.66	16.94	15.75	15.69	15.08	15.43					
TURBIDITY (NTU)	15.3	12.0	25.0	20.9	19.1	43.1					
ORP (millivolts)	-42	-80	-90	-169	-135	-110					
TIME	15:53	16:02	16:10	16:19	16:28	16:36					

COMMENTS: 15:40 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/20/14
15:46 - Begin hand bailing well.
16:36 - Well dry after removing 9.8 gallons
5/22/2014 15:45 - return to well, depth to water = 59.20 feet.
15:50 - Collect sample for SVOCs and Metals.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/21/2014 Sampling Personnel: Rob Murphy, 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: 5.15' Depth to Well Bottom: 13.02' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.9 Estimated Purge Volume (liters): 6.0

Sample ID: GW-8SR Sample Time: 15:05 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:25	6.92	15.90	2.40	0.00	288	-8	150	5.15
14:30	6.65	14.57	2.63	0.00	248	-71	150	6.12
14:35	6.61	14.24	2.63	0.00	155	-79	150	6.63
14:40	6.61	14.12	2.61	0.00	109	-81	150	6.91
14:45	6.61	14.25	2.60	0.00	73.5	-82	150	7.15
14:50	6.61	14.35	2.60	0.00	63.4	-83	150	7.18
14:55	6.61	14.53	2.59	0.00	52.8	-83	150	7.21
15:00	6.62	14.12	2.57	0.00	48.3	-83	150	7.25
15:05	6.62	14.59	2.57	0.00	47.2	-82	150	7.25
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: 5/21/2014 Sampling Personnel: Rob Murphy, 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: 5.70' Depth to Well Bottom: 36.54' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 76.2 Estimated Purge Volume (liters): 61.8

Sample ID: GW-8D Sample Time: 14:15 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:10	7.31	11.62	1.95	0.00	>800	-57	950	5.70
13:15	7.25	11.17	1.95	0.00	6.4	11	950	5.70
13:20	7.21	11.05	1.95	0.00	4.1	26	950	5.70
13:25	7.19	10.90	1.96	0.00	3.4	32	950	5.70
13:30	7.21	10.81	1.96	0.00	3.4	35	950	5.70
13:35	7.20	10.87	1.97	0.00	2.2	37	950	5.70
13:40	7.19	10.82	1.97	0.00	1.5	39	950	5.70
13:45	7.18	10.98	1.97	0.00	1.7	42	950	5.70
13:50	7.19	10.87	1.97	0.00	0.5	43	950	5.70
13:55	7.19	10.91	1.97	0.00	1.3	42	950	5.70
14:00	7.18	10.98	1.97	0.00	0.7	45	950	5.70
14:05	7.19	11.05	1.97	0.00	0.2	46	950	5.70
14:15	7.18	11.01	1.97	0.00	0.3	49	950	5.70
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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 6.61' Depth to Well Bottom: 40.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 84.2 Estimated Purge Volume (liters): 60.0

Sample ID: GW-26D Sample Time: 14:14 QA/QC: Duplicate (FD-052214)

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

Occasional pulses of iron stained particulates in purge water.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:14	6.82	12.54	1.91	0.00	25.8	-154	1,000	6.61
13:19	7.02	12.20	1.96	0.00	39.6	-167	1,000	6.61
13:24	7.03	12.21	1.95	0.00	10.8	-169	1,000	6.61
13:29	7.02	12.25	1.95	0.00	3.0	-168	1,000	6.61
13:34	7.00	12.34	1.96	0.00	2.4	-167	1,000	6.61
13:39	6.99	12.33	1.95	0.00	4.0	-165	1,000	6.61
13:44	7.02	12.34	1.95	0.00	0.0	-166	1,000	6.61
13:49	7.02	12.36	1.96	0.00	0.0	-166	1,000	6.61
13:54	7.02	12.35	1.95	0.00	0.0	-165	1,000	6.61
13:59	7.01	12.41	1.95	0.00	0.0	-164	1,000	6.61
14:04	7.00	12.37	1.95	0.00	0.0	-164	1,000	6.61
14:09	7.02	12.31	1.95	0.00	0.0	-163	1,000	6.61
14:14	7.02	12.31	1.95	0.00	0.0	-162	1,000	6.61
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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 8.43' Depth to Well Bottom: 15.52' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.4 Estimated Purge Volume (liters): 4.3

Sample ID: GW-28S Sample Time: 10:10 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:45	7.70	12.90	0.558	0.00	40.4	74	190	8.43
9:50	7.44	11.68	0.565	0.00	14.2	47	190	9.54
9:55	7.40	11.66	0.540	0.00	15.5	31	160	9.77
10:00	7.39	11.51	0.540	0.00	13.5	31	160	9.85
10:05	7.38	11.75	0.545	0.00	14.1	32	160	9.92
10:10	7.37	11.36	0.554	0.00	13.1	31	160	9.98
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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 7.56' Depth to Well Bottom: 20.04' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.7 Estimated Purge Volume (liters): 7.7

Sample ID: GW-29S Sample Time: 15:25 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange iron particulates at start of purge

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:40	7.67	16.04	0.845	0.00	467	-73	210	7.56
14:45	7.11	16.76	0.814	0.00	235	-86	210	9.05
14:50	7.05	14.27	0.881	0.00	88.5	-88	160	9.46
14:55	7.09	15.21	0.858	0.00	69.9	-92	160	9.66
15:00	7.08	12.60	0.929	0.00	67.4	-94	160	9.79
15:05	7.12	12.09	0.930	0.00	66.3	-96	160	9.92
15:10	7.11	11.92	0.931	0.00	59.0	-97	160	9.98
15:15	7.10	11.64	0.932	0.00	58.1	-97	160	10.07
15:20	7.10	11.56	0.934	0.00	54.5	-98	160	10.11
15:25	7.11	11.49	0.937	0.00	51.7	-99	160	10.15
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 7.88' Depth to Well Bottom: 17.97' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.2 Estimated Purge Volume (liters): 30.0

Sample ID: GW-30S Sample Time: 9:20 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange tint to water, occasional orange particulates

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:20	6.87	17.83	2.10	0.99	702	-93	500	7.88
8:25	7.17	16.27	0.913	0.00	700	-92	500	7.96
8:30	7.11	9.46	0.970	0.00	169	-83	500	7.96
8:35	7.03	9.23	0.992	0.00	104	-94	500	7.96
8:40	7.02	9.22	0.994	0.00	98.1	-95	500	7.96
8:45	7.01	9.16	1.01	0.00	87.5	-95	500	7.96
8:50	7.01	9.16	1.00	0.00	74.1	-97	500	7.96
8:55	7.01	9.13	0.995	0.00	54.2	-99	500	7.96
9:00	7.00	9.10	0.997	0.00	49.9	-98	500	7.96
9:05	6.98	9.21	1.00	0.00	36.0	-98	500	7.96
9:10	7.03	9.13	1.00	0.00	31.8	-102	500	7.96
9:15	7.00	9.12	0.994	0.00	32.8	-101	500	7.96
9:20	7.01	9.12	0.999	0.00	30.7	-102	500	7.96
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: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 2.75' Depth to Well Bottom: 9.57' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.2 Estimated Purge Volume (liters): 6.7

Sample ID: GW-31S Sample Time: 10:22 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Visually appears less turbid than instrument readings indicate.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:37	7.49	11.68	0.607	0.00	29.4	-39	210	2.75
9:42	7.24	12.11	0.587	0.00	28.6	6	140	4.08
9:47	7.31	12.14	0.564	0.00	62.6	19	140	4.69
9:52	7.34	11.96	0.553	0.00	55.1	26	140	5.05
9:57	Cleaned out Flow Cell		-	-	-	-	140	-
10:02	7.39	11.76	0.571	0.00	37.9	21	140	5.65
10:07	7.36	11.58	0.583	0.00	41.4	7	140	5.92
10:12	7.34	11.49	0.584	0.00	25.9	-1	140	6.00
10:17	7.31	11.48	0.590	0.00	20.4	-7	140	6.26
10:22	7.30	11.50	0.598	0.00	18.4	-11	140	6.33
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: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 2.92' Depth to Well Bottom: 9.93' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.3 Estimated Purge Volume (liters): 5.8

Sample ID: GW-32S Sample Time: 11:03 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:43	7.73	11.57	0.553	0.00	35.3	59	290	2.92
10:48	7.50	11.37	0.567	0.00	9.0	58	290	3.70
10:53	7.49	11.29	0.567	0.00	3.6	56	290	3.70
10:58	7.47	11.22	0.562	0.00	4.3	55	290	3.75
11:03	7.47	11.10	0.561	0.00	3.7	57	290	3.80
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: 5/23/2014 Sampling Personnel: Rob Murphy, 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: 4.58' Depth to Well Bottom: 8.21' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 2.2 Estimated Purge Volume (liters): 4.8

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 (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:24	7.45	11.99	0.704	0.00	1.8	105	150	4.58
11:29	7.26	11.89	0.670	0.00	1.2	107	150	5.55
11:34	7.25	11.89	0.656	0.00	0.6	106	150	5.84
11:39	7.27	11.85	0.654	0.00	0.4	109	125	5.97
11:44	7.27	11.85	0.656	0.00	0.4	115	125	6.12
11:49	7.18	11.45	0.668	0.00	0.0	115	125	6.17
11:54	7.19	11.45	0.668	0.00	0.0	114	125	6.20
11:59	7.21	11.40	0.672	0.00	0.0	113	125	6.24
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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 2.60' Depth to Well Bottom: 10.01' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 4.6 Estimated Purge Volume (liters): 5.4

Sample ID: GW-34S Sample Time: 9:12 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:42	7.77	7.74	1.50	0.00	53.2	-13	180	2.60
8:47	7.16	11.04	1.48	0.00	47.8	-24	180	3.85
8:52	7.06	10.90	1.34	0.00	34.4	-26	180	3.96
8:57	7.01	11.11	1.34	0.00	20.9	-24	180	3.99
9:02	6.98	11.03	1.36	0.00	13.3	-22	180	4.05
9:07	6.97	10.86	1.35	0.00	9.0	-21	180	4.10
9:12	6.96	10.89	1.33	0.00	8.2	-19	180	4.11
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: 5/22/2014 Sampling Personnel: Rob Murphy, 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: 2.98' Depth to Well Bottom: 7.46' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 2.8 Estimated Purge Volume (liters): 5.8

Sample ID: GW-35S Sample Time: 13:05 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:40	8.05	14.07	0.407	0.00	12.6	-182	280	2.98
12:45	7.53	13.46	0.471	0.00	0.3	-193	220	3.50
12:50	7.46	13.46	0.473	0.00	0.0	-196	220	3.51
12:55	7.45	13.55	0.473	0.00	0.0	-198	220	3.52
13:00	7.44	13.36	0.472	0.00	0.0	-199	220	3.52
13:05	7.44	13.29	0.470	0.00	0.0	-200	220	3.58
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

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

Sampling Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date of Sampling: *May 21, 2014*

Sample I.D. Number	*Well Number*	*Well Volume (liters)*	*Volume Purged (liters)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*
GW-3S	GW-03S	6.9	6.8	11:25	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-3D	GW-03D	83.9	57.0	12:36	Groundwater		Not Applicable
GW-3D-MS	GW-03D	83.9	57.0	12:36	Matrix Spike		Not Applicable
GW-3D-MSD	GW-03D	83.9	57.0	12:36	Matrix Spike Duplicate		Not Applicable
GW-8D	GW-08D	76.2	61.8	14:15	Groundwater		Not Applicable
GW-8SR	GW-08SR	4.9	6.0	15:05	Groundwater		Not Applicable
TB-052114	---	---	---	---	Trip Blank	VOCs	Not Applicable

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

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

Sampling Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date of Sampling: *May 21, 2013*

Sample I.D. Number	*Well Number*	*Well Volume (liters)*	*Volume Purged (liters)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*
GW-7D	GW-07D	36.6	PDB	15:40	Groundwater	VOCs	Not Applicable
GW-7S	GW-07S	19.1	PDB	15:45	Groundwater		Not Applicable

Additional Comments: GW-7D and GW-7S were sampled for VOCs using passive diffusion bags (PDBs). GW-7D and GW-7S were then purged dry, and remaining parameters were collected May 22, 2014.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

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

Sampling Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date of Sampling: *May 22, 2014*

Sample I.D. Number	*Well Number*	*Well Volume (liters)*	*Volume Purged (liters)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*
GW-34S	GW-34S	4.6	5.4	9:12	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-28S	GW-28S	4.4	4.3	10:10	Groundwater		Not Applicable
GW-4S	GW-04S	7.5	15.0	10:45 & 12:20	Groundwater		Not Applicable
GW-4D	GW-04D	82.1	9.6	12:10	Groundwater		Not Applicable
GW-35S	GW-35S	2.8	5.8	13:05	Groundwater		Not Applicable
GW-26D	GW-26D	84.2	60.0	14:14	Groundwater		Not Applicable
FD-052214	GW-26D	84.2	60.0	14:14	Duplicate		Not Applicable

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

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

Sampling Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date of Sampling: *May 22, 2014*

Sample I.D. Number	*Well Number*	*Well Volume (liters)*	*Volume Purged (liters)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*
GW-29S	GW-29S	7.7	7.7	15:25	Groundwater	VOCs/SVOCs/ Metals	
GW-7D	GW-07D	36.6	36.6	15:50	Groundwater	SVOCs/Metals	Not Applicable
GW-7S	GW-07S	19.1	30.3	15:55	Groundwater		Not Applicable
TB-052214	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: GW-7D and GW-7S were sampled for SVOCs and Metals after recharging overnight. All other wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

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

Sampling Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date of Sampling: *May 23, 2014*

Sample I.D. Number	*Well Number*	*Well Volume (liters)*	*Volume Purged (liters)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*
GW-30S	GW-30S	6.2	30.0	9:20	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-31S	GW-31S	4.2	6.7	10:22	Groundwater		Not Applicable
GW-32S	GW-32S	4.3	5.8	11:03	Groundwater		Not Applicable
GW-33S	GW-33S	2.2	4.8	11:59	Groundwater		Not Applicable
GW-01S	GW-01S	7.0	11.0	13:05	Groundwater		Not Applicable
GW-01D	GW-01D	91.1	52.8	14:21	Groundwater		Not Applicable
TB-052314	---	---	---	---	Trip Blank	VOCs	Not Applicable

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

APPENDIX E

GROUNDWATER TREND ANALYSIS

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

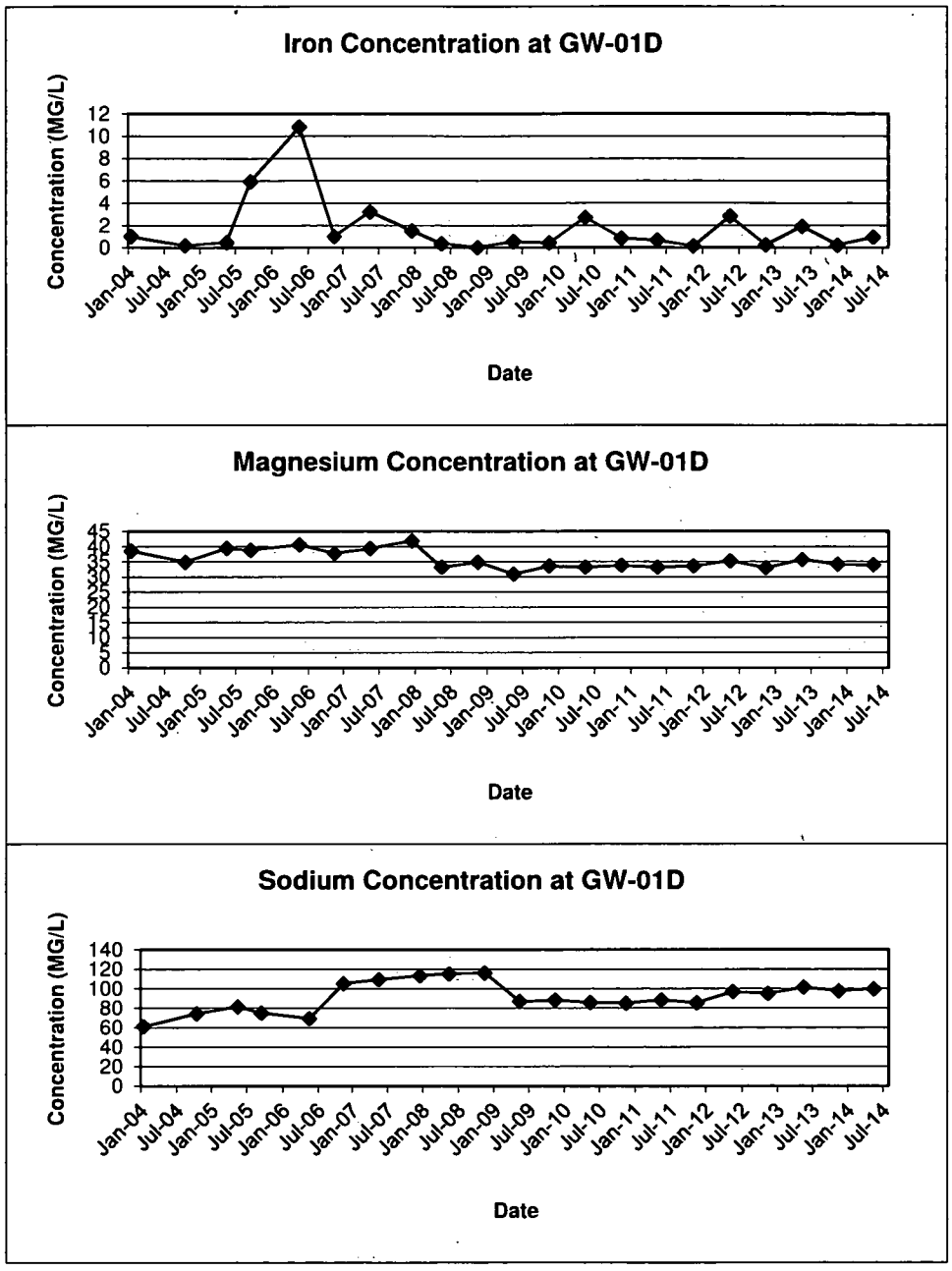

FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1S

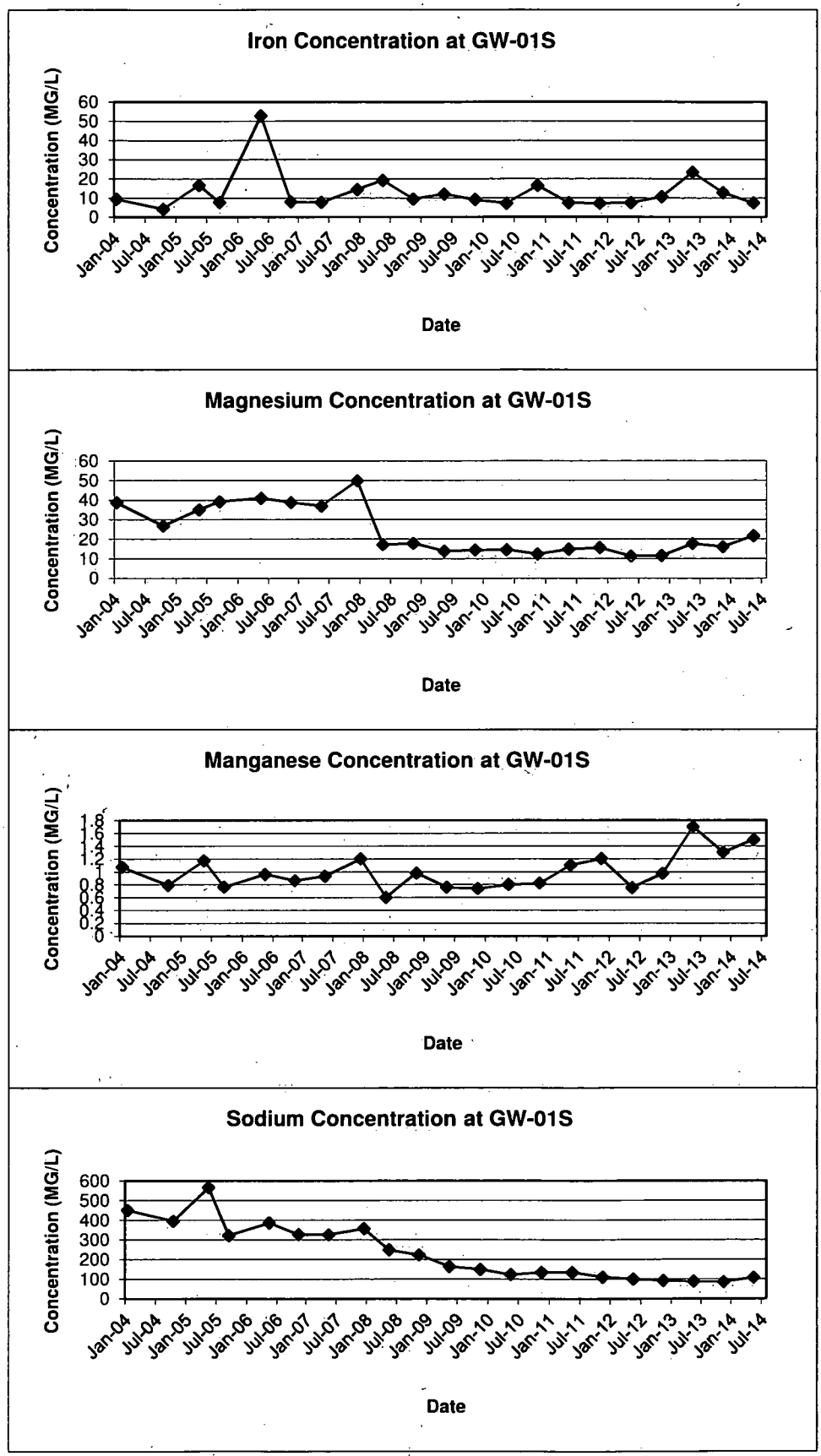

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FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3D

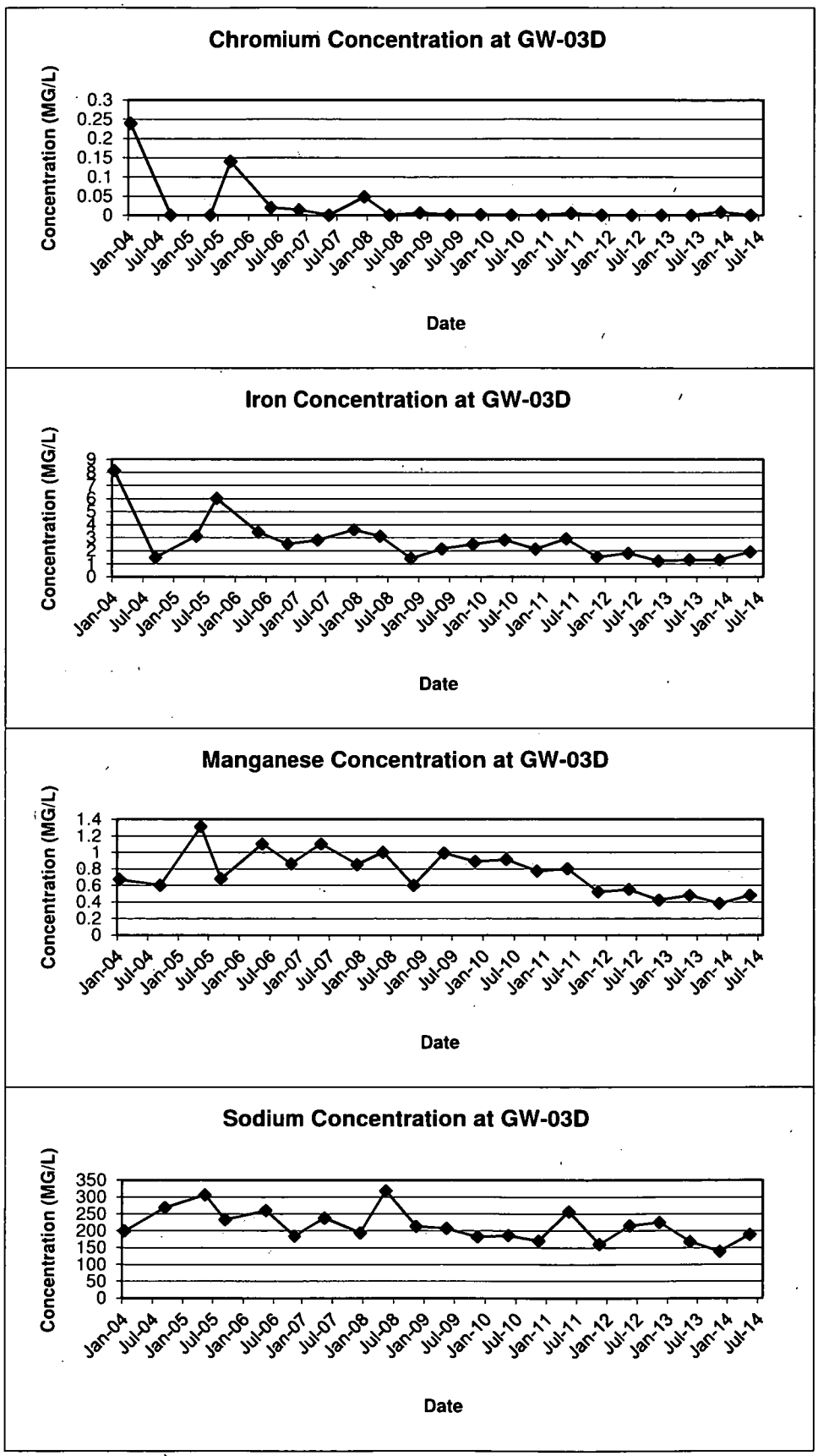

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FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

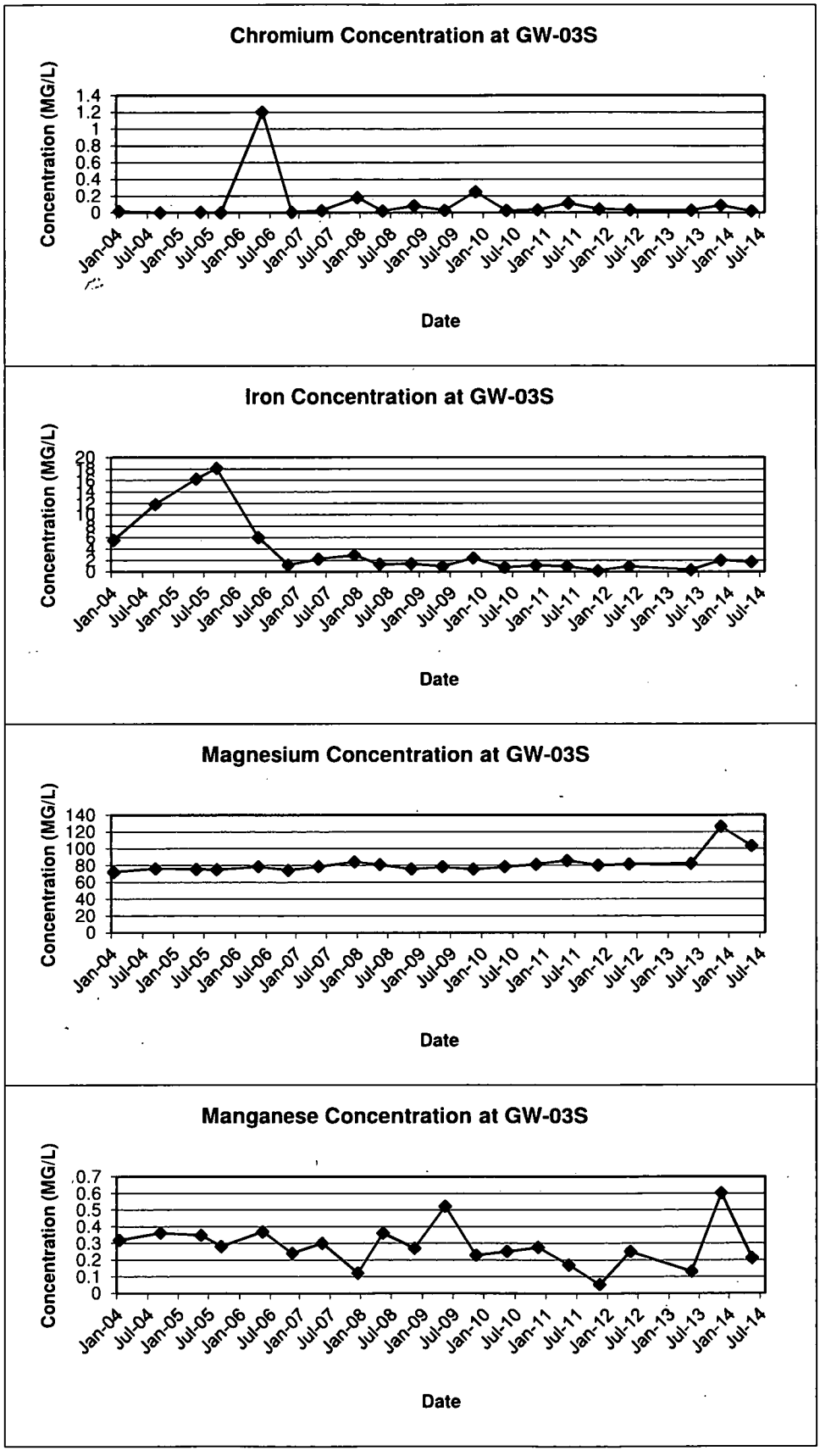

FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

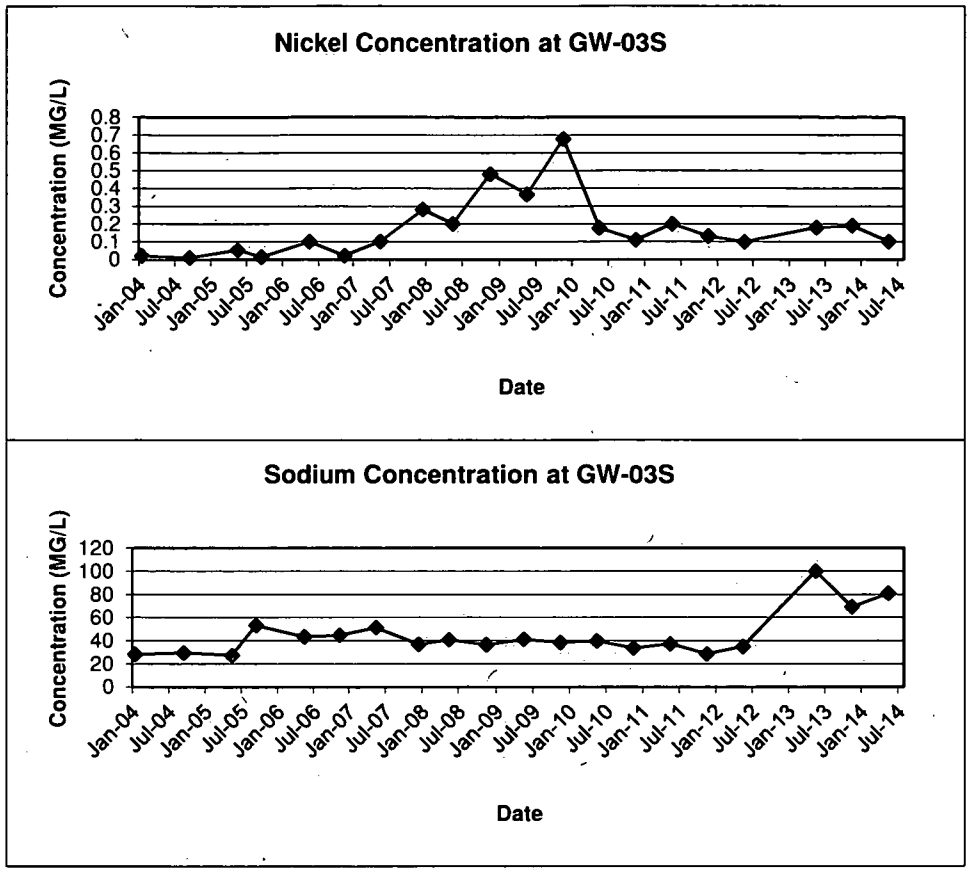

FIGURE E-5
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4D

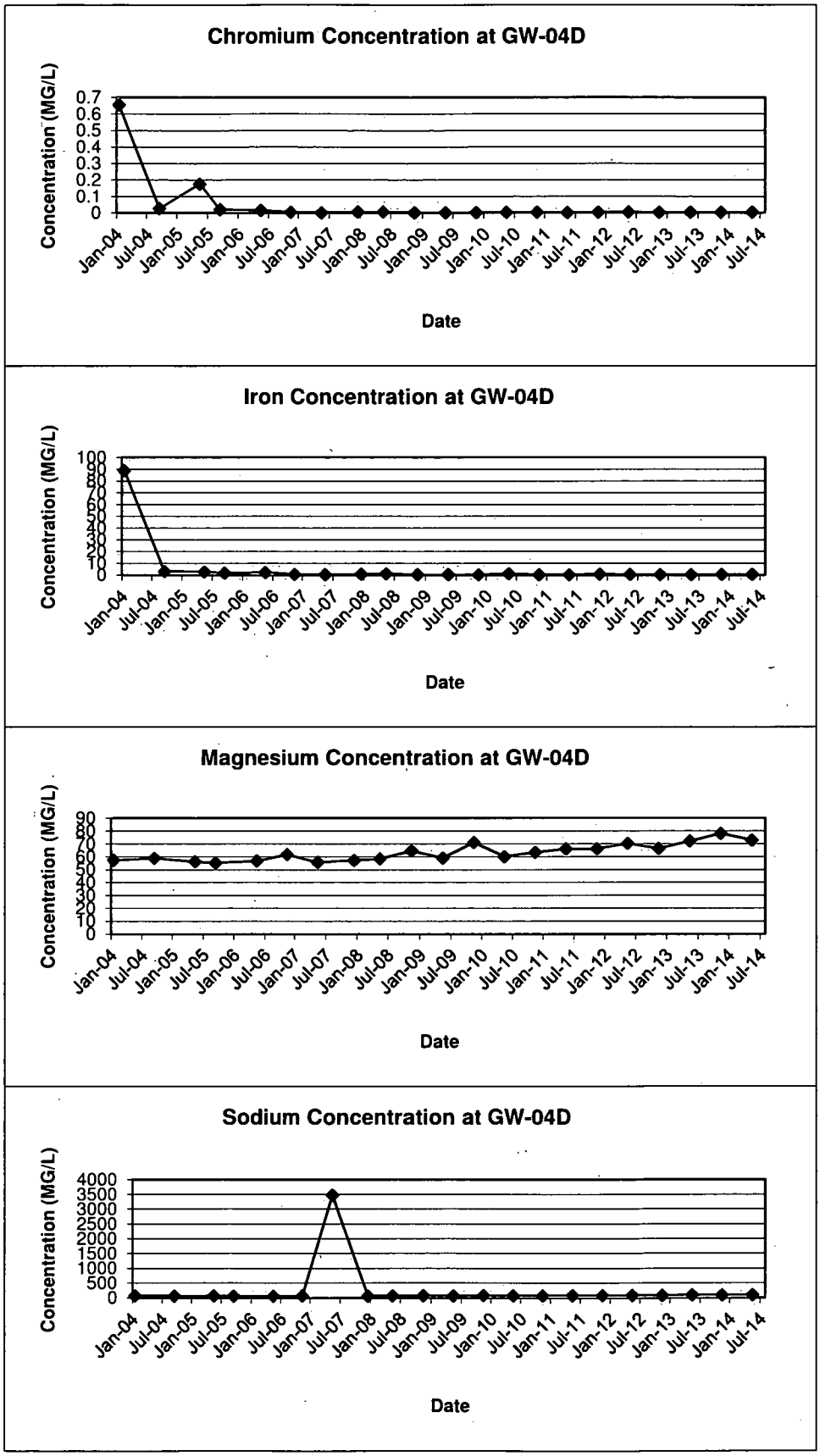

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FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4S

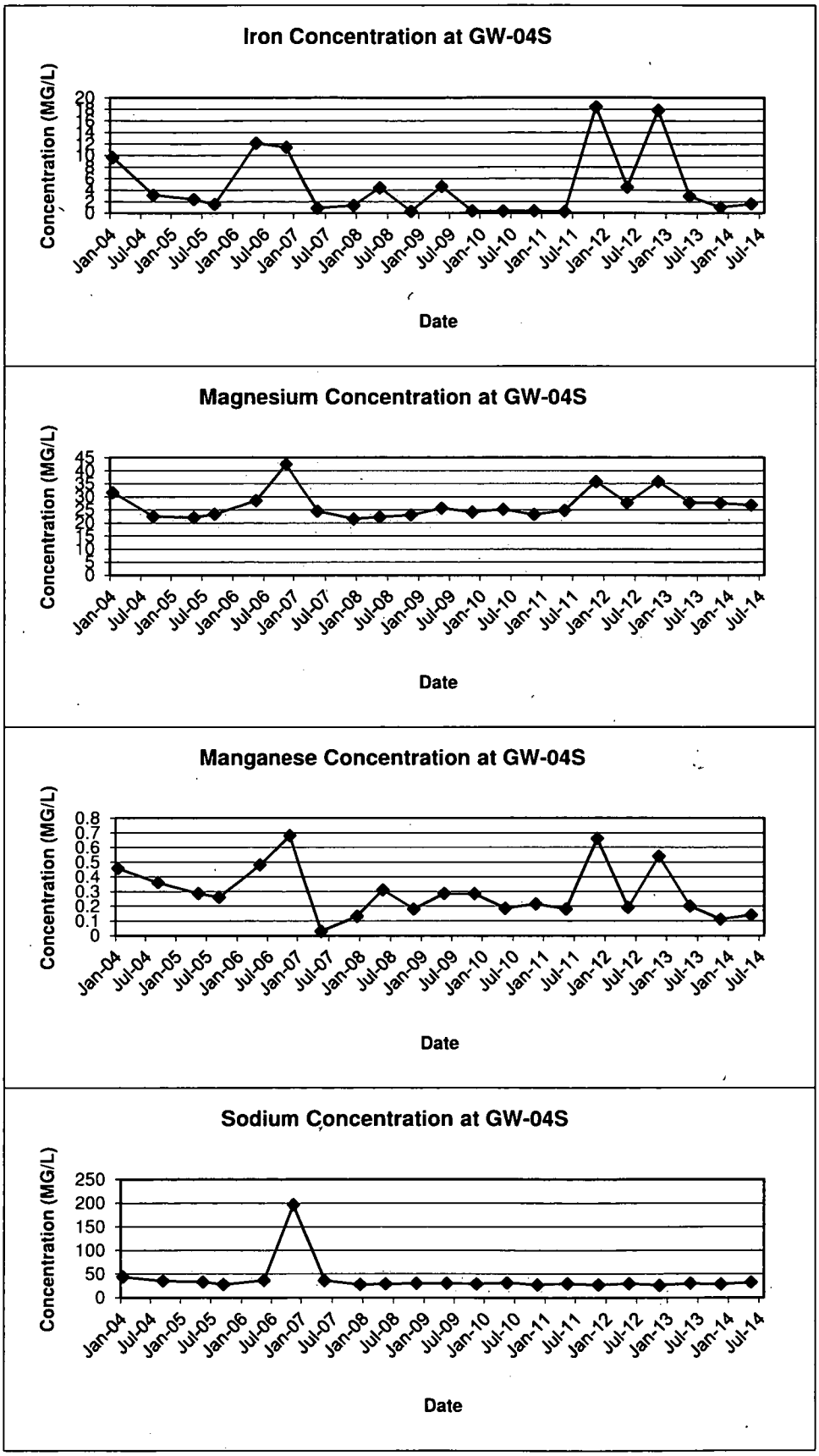

FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7D

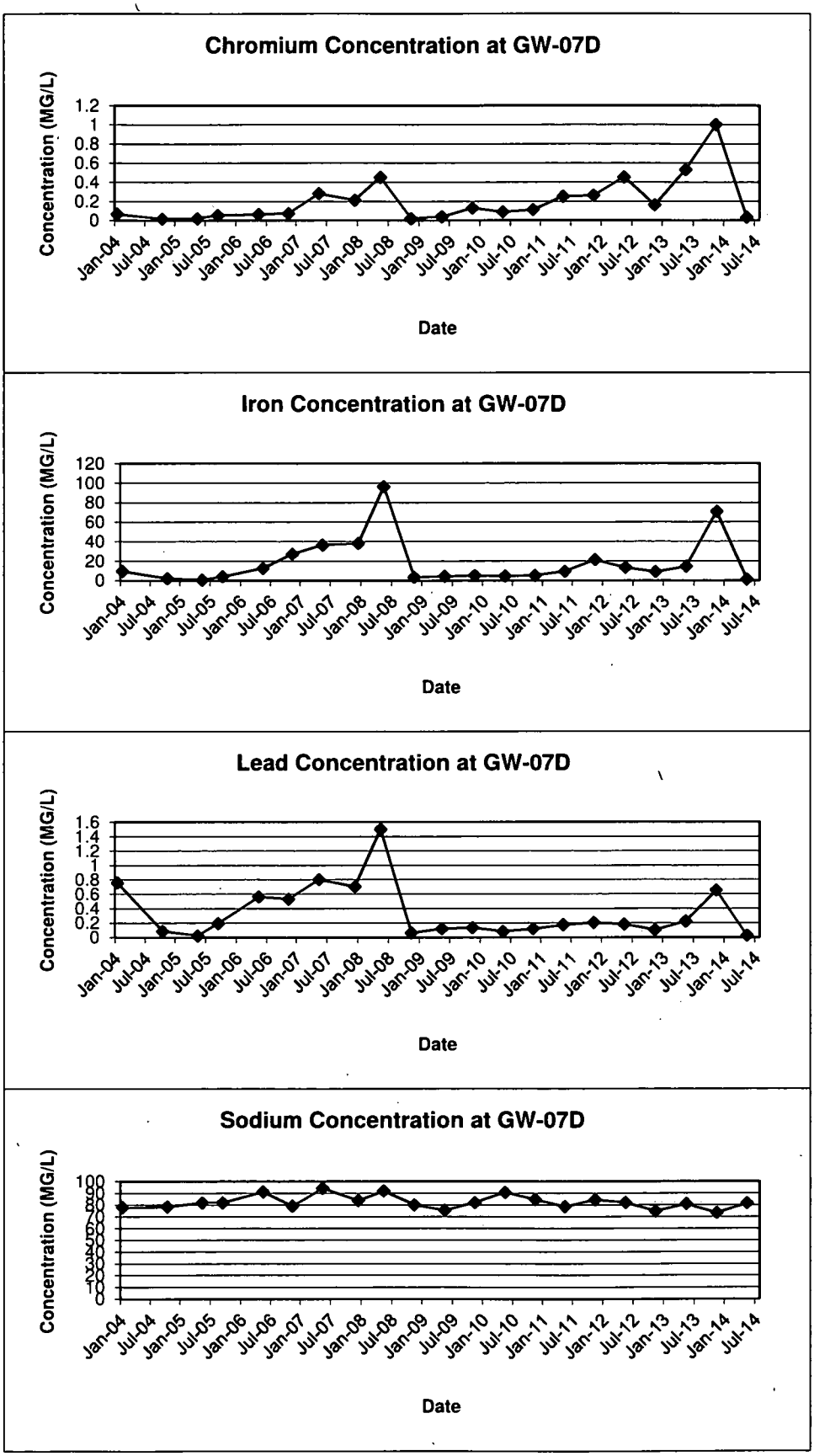

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FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7S

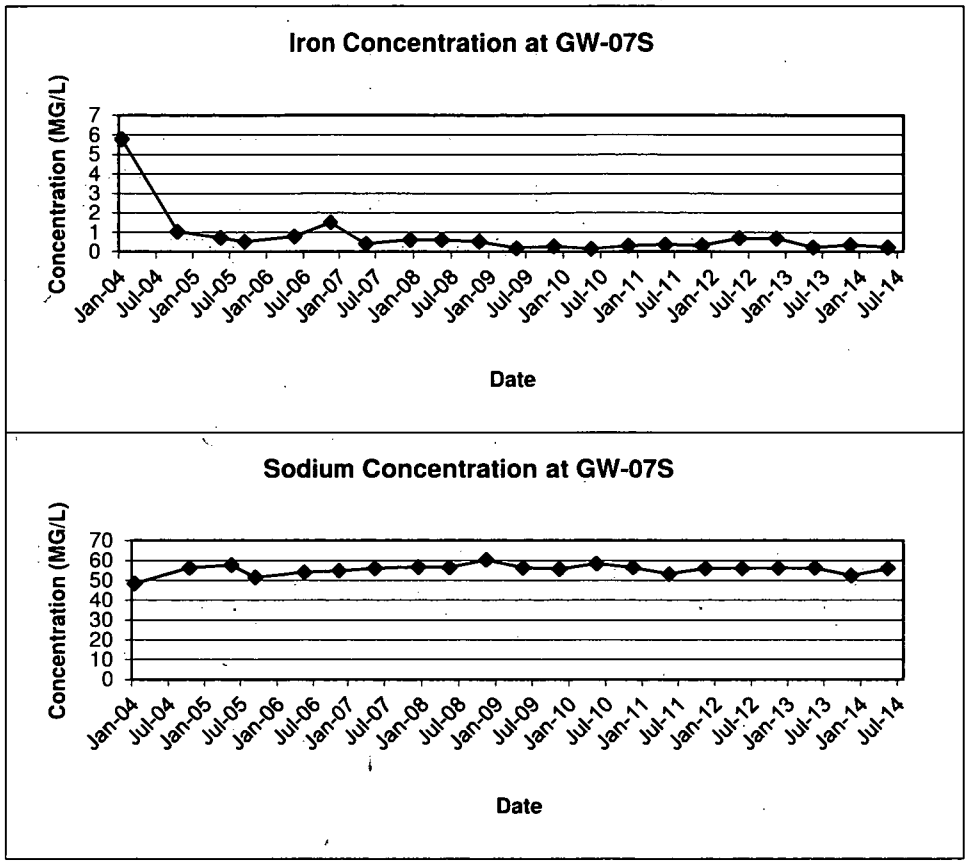

FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8D

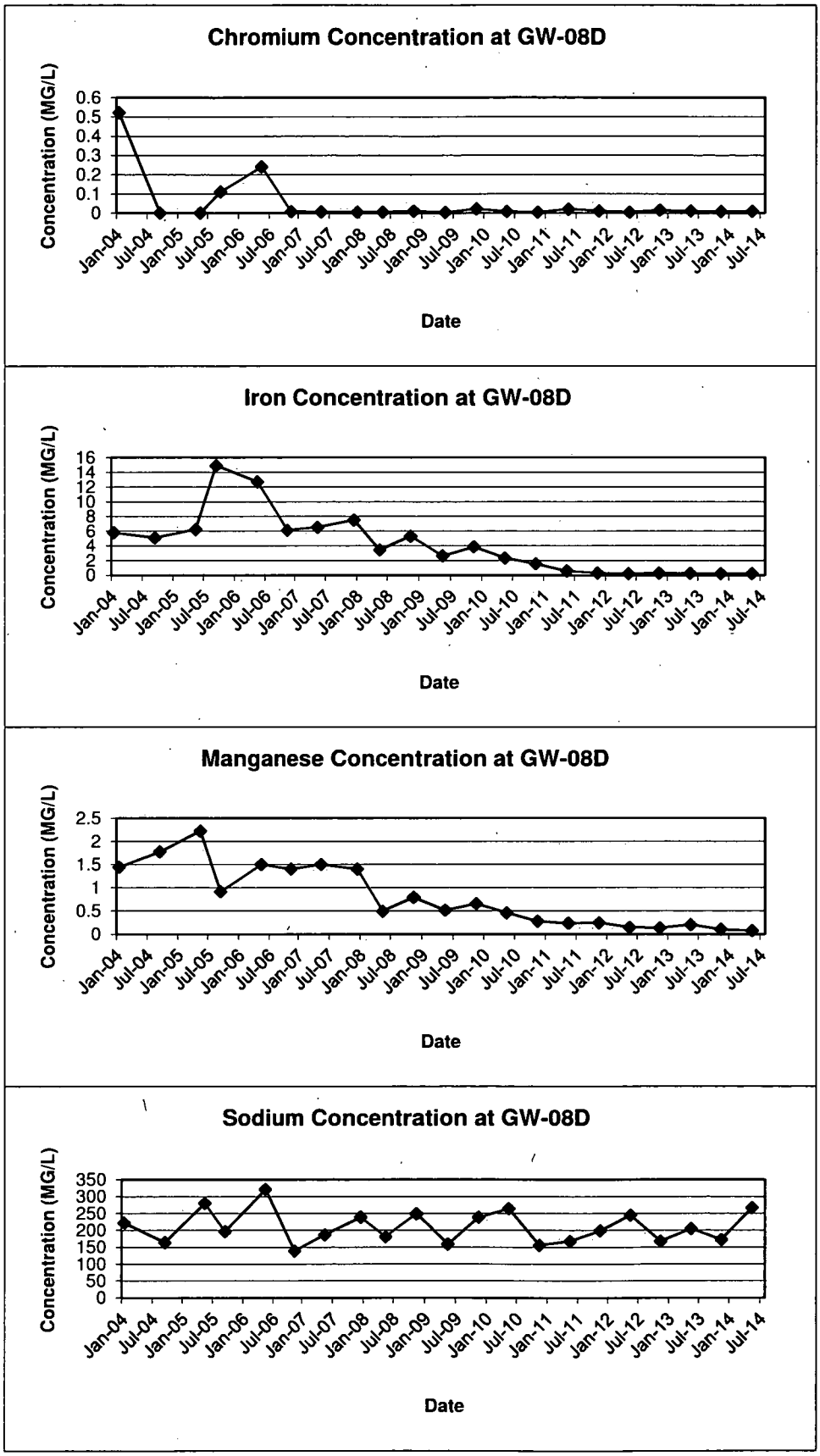

FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8SR

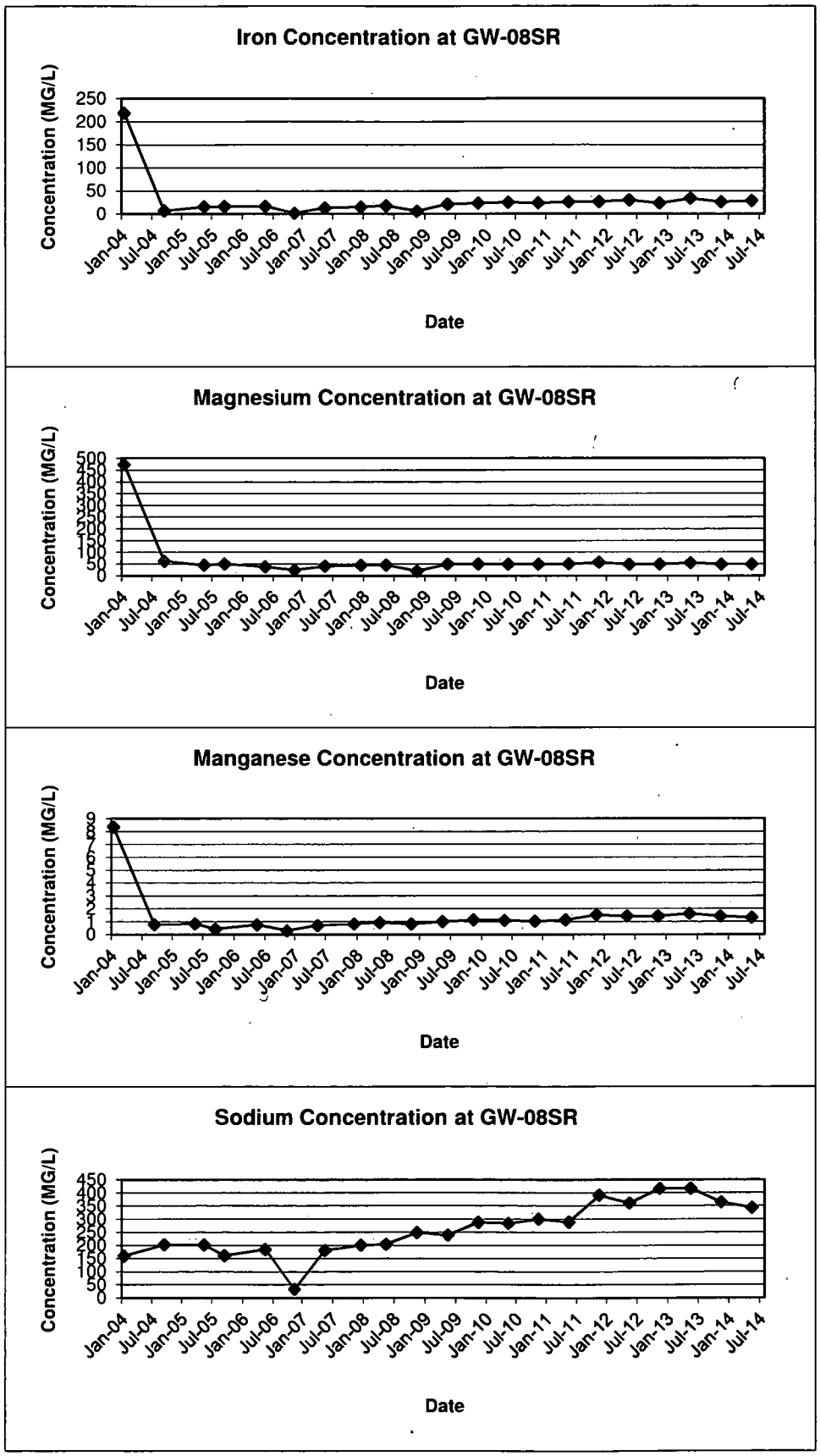

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FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

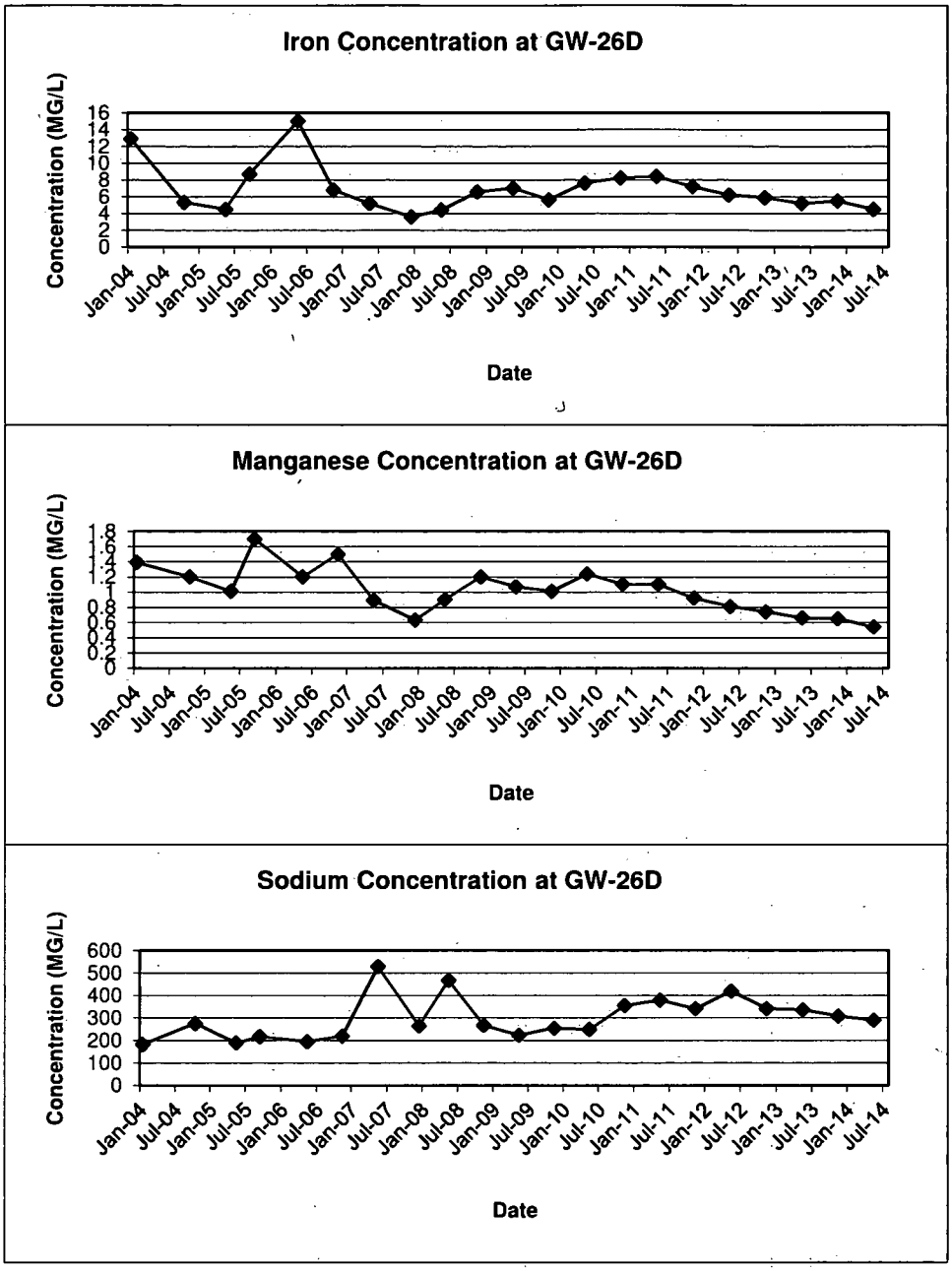

FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

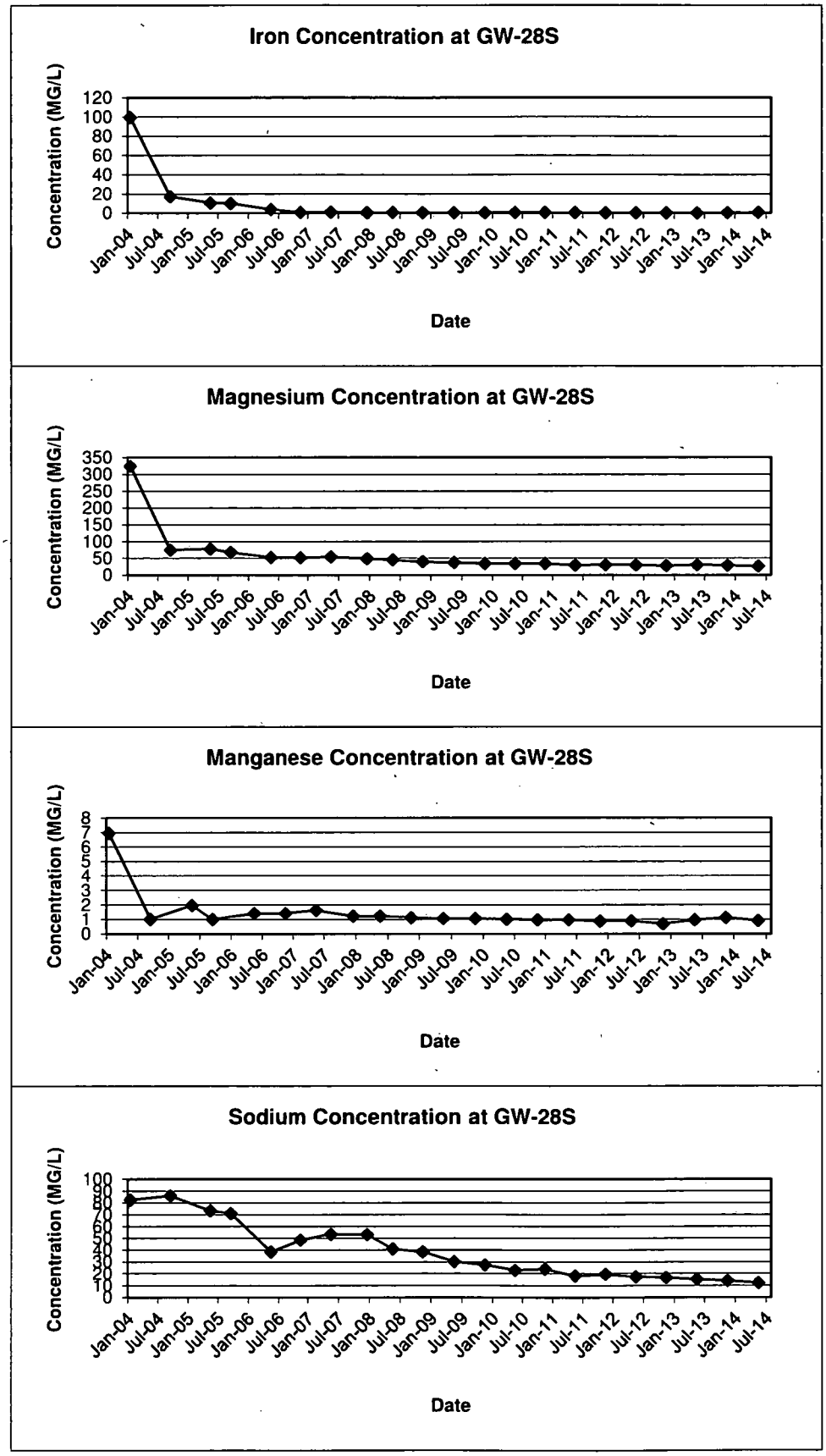

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FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

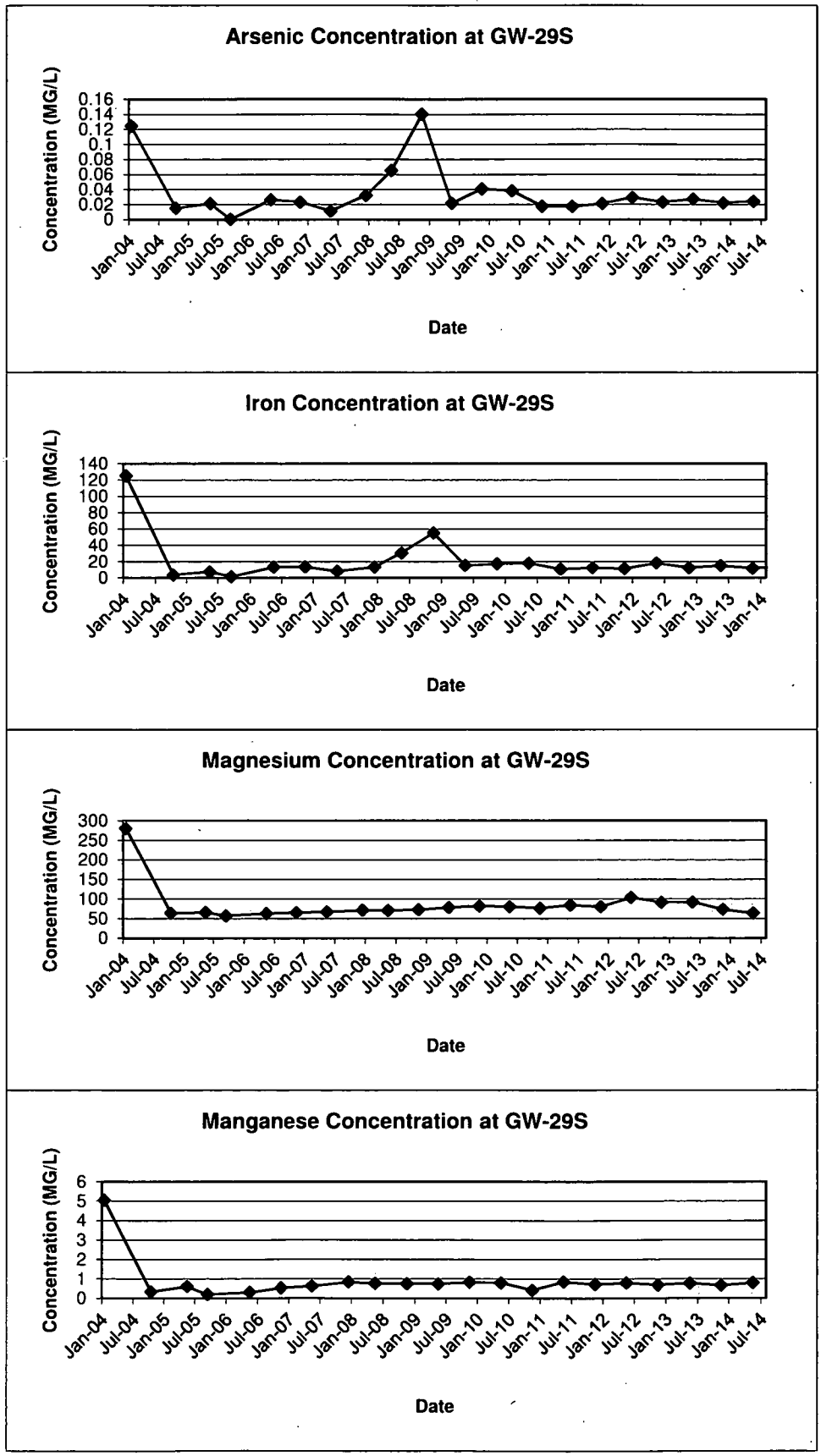

FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

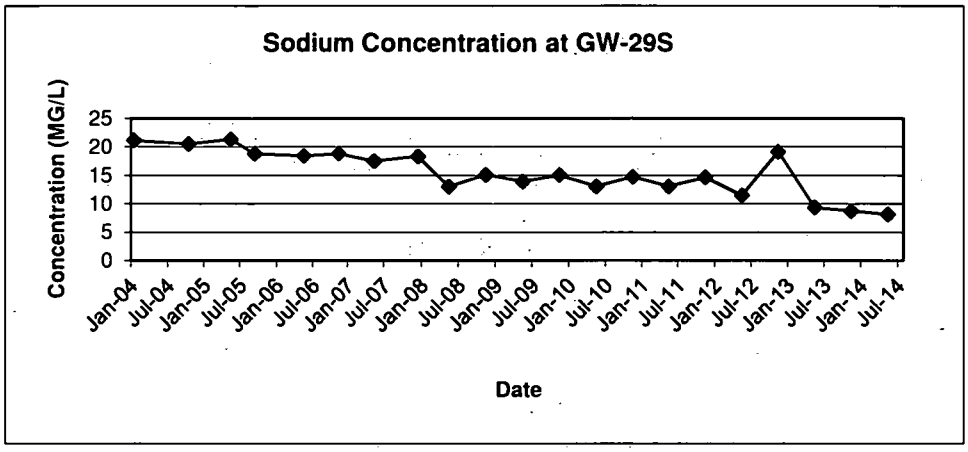

FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

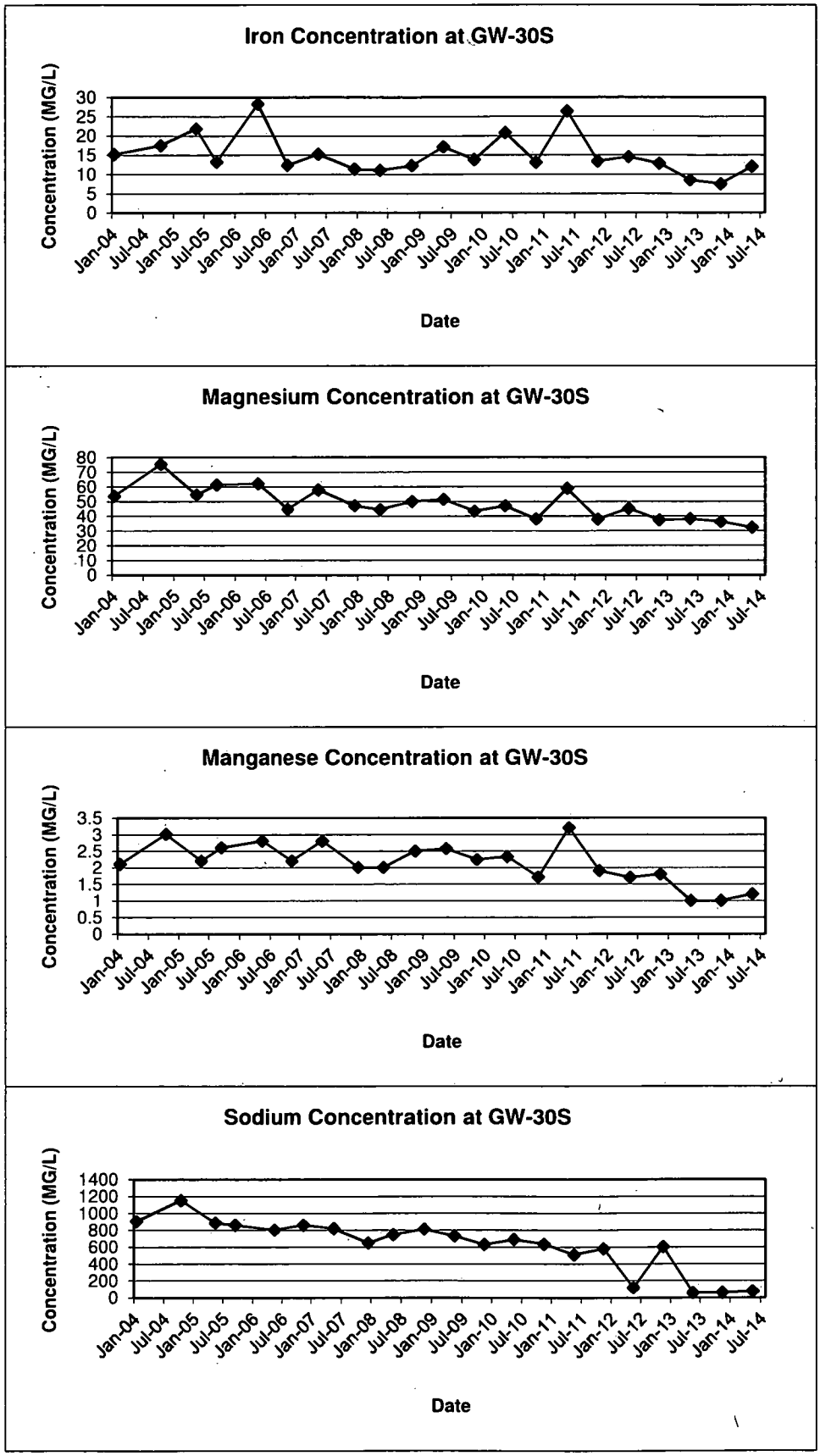

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FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

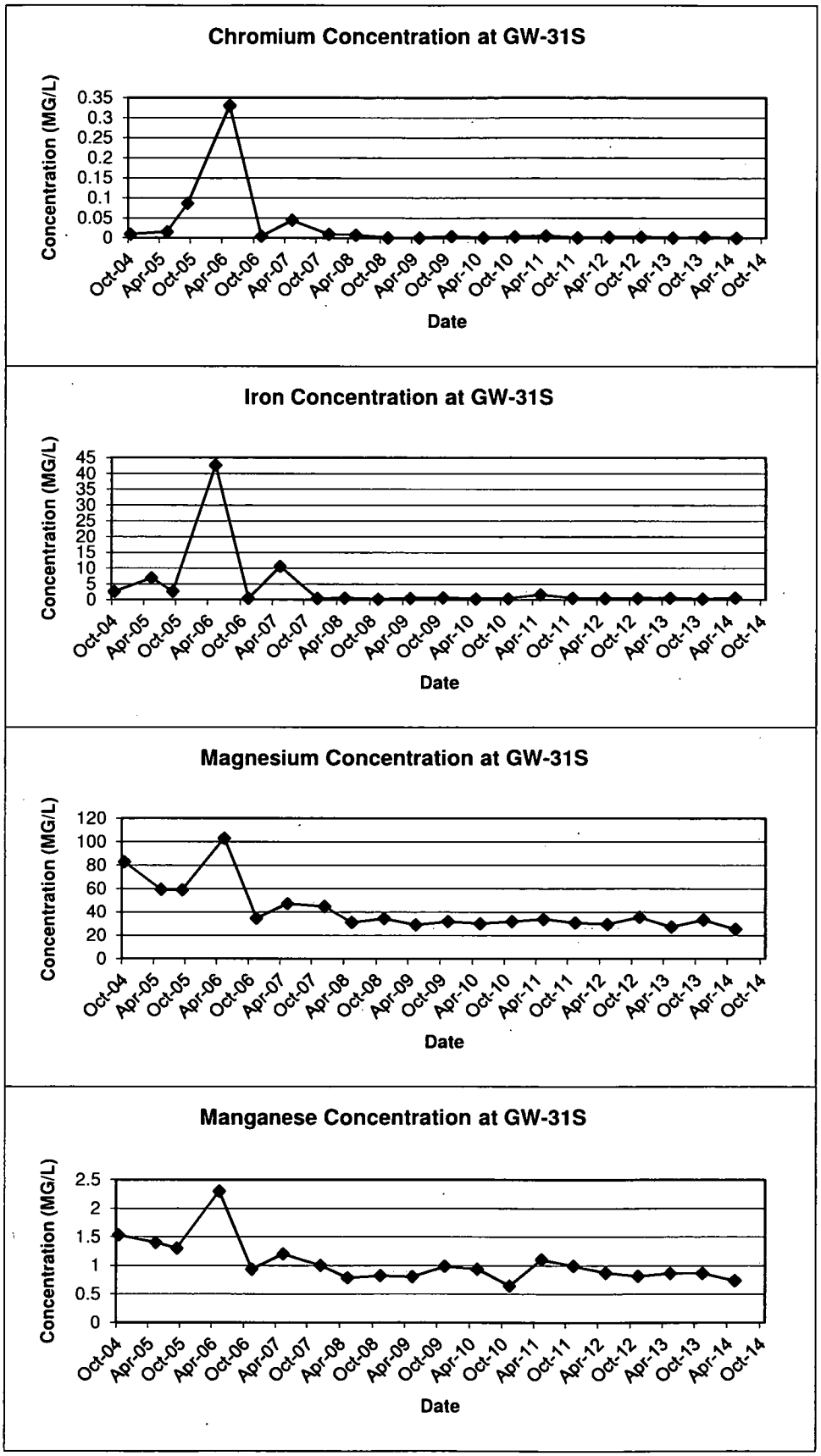

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FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

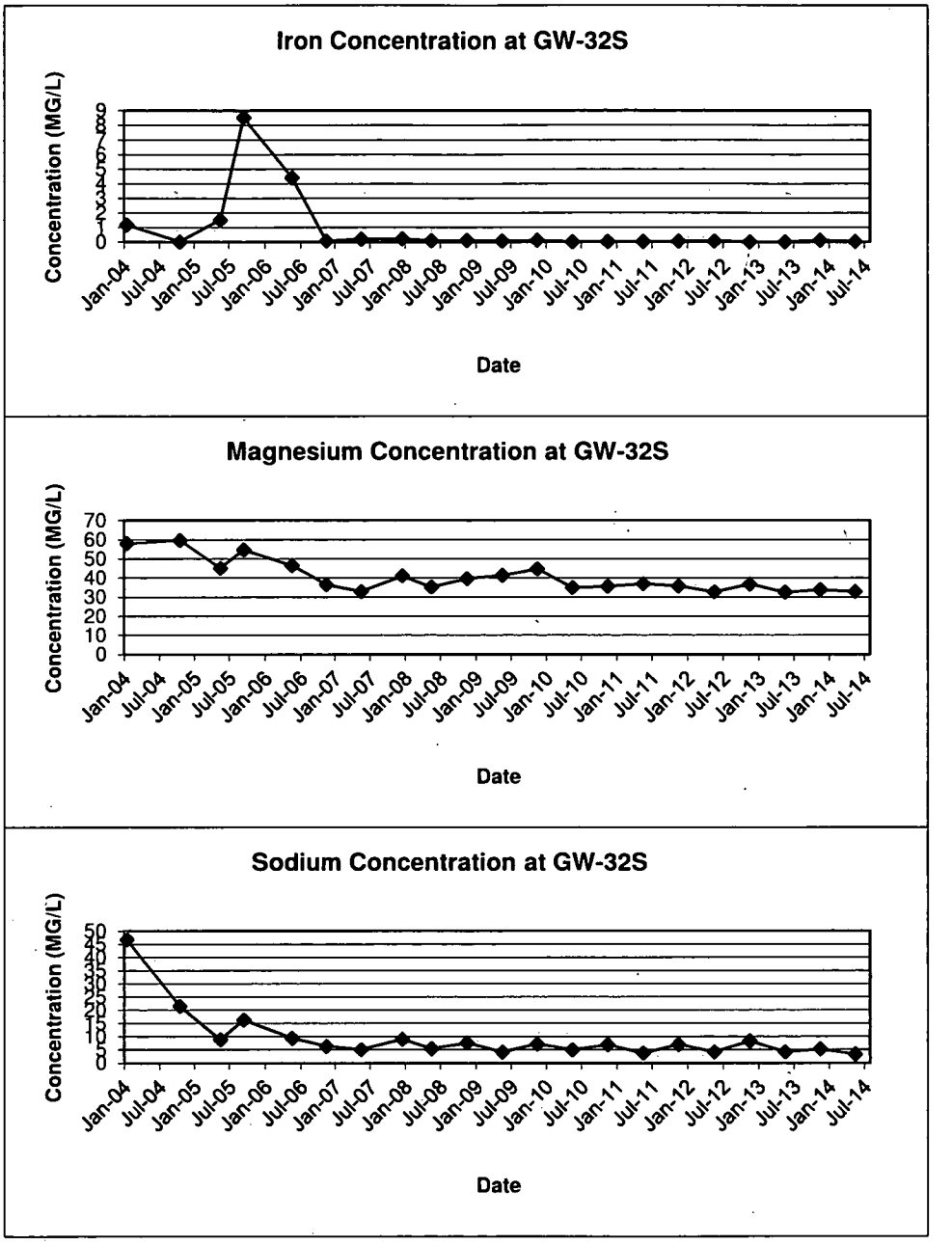


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

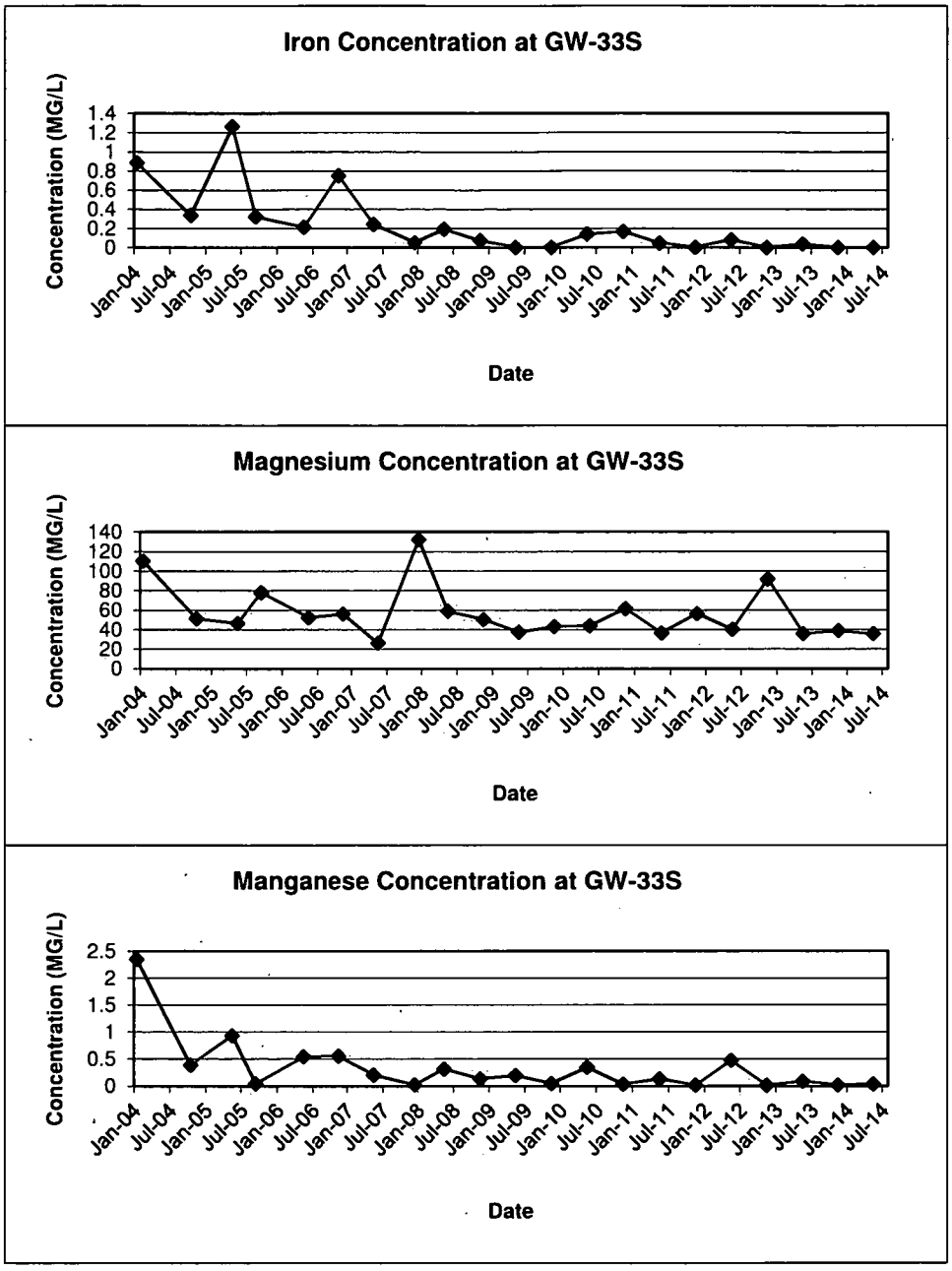


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

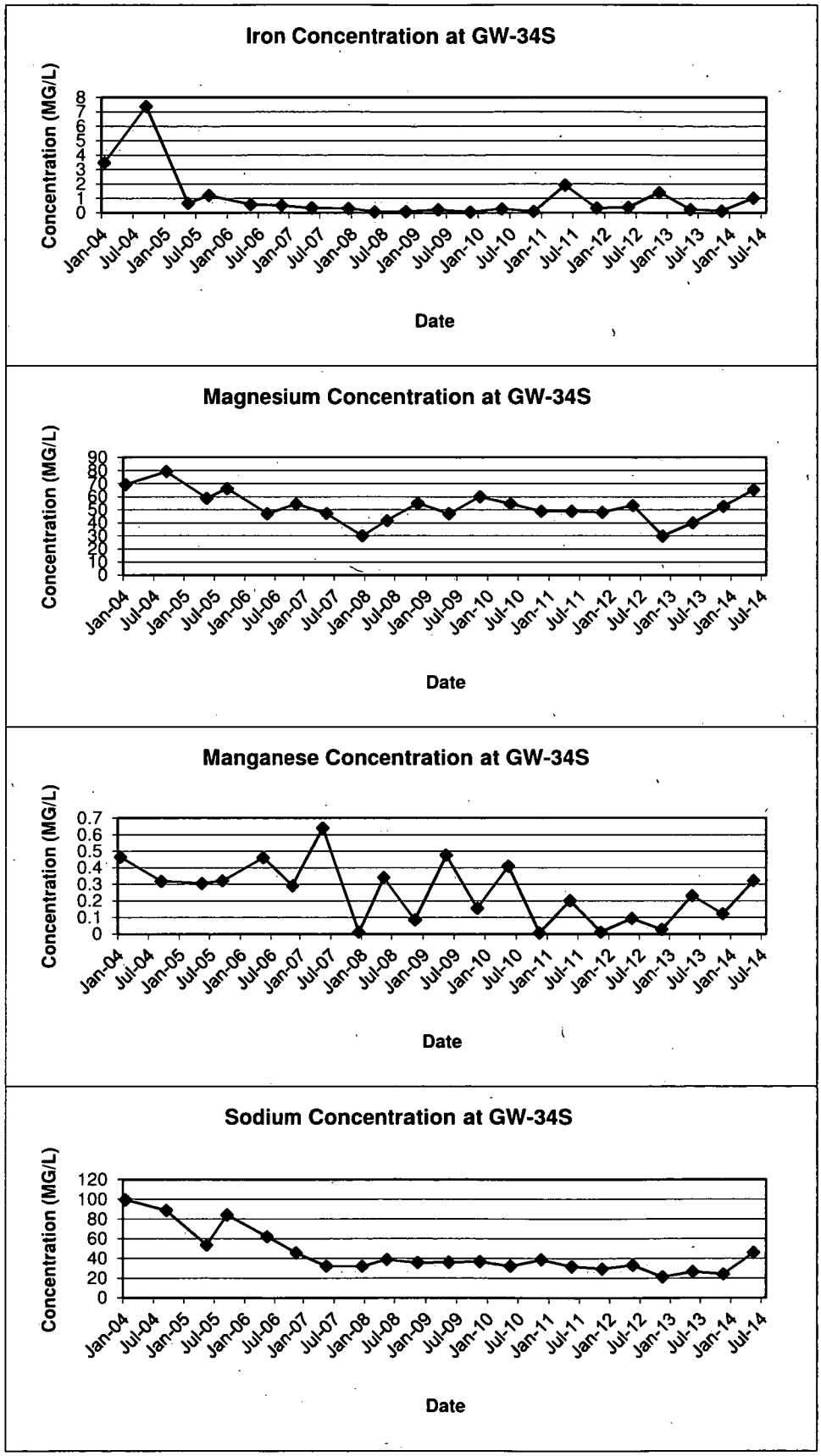
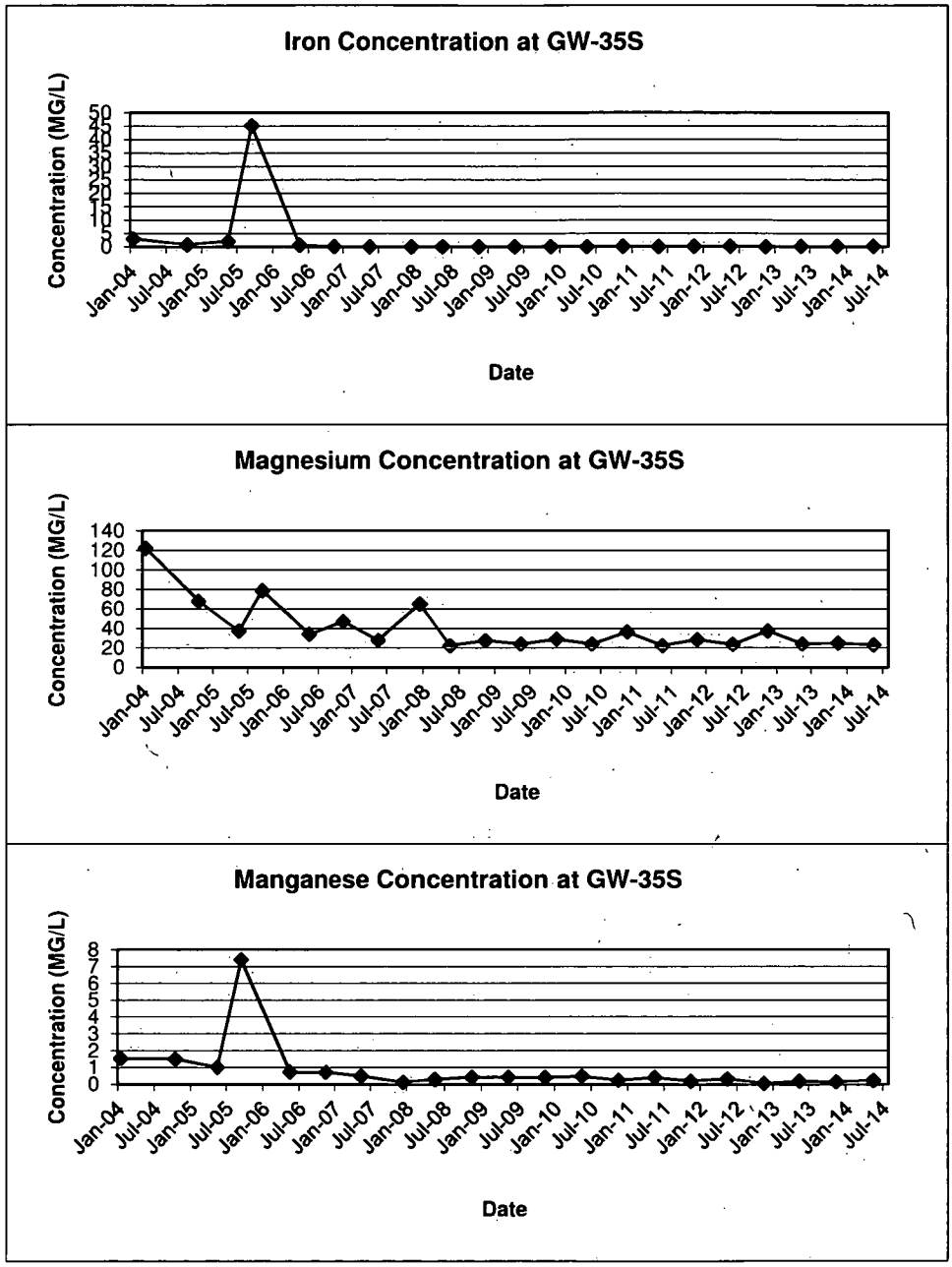


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 13-04-CH016

The Town of Cheektowaga
275 Alexander Street
Cheektowaga NY 14211

Engineering Department
Office: 716-897-7288
Fax: 716-897-7299

WILLIAM R. PUGH, P.E.
TOWN ENGINEER

October 8, 2013

Mr. Jon Sundquist, PhD
Project Manager
URS Corporation
77 Goodell Street
Buffalo, New York 14203

Re: Pfohl Bros. Landfill
Site Discharge Permit

Dear Mr. Sundquist:

Enclosed please find a copy of the Buffalo Sewer Authority Discharge Permit, BPDES 13-04-0CH16, for your file for the referenced site which was renewed earlier this year having an expiration date of March 31, 2016. All discharge limitations and sampling requirements remain the same as the most recent expired permit.

Should you have any questions, please contact this office at 897-7288.

Very truly yours,

TOWN OF CHEEKTOWAGA

William R. Pugh, P.E.
Town Engineer

WRP/mj

enc.

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		**Reporting Requirements**	
Point	**Parameter**	**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.

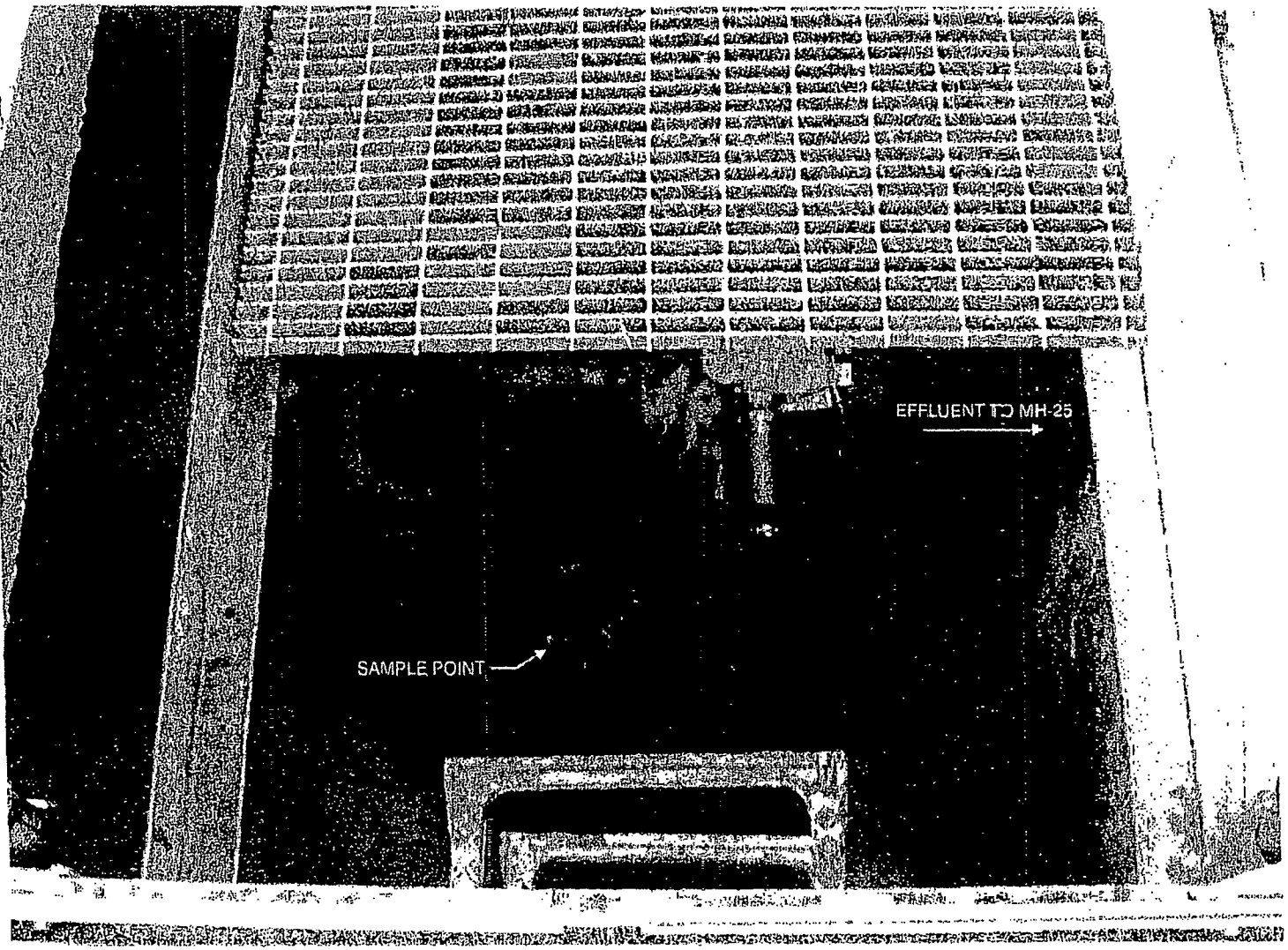
2. Composite samples may be time proportioned.

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

TOWN OF CHEEKTOWAGA/BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

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

URS

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: 3/20/14 Crew: R. Murphy, T. Ifkovich, K. McGovern

Weather: 34° F, Overcast

Sampling Device: NA

Time of Installation: 13:25 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: WW-05 was running at the time of sample set-up.
PLC display volumes: WW-01 (1,548,082 gals), WW-02 (-20,625 gals), WW-03 (311,038 gals), WW-04 (863,284 gals), WW-05 (3,477,469 gals), WW-06 (3,617,182 gals) & MH-25 (10,161,833 gals).

Date: 3/21/14 Crew: R. Murphy, T. Ifkovich, K. McGovern

Weather: 38° F, Mostly Clear

Time of Collection: 13:40

Field Measurements:

13:40/RJM
(time/initial)

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

pH Measurement: 7.85

Temperature: 9.0°C

Identification: EFF-032114

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (1,548,082 gals), WW-02 (-20,625 gals), WW-03 (311,038 gals), WW-04 (863,284 gals), WW-05 (3,501,628 gals), WW-06 (3,617,182 gals) & MH-25 (10,186,719 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
MARCH 2014

Sample ID	EFF-032114			
Matrix	Effluent Water			
Date Sampled	3/21/2014			
Parameter	Result (mg/L)	Mass Loading (lbs/day)	Discharge Limitation (lbs/day)	Violations (Y/N)
Total Barium	0.22	0.05	2.34	No
Total Cadmuim	<[1] 0.0005	< 0.00010	1.17	No
Total Chromium	< 0.0010	< 0.0002	1.17	No
Total Copper	0.0086	0.002	3.74	No
Total Lead	< 0.003	< 0.0006	1.17	No
Total Nickel	0.0039	0.0008	3.27	No
Total Zinc	0.042	0.01	5.84	No
Total Suspended Solids	< 4.0	NA[2]	250 [3]	No
pH [4]	7.85	NA	5.0 - 12.0	No
Total Flow [5]		24,886	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: $\left(\frac{x\ \text{mg}}{\text{L}}\right)\left(\frac{y\ \text{gal}}{\text{day}}\right)\left(\frac{1\ \text{lb}}{453{,}600\ \text{mg}}\right)\left(\frac{3.785\ \text{L}}{\text{gal}}\right) = \frac{x \times y}{119{,}841}\ \frac{\text{lb}}{\text{day}}$

SAMPLING FIELD SHEET

URS

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: 6/18/14 Crew: R. Murphy, T. Urban, R. Frears

Weather: 67° F, Cloudy

Sampling Device: NA

Time of Installation: 07:45 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: WW-05 was running at the time of sample set-up.
PLC display volumes: WW-01 (2,221,883 gals), WW-02 (-20,624 gals), WW-03 (311,201 gals), WW-04 (1,123,594 gals), WW-05 (5,028,806 gals), WW-06 (5,051,109 gals) & MH-25 (14,266,172 gals).

Date: 6/19/14 Crew: R. Murphy, T. Urban, R. Frears

Weather: 67° F, Clear

Time of Collection: 07:45

Field Measurements:

07:45/RJM
(time/initial)

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

pH Measurement: 7.64

Temperature: 16.9°C

Identification: EFF-061914

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (2,221,883 gals), WW-02 (-20,624 gals), WW-03 (311,201 gals), WW-04 (1,106,576 gals), WW-05 (5,078,876 gals), WW-06 (5,051,109 gals) & MH-25 (14,316,203 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2014

Sample ID	EFF-061914			
Matrix	Effluent Water			
Date Sampled	6/19/2014			
Parameter	Result (mg/L)	Mass Loading (lbs/day)	Discharge Limitation (lbs/day)	Violations (Y/N)
Total Barium	0.21	0.09	2.34	No
Total Cadmuim	<[1] 0.0005	< 0.00021	1.17	No
Total Chromium	< 0.0010	< 0.0004	1.17	No
Total Copper	0.014	0.006	3.74	No
Total Lead	< 0.003	< 0.0013	1.17	No
Total Nickel	0.0044	0.0018	3.27	No
Total Zinc	0.11	0.05	5.84	No
Total Suspended Solids	< 4.0	NA[2]	250 [3]	No
pH [4]	7.64	NA	5.0 - 12.0	No
Total Flow [5]		50,031	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, K. McGovern* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 21, 2014*

Well I.D. Number	*Lock*	*Surface Seal*	*Protective Casing*	*Riser*	*Water Level (ft. BTOC)*	*Well Depth (ft. BTOC)*	*Other Comments*
GW-01S	OK	OK	OK	Bulged	3.33	14.94	
GW-01D	OK	OK	OK	Bulged	2.49	39.65	
GW-03S	OK	OK	OK	OK	2.08	13.22	
GW-03D	OK	OK	OK	OK	1.73	35.70	
GW-04S	OK	OK	OK	OK	4.15	16.23	
GW-04D	OK	OK	OK	OK	12.40	45.57	
GW-07S	OK	OK	OK	OK	4.11	35.04	
GW-07D	OK	OK	OK	Damaged	45.67	60.45	

Additional Comments: _____

_____

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WELL INSPECTION SUMMARY

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

Inspection Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 21, 2014*

Well I.D. Number	*Lock*	*Surface Seal*	*Protective Casing*	*Riser*	*Water Level (ft. BTOC)*	*Well Depth (ft. BTOC)*	*Other Comments*
GW-08SR	OK	OK	OK	OK	5.16	13.02	
GW-08D	OK	OK	OK	OK	5.70	36.54	
GW-26D	OK	OK	OK	OK	6.54	40.70	
GW-28S	OK	OK	OK	OK	8.29	15.52	
GW-29S	OK	OK	OK	OK	7.27	20.04	
GW-30S	OK	OK	OK	OK	7.78	17.97	
GW-31S	OK	OK	OK	OK	2.55	9.57	
GW-32S	OK	OK	OK	OK	2.46	9.93	

Additional Comments: _____

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_____

WELL INSPECTION SUMMARY

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

Inspection Crew Members: *R. Murphy, K. McGovern* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 21, 2014*

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	3.83	8.21	
GW-34S	OK	OK	OK	OK	2.58	10.01	
GW-35S	OK	OK	OK	OK	2.87	7.46	

Additional Comments: _____

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