URS

February 22, 2019

Mr. David Szymanski
New York State Department of Environmental Conservation
270 Michigan Ave.
Buffalo, NY 14203

Via Email: david.szymanski@dec.ny.gov

Re: Semi-Annual Report January 2018 – June 2018
Pfohl Brothers Landfill, Town of Cheektowaga, New York

Dear Mr. Szymanski:

Enclosed is one copy of the January 2018 – June 2018 Semi-Annual Report for the Pfohl Brothers Landfill in Cheektowaga, New York. A hard copy has also been sent to Ms. Pamela Tames, P.E. of the United States Environmental Protection Agency.

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

Sincerely,

URS CORPORATION

Robert J. Murphy, P.G.
Project Manager

Enclosures

cc: Pamela Tames, P.E. - USEPA (w/attachments)
Patrick Bowen, P.E. – Town of Cheektowaga (w/attachments)

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SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2018 TO JUNE 2018
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

FEBRUARY
2019

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1.0 INTRODUCTION

1.1 Background

The Pfohl Brothers Landfill is located on Aero Drive in the Town of Cheektowaga, New York (Figure 1-1). The site is listed as site No. 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 is the 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 2018 through June 2018 included 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 2018 through June 2018, including graphs showing daily total discharge (gallons) as a function of calendar day, are presented in Appendix B.
- The wet well pumps were shut down during wet weather flow conditions as necessary at various times throughout the year. Such actions were only taken upon request of the Buffalo Sewer Authority (BSA) 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 six (6) wet wells and replaced surge suppressors and fuses as needed for pump station instrumentation equipment.
- Cleaned upper level equipment and applied corrosion inhibitor fluid.
- Inspected wet wells for excessive corrosion to critical equipment.
- Installed new telephone lines.
- Resolved HMI programming and software issues.
- Resolved wet well #4 level indicator issue.

- Prepared bid specifications for mowing landfill cap and awarded new contract of calendar years 2018, 2019, and 2020.

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 semi-annual groundwater quality monitoring (Section 3.1.1.3 of the O&M plan) during this period. 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 C-1 of Appendix C lists the measured elevations. Table C-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

This semi-annual round of groundwater sampling was conducted between May 16 and 18, 2018. 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 26, 2018. 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 (that 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. In addition, chromium, nickel, and lead were detected at concentrations exceeding their respective Class GA standards in well GW-07D.

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). The sodium concentrations were also elevated in GW-03S and 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 semi-annual sampling events except as described below. Figure E-1 for GW-01D, indicates an upward trend in sodium concentrations since monitoring began. Figure E-2 for GW-01S, indicates an upward trend in manganese concentrations and a downward trend in sodium concentration since monitoring began. Figure E-3 for GW-03D indicates downward trends for iron, manganese, and sodium. Figure E-4 indicates upward trends for magnesium and sodium and a downward trend for manganese in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-6 for GW-04S, indicates an upward trend for magnesium and a downward trend for manganese. Figure E-7 for GW-07D indicates all metals returned to their typical concentrations after spiking higher during the May 2017 event and magnesium has trended upward since sampling began. Figure E-9 for GW-08D shows a decreasing trend for both iron and manganese since monitoring began. Figure E-11 for GW-26D indicates downward trends for iron and manganese. Figures E-12 and E-13 for GW-28S and GW-29S, respectively, indicate a decreasing trend for sodium since monitoring began. Figure E-14 for GW-30S shows a decreasing trend for iron, magnesium, manganese, and sodium with possible seasonal variation. Figure E-16 shows there is a seasonal variation in sodium concentration in monitoring well GW-32S, and magnesium appears to be decreasing. Figure E-18 for GW-34S indicates a seasonal fluctuation in manganese concentration.

Laboratory Report

The groundwater analytical data package was prepared by Test America in accordance with NYSDEC Category A deliverable requirements. It was reviewed for compliance with analytical method requirements and the following guidelines: *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2017-002, January 2017; and *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2017-001, January 2017. Qualifications applied to the data include "J/UJ" (estimated concentration/estimated quantitation limit), "J+" (estimated concentration with possible high bias), "J-" (estimated concentration with possible low bias), and "U" (not detected).

A Data Applicability Report (DAR) was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation (DER-10) *Technical Guidance for Site Investigation and Remediation, Appendix 2B,* dated May 2010. The DAR dated June 2018 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2018 and June 2018) 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. 16-04-CH016 between the Buffalo Sewer Authority and the Town of Cheektowaga. A copy of the permit is included as Appendix F.

During the sampling events in March 2018 and June 2018, 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 2018 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 next round of groundwater sampling will be conducted in November 2018. 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 2018

Location ID			GW-01D	GW-01S	GW-03D	GW-03D	GW-03S
Sample ID			GW-01D	GW-01S	FD-051618	GW-03D	GW-03S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/16/18	05/16/18	05/16/18	05/16/18	05/16/18
Parameter	**Units**	*			Field Duplicate (1-1)		
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			1.9 J	1.7 J	
1,4-Dichlorobenzene	UG/L	3			2.7 J	2.4 J	
Metals							
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.084	0.15	0.099	0.096	0.11
Cadmium	MG/L	0.005		0.00089 J			0.0030
Chromium	MG/L	0.05	0.0067	0.0027 J	0.0046	0.0069	0.026
Copper	MG/L	0.2					0.0022 J
Iron	MG/L	0.3	0.82	9.4	1.8	1.8	1.3
Lead	MG/L	0.025					
Magnesium	MG/L	35	38.0	20.0	18.8	17.9	98.9
Manganese	MG/L	0.3	0.020	1.1	0.32	0.31	0.12
Nickel	MG/L	0.1			0.0052 J	0.0051 J	0.047
Sodium	MG/L	20	109	136	206	199	109
Zinc	MG/L	2	0.0092 J	0.0026 J	0.0037 J	0.0031 J	0.017

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda). Class GA. * - PCB Criteria based on sum of the aroclors.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

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

J+ - The analyte was positively identified, the quantitation is an estimation with possible high bias.

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2018

Location ID			GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Sample ID			GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/17/18	05/17/18	05/17/18	05/16/18	05/17/18
Parameter	**Units**	*					
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	
Metals							
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.090	NA	0.13	NA	0.089
Cadmium	MG/L	0.005		NA		NA	0.0013
Chromium	MG/L	0.05	0.0036 J	NA	0.0050	NA	0.28
Copper	MG/L	0.2		NA	0.0053 J	NA	0.031
Iron	MG/L	0.3	0.17	NA	3.2	NA	5.2
Lead	MG/L	0.025		NA		NA	0.13
Magnesium	MG/L	35	78.0	NA	29.1	NA	37.4
Manganese	MG/L	0.3	0.022	NA	0.13	NA	0.088
Nickel	MG/L	0.1	0.0016 J	NA	0.0056 J	NA	0.14
Sodium	MG/L	20	95.6 J+	NA	34.2 J+	NA	84.6 J+
Zinc	MG/L	2	0.015	NA	0.013	NA	0.082

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2018

Location ID			GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Sample ID			GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/16/18	05/17/18	05/17/18	05/17/18	05/17/18
Parameter	**Units**	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5		NA			0.82 J
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3	NA				
1,4-Dichlorobenzene	UG/L	3	NA				
Metals							
Arsenic	MG/L	0.025	NA				
Barium	MG/L	1	NA	0.46	0.070	0.10	0.14
Cadmium	MG/L	0.005	NA	0.00057 J			
Chromium	MG/L	0.05	NA		0.040		
Copper	MG/L	0.2	NA				
Iron	MG/L	0.3	NA	0.11	0.21	10.0	3.2
Lead	MG/L	0.025	NA				
Magnesium	MG/L	35	NA	47.0	16.4	49.4	19.9
Manganese	MG/L	0.3	NA	0.062	0.022	0.80	0.49
Nickel	MG/L	0.1	NA	0.016	0.0065 J	0.0016 J	0.0024 J
Sodium	MG/L	20	NA	64.5	213	138	338
Zinc	MG/L	2	NA	0.0059 J	0.012	0.0023 J	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2018

Location ID			GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Sample ID			GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/17/18	05/17/18	05/18/18	05/18/18	05/18/18
Parameter	**Units**	*					
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					
Metals							
Arsenic	MG/L	0.025		0.012			
Barium	MG/L	1	0.082	0.17	0.10	0.069	0.050
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0017 J				
Copper	MG/L	0.2					
Iron	MG/L	0.3	1.1	9.9	4.6	1.6	
Lead	MG/L	0.025					
Magnesium	MG/L	35	26.4	72.3	31.5	25.5	27.4
Manganese	MG/L	0.3	1.4	0.52	0.70	0.80	0.43
Nickel	MG/L	0.1	0.0021 J			0.0020 J	
Sodium	MG/L	20	13.6	9.4	33.9	3.2	3.2
Zinc	MG/L	2	0.0068 J			0.0040 J	0.0034 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2018

Location ID			GW-33S	GW-34S	GW-35S
Sample ID			GW-33S	GW-34S	GW-35S
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-
Date Sampled			05/18/18	05/17/18	05/17/18
Parameter	**Units**	*			
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			
Metals					
Arsenic	MG/L	0.025			
Barium	MG/L	1	0.037	0.12	0.079
Cadmium	MG/L	0.005			
Chromium	MG/L	0.05			
Copper	MG/L	0.2			
Iron	MG/L	0.3	0.025 J	0.14	0.032 J
Lead	MG/L	0.025			
Magnesium	MG/L	35	29.1	46.3	21.2
Manganese	MG/L	0.3	0.11	0.41	0.19
Nickel	MG/L	0.1	0.0013 J	0.0056 J	
Sodium	MG/L	20	2.9	24.4	2.6
Zinc	MG/L	2	0.0031 J	0.0076 J	0.0027 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda). Class GA. * - PCB Criteria based on sum of the aroclors.

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TABLE 3-2

APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

LOCATIONS

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

FREQUENCY

semi-annually for overburden and bedrock groundwater

PARAMETERS

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

TABLE 3-2 (continued)

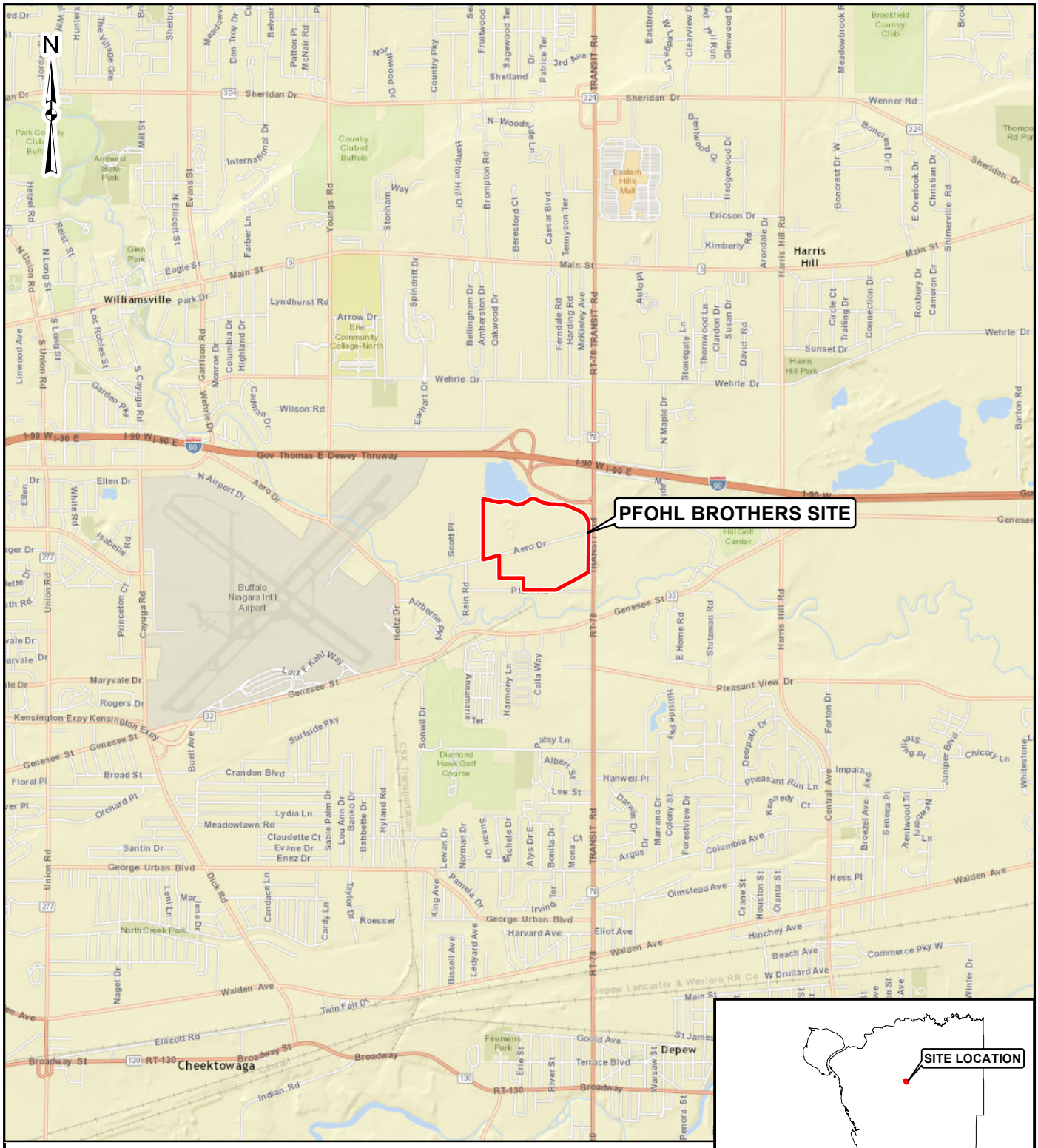
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

PARAMETERS (cont'd)

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

FIGURES



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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

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

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 2/3/18

Time 1337

Weather conditions Cldy

Read by: JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	1138	2792
WW-2	4.7	0	-46013	162
WW-1	5.2	33.7	140120	5903
WW-6	8.2	51.6	3450664	15573
WW-4	9.8	0	-116828	7751
WW-5	10.1	30.2	2934170	19954

Flow Totalizer at Meter chamber 4611427

Heat Trace

Outside temp T = 26

Current A = 1.9

Set point SP = 40

Surge Suppressor events 417025

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

Data for Monthly Rpt.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 3/24/18

Time 1028

Weather conditions Clear

Read by:

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	9.0	0	7138	2792
WW-2	4.7	0	-4613	1162
WW-1	4.0	20.5	11616408	6314
WW-6	7.4	45.0	3926933	2571
WW-4	7.0	25.0	-1167022	7751
WW-5	7.3	14.5	4041910	2057

Flow Totalizer at Meter chamber 9224077

Heat Trace

Outside temp T = 33

Current A = 2.0

Set point SP = 40

Surge Suppressor events 417059

Motor Control Center

Volts 480 volts

Amps 1.2 amps

Which WW was running?

1 2 3 4 5 6

Filter Checked Changed

Comments and/or Current Conditions

Ran #1 & #5 on Hand to V

WW-5 well need check valve.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 5/2/18

Time 1058

Weather conditions Clear

Read by: JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	29.0	0	1138	2792
WW-2	4.7	0	-4413	162
WW-1	4.5	0	787884	6587
WW-6	7.2	105.7	4587428	15888
WW-4	6.9	0	-116620	7751
WW-5	6.9	0	4796170	20929

Flow Totalizer at Meter chamber 11249788

Heat Trace

Outside temp T = 77

Current A = 0

Set point SP = 90

Surge Suppressor events 417123

Motor Control Center

Volts 480 volts

Amps 5 amps

Which WW was running?

1 2 3 4 5 6

Filter Checked Changed

Comments and/or Current Conditions

AC Checked - OK

Data ✓

Site ✓

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2018 – JUNE 2018

Pat Bowen

From: Jon Nichy
Sent: Wednesday, February 7, 2018 7:23 AM
To: Pat Bowen
Cc: Lynn Dearmyer-Lee
Subject: Pfohl Bros Jan 2018
Attachments: Pfohl Bros January 2018.pdf

Mr. Bowen
Attached for your review, please find a copy of the January 2018 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.

Jon W Nichy
Superintendent
Town of Cheektowaga
Main Pump Station
171 Central Blvd.
Cheektowaga, NY 14225

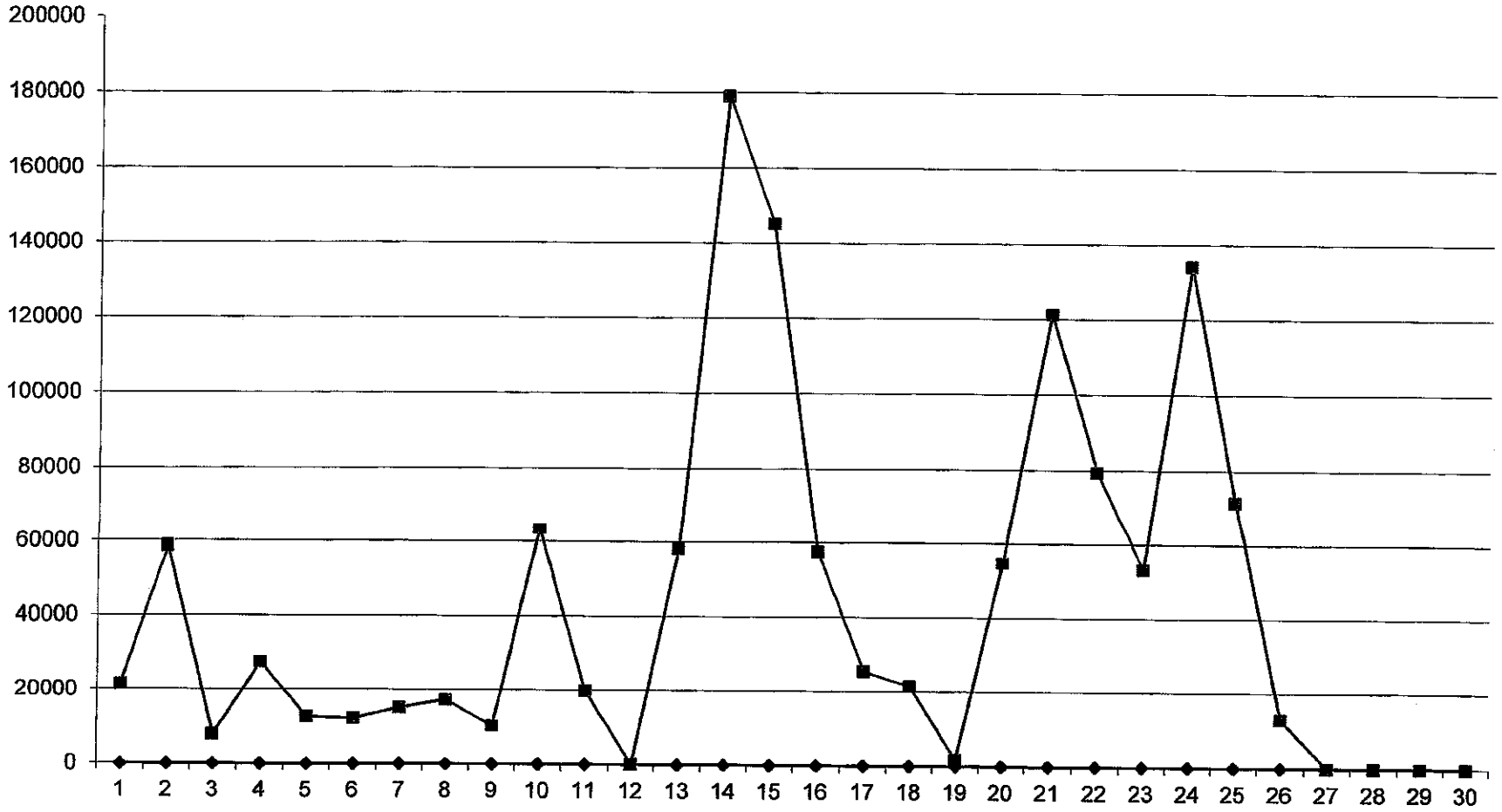
716 583-6508 cell
716 896-1777 office

jnichy@tocny.org

Direct Discharge Flow Data

12/31/2017		5327820	57,387	
Jan-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		5,349,143	21,322	
2		5,407,875	58,732	
3		5,415,635	7,760	
4		5,442,870	27,234	
5		5,455,558	12,688	
6		5,467,813	12,255	
7		5,482,919	15,106	
8		5,500,169	17,250	
9		5,510,430	10,260	
10		5,574,047	63,617	
11		5,593,813	19,766	03:22 inhibit
12		5,593,873	59	
13		5,652,337	58,464	15:51 enable
14		5,831,348	179,011	
15		5,976,570	145,222	
16		6,034,282	57,712	
17		6,059,594	25,311	
18		6,081,076	21,482	
19		6,082,833	1,757	
20		6,137,577	54,743	
21		6,258,936	121,359	
22		6,338,435	79,499	13:16 inhibit
23		6,391,511	53,076	15:06 enable
24		6,525,694	134,183	
25		6,597,391	71,697	
26		6,610,396	13,005	
27		6,610,396	0	19:21 inhibit
28		6,610,396	0	
29		6,610,396	0	
30		6,610,396	0	
31		6,610,396	0	
		1,282,576	**1,282,570**	

January
2018



The
TOWN OF
CHEEKTOWAGA

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

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

March 10, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the February 2018 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.

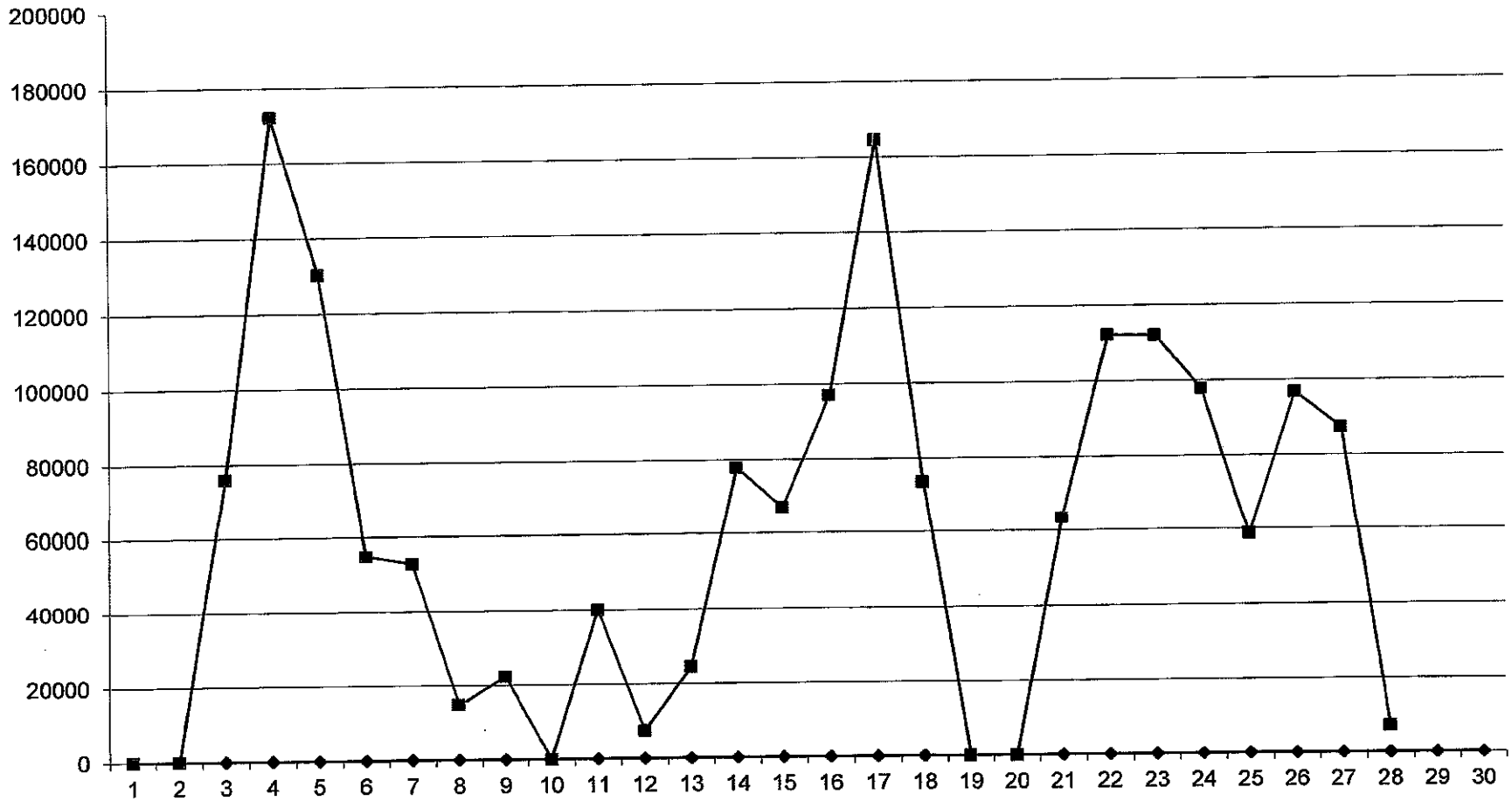
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

1/31/2018		6610396	0	
Feb-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		6,610,396	0	
2		6,610,396	0	
3		6,686,499	76,103	13:31 enable
4		6,858,715	172,215	
5		6,989,068	130,353	
6		7,043,788	54,720	
7		7,096,384	52,596	
8		7,111,162	14,778	
9		7,133,441	22,278	
10		7,133,441	0	
11		7,173,416	39,975	
12		7,180,793	7,377	
13		7,205,381	24,587	
14		7,283,322	77,941	
15		7,350,515	67,192	15:02 inhibit
16		7,447,408	96,893	10:14 enable
17		7,611,942	164,534	
18		7,685,589	73,646	
19		7,685,589	0	17:26 inhibit
20		7,685,589	0	
21		7,749,361	63,772	09:48 enable
22		7,861,640	112,279	
23		7,973,687	112,047	
24		8,071,518	97,831	21:24 inhibit
25		8,130,481	58,962	10:48 enable
26		8,227,208	96,727	
27		8,314,504	87,296	
28		8,321,521	7,017	
29				
30				
31				
		1,711,125	**1,711,119**	

February
2018



The
TOWN OF
CHEEKTOWAGA

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

Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

April 14, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the March 2018 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.

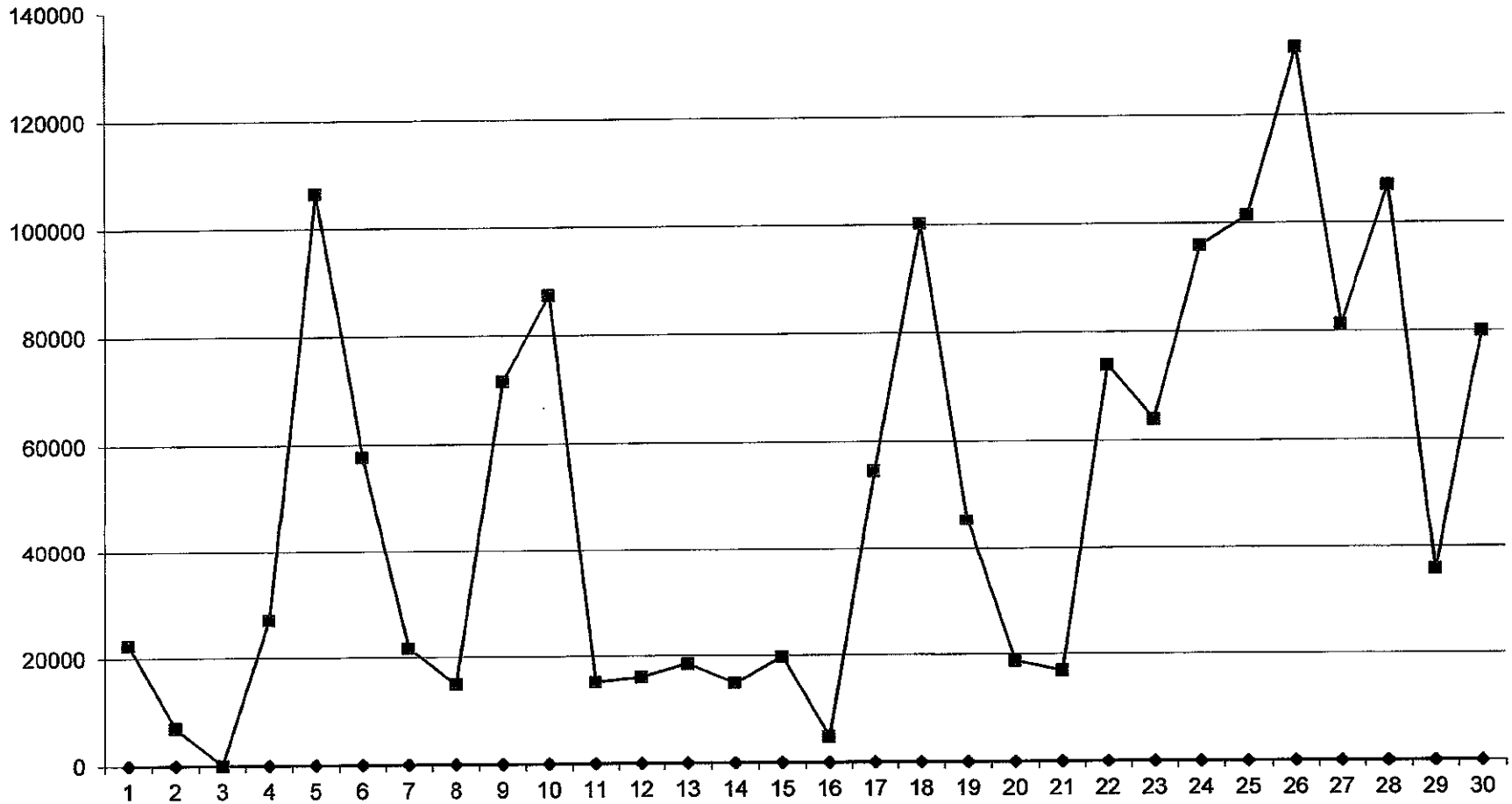
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

2/28/2018		8321521	7,017	
Mar-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		8,343,997	22,475	
2		8,350,982	6,985	
3		8,350,982	0	
4		8,378,067	27,085	
5		8,484,580	106,513	
6		8,542,266	57,686	
7		8,563,932	21,666	
8		8,578,859	14,927	
9		8,650,398	71,539	
10		8,737,842	87,444	
11		8,753,057	15,215	
12		8,769,174	16,117	
13		8,787,653	18,479	
14		8,802,506	14,853	
15		8,822,207	19,701	
16		8,827,015	4,808	
17		8,881,597	54,582	
18		8,981,783	100,186	
19		9,027,038	45,255	
20		9,045,773	18,735	
21		9,062,647	16,874	
22		9,136,553	73,906	
23		9,200,481	63,928	
24		9,296,407	95,926	
25		9,397,825	101,418	
26		9,530,305	132,480	
27		9,611,505	81,200	
28		9,718,509	107,004	
29		9,754,120	35,611	15:30 inhibit
30		9,834,097	79,977	17:05 enable
31		9,930,793	96696	
		1,609,272	**1,609,271**	

March
2018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May 3, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the April 2018 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.

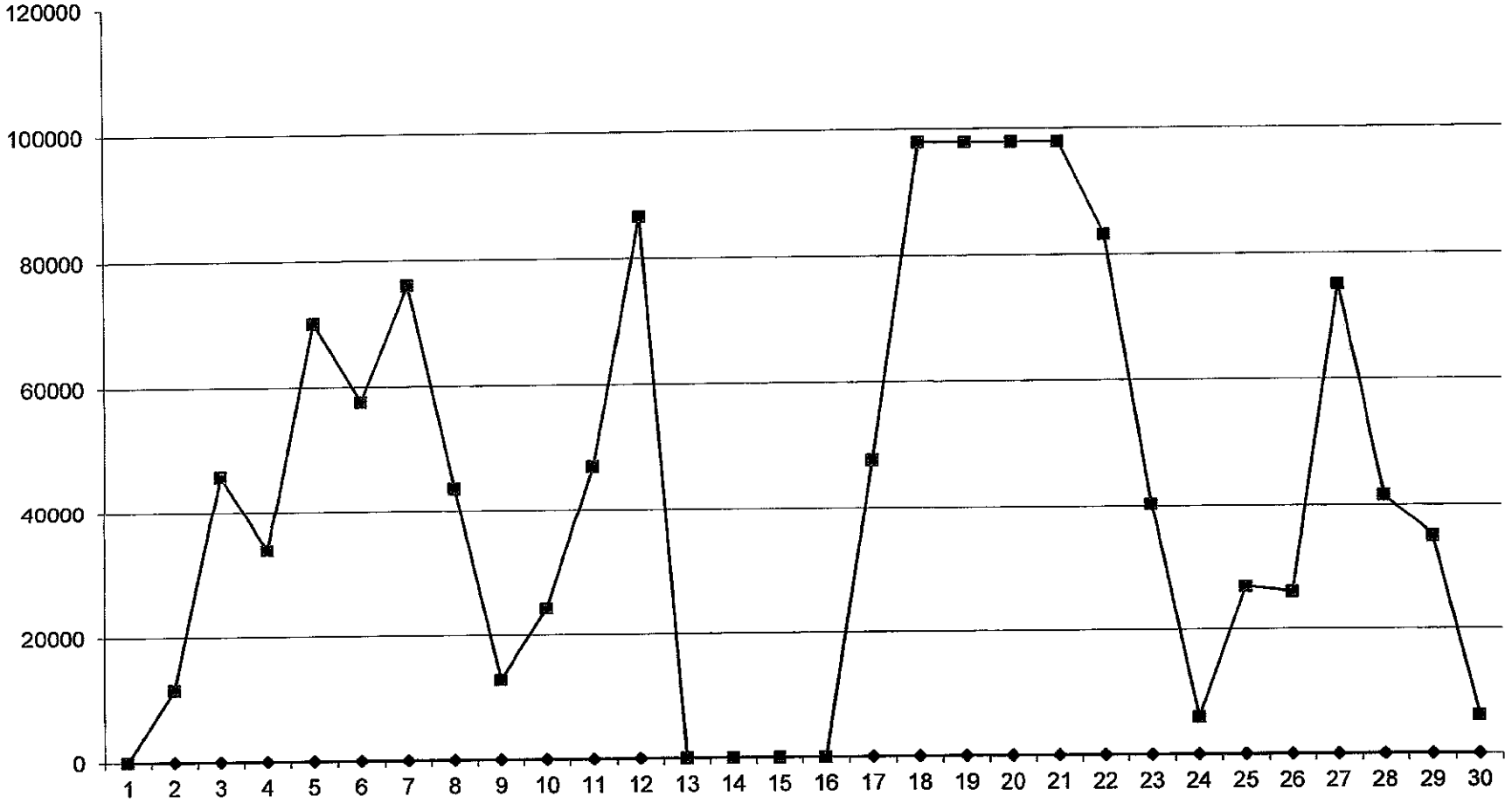
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

3/31/2018		9930793	96,696	
Apr-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		9,930,793	0	
2		9,942,247	11,454	
3		9,988,175	45,928	
4		10,022,109	33,934	
5		10,092,288	70,179	
6		10,149,888	57,600	
7		10,225,982	76,094	
8		10,269,734	43,752	
9		10,282,473	12,739	
10		10,306,694	24,221	
11		10,353,727	47,033	
12		10,440,363	86,636	
13		10,440,363	0	
14		10,440,363	0	14:35 inhibit
15		10,440,363	0	
16		10,440,363	0	
17		10,487,990	47,627	11:41 enable
18		10,585,910	97,920	
19		10,683,830	97,920	
20		10,781,750	97,920	
21		10,879,670	97,920	
22		10,962,820	83,150	
23		11,003,115	40,295	
24		11,008,999	5,884	
25		11,035,890	26,891	
26		11,061,868	25,978	
27		11,136,943	75,075	
28		11,178,570	41,627	
29		11,213,448	34,878	
30		11,219,469	6,021	
31				
		1,288,676	**1,288,676**	

April
2018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June 7, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the May 2018 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.

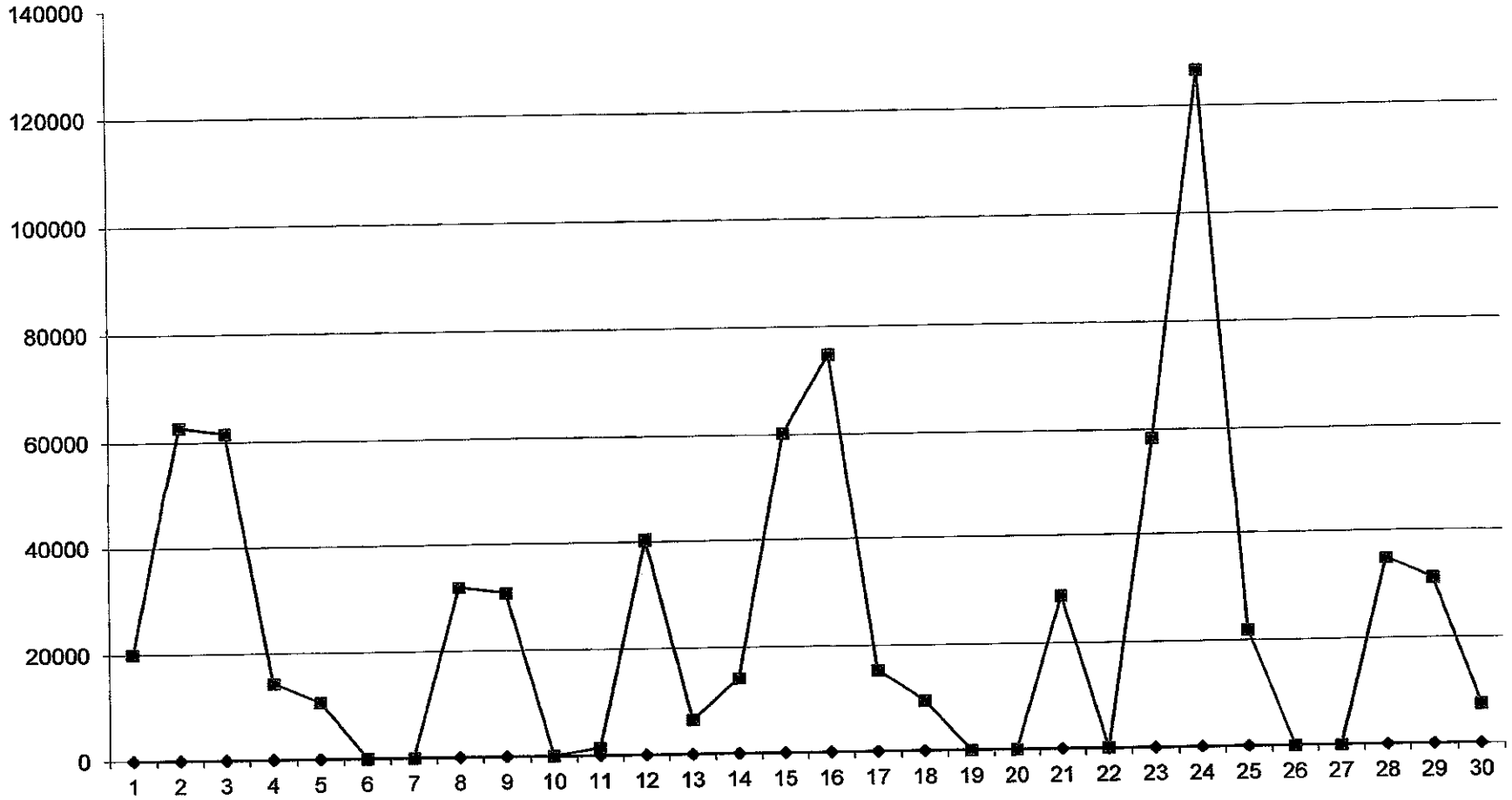
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

4/30/2018		11219469	6,021	
May-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		11,239,574	20,105	
2		11,302,372	62,798	
3		11,363,984	61,612	
4		11,378,394	14,410	
5		11,389,076	10,682	
6		11,389,076	0	
7		11,389,076	0	
8		11,421,019	31,943	
9		11,451,756	30,737	
10		11,451,756	0	
11		11,453,185	1,429	
12		11,493,512	40,327	
13		11,499,918	6,406	
14		11,514,093	14,175	22:36 inhibit
15		11,574,377	60,284	12:32 enable
16		11,649,242	74,865	
17		11,664,578	15,336	
18		11,674,042	9,464	
19		11,674,042	0	
20		11,674,042	0	06:43 inhibit
21		11,702,858	28,816	06:48 enable
22		11,703,061	203	00:05 inhibit
23		11,761,513	58,452	12:52 enable
24		11,888,233	126,720	
25		11,910,152	21,919	
26		11,910,152	0	
27		11,910,152	0	
28		11,945,106	34,954	
29		11,976,246	31,140	
30		11,983,672	7,426	
31		12,001,894	18222	
		782,425	**782,425**	

May
2018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July 5, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the June 2018 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.

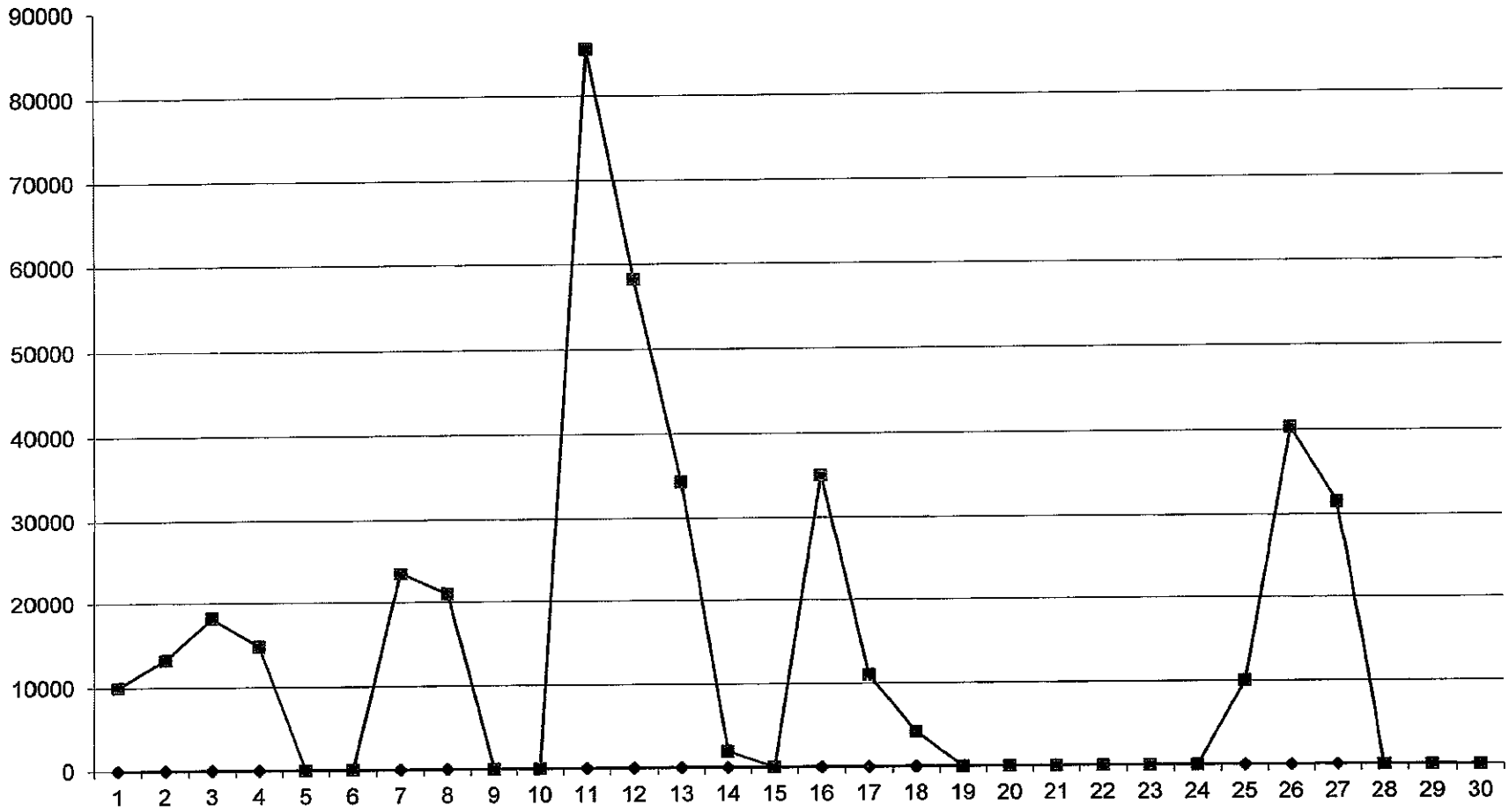
Yours truly,

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

5/31/2018		12001894	18,222	
Jun-18	**Time; 11:58pm unless otherwise stated**	**Totalizer Reading (Gallons)**	**Daily Total Discharge (Gallons)**	**Notes**
1		12,011,893	9,999	
2		12,025,123	13,230	
3		12,043,302	18,179	
4		12,058,087	14,785	
5		12,058,087	0	
6		12,058,087	0	
7		12,081,452	23,365	
8		12,102,459	21,007	
9		12,102,459	0	
10		12,102,459	0	
11		12,187,962	85,503	
12		12,246,229	58,267	
13		12,280,556	34,327	
14		12,282,481	1,925	
15		12,282,481	0	
16		12,317,523	35,042	
17		12,328,510	10,987	
18		12,332,674	4,164	18:16 inhibit
19		12,332,674	0	
20		12,332,674	0	
21		12,332,674	0	
22		12,332,674	0	
23		12,332,674	0	
24		12,332,674	0	
25		12,342,712	10,038	17:59 enable
26		12,383,032	40,320	
27		12,414,546	31,514	18:43 inhibit
28		12,414,546	0	
29		12,414,546	0	
30		12,414,546	0	
31				
		412,652	**412,652**	

June
2018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APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-01D	1073088.634	1117968.213	694.41	NM	696.12	D	1						
MNW								3/26/2018 1450	2.70	693.42	0.00	693.42	
MNW								5/16/2018 1144	3.07	693.05	0.00	693.05	
MNW								6/12/2018 0950	3.80	692.32	0.00	692.32	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								3/26/2018 1450	3.88	692.31	0.00	692.31	
MNW								5/16/2018 1143	4.12	692.07	0.00	692.07	
MNW								6/12/2018 0948	5.65	690.54	0.00	690.54	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								3/26/2018 1338	1.53	692.35	0.00	692.35	
MNW								5/16/2018 1548	1.93	691.95	0.00	691.95	
MNW								6/12/2018 0853	2.30	691.58	0.00	691.58	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								3/26/2018 1338	2.61	691.19	0.00	691.19	
MNW								5/16/2018 1547	2.37	691.43	0.00	691.43	
MNW								6/12/2018 0853	5.05	688.75	0.00	688.75	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								3/26/2018 1456	12.53	680.22	0.00	680.22	
MNW								5/16/2018 1522	12.08	680.67	0.00	680.67	
MNW								6/12/2018 0959	12.55	680.20	0.00	680.20	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								3/26/2018 1455	4.11	688.61	0.00	688.61	
MNW								5/16/2018 1522	4.31	688.41	0.00	688.41	
MNW								6/12/2018 0959	5.54	687.18	0.00	687.18	

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 C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-07D	1071242.458	1117669.925	697.15	NM	699.94	D	1						
MNW								3/26/2018 1433	50.53	649.41	0.00	649.41	
MNW								5/16/2018 0941	47.05	652.89	0.00	652.89	
MNW								6/12/2018 0941	57.74	642.20	0.00	642.20	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								3/26/2018 1432	4.75	694.76	0.00	694.76	
MNW								5/16/2018 0941	5.09	694.42	0.00	694.42	
MNW								6/12/2018 0942	6.07	693.44	0.00	693.44	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								3/26/2018 1348	5.53	692.26	0.00	692.26	
MNW								5/16/2018 0845	5.89	691.90	0.00	691.90	
MNW								6/12/2018 0902	6.33	691.46	0.00	691.46	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								3/26/2018 1347	5.07	692.43	0.00	692.43	
MNW								5/16/2018 0846	5.06	692.44	0.00	692.44	
MNW								6/12/2018 0901	5.81	691.69	0.00	691.69	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								3/26/2018 1423	6.36	692.14	0.00	692.14	
MNW								5/16/2018 0923	6.72	691.78	0.00	691.78	
MNW								6/12/2018 0932	7.14	691.36	0.00	691.36	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								3/26/2018 1354	8.52	692.43	0.00	692.43	
MNW								5/16/2018 0853	5.55	695.40	0.00	695.40	
MNW								6/12/2018 0907	10.27	690.68	0.00	690.68	

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 C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-29S	1072552.638	1117761.993	697.50	NM	699.63	S	1						
MNW								3/26/2018 1409	6.80	692.83	0.00	692.83	
MNW								5/16/2018 0909	8.88	690.75	0.00	690.75	
MNW								6/12/2018 0921	9.53	690.10	0.00	690.10	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								3/26/2018 1412	7.51	689.07	0.00	689.07	
MNW								5/16/2018 0913	7.71	688.87	0.00	688.87	
MNW								6/12/2018 0923	8.02	688.56	0.00	688.56	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								3/26/2018 1415	2.45	696.17	0.00	696.17	
MNW								5/16/2018 0917	3.49	695.13	0.00	695.13	
MNW								6/12/2018 0926	5.93	692.69	0.00	692.69	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								3/26/2018 1419	2.08	696.29	0.00	696.29	
MNW								5/16/2018 0920	3.45	694.92	0.00	694.92	
MNW								6/12/2018 0929	5.35	693.02	0.00	693.02	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								3/26/2018 1426	3.90	694.34	0.00	694.34	
MNW								5/16/2018 0927	4.76	693.48	0.00	693.48	
MNW								6/12/2018 0935	7.04	691.20	0.00	691.20	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								3/26/2018 1325	2.40	692.37	0.00	692.37	
MNW								5/16/2018 0832	2.51	692.26	0.00	692.26	
MNW								6/12/2018 0846	4.89	689.88	0.00	689.88	

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 C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-35S	1071701.925	1115985.585	696.19	NM	697.39	S	1						
MNW								3/26/2018 1423	3.09	694.30	0.00	694.30	
MNW								5/16/2018 0923	3.71	693.68	0.00	693.68	
MNW								6/12/2018 0931	5.05	692.34	0.00	692.34	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								3/26/2018 1331	11.44	687.18	0.00	687.18	
MH								5/16/2018 0836	10.67	687.95	0.00	687.95	
MH								6/12/2018 0850	11.25	687.37	0.00	687.37	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								3/26/2018 1342	11.28	688.12	0.00	688.12	
MH								5/16/2018 0840	11.23	688.17	0.00	688.17	
MH								6/12/2018 0857	11.26	688.14	0.00	688.14	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								3/26/2018 1345	9.48	687.34	0.00	687.34	
MH								5/16/2018 0842	9.40	687.42	0.00	687.42	
MH								6/12/2018 0859	9.46	687.36	0.00	687.36	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								3/26/2018 1352	14.43	688.58	0.00	688.58	
MH								5/16/2018 0856	14.48	688.53	0.00	688.53	
MH								6/12/2018 0905	14.49	688.52	0.00	688.52	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								3/26/2018 1410	14.36	684.66	0.00	684.66	
MH								5/16/2018 0909	14.50	684.52	0.00	684.52	
MH								6/12/2018 0920	14.35	684.67	0.00	684.67	

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 C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-16	1072133.714	1117748.238	698.57	NM	698.57	NA	1						
MH								3/26/2018 1412	14.50	684.07	0.00	684.07	
MH								5/16/2018 0912	14.50	684.07	0.00	684.07	
MH								6/12/2018 0923	14.22	684.35	0.00	684.35	
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA	1						
MH								3/26/2018 1415	18.10	684.06	0.00	684.06	
MH								5/16/2018 0917	18.12	684.04	0.00	684.04	
MH								6/12/2018 0925	17.84	684.32	0.00	684.32	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA	1						
MH								3/26/2018 1422	19.75	686.45	0.00	686.45	
MH								5/16/2018 0924	19.75	686.45	0.00	686.45	
MH								6/12/2018 0931	19.76	686.44	0.00	686.44	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA	1						
MH								3/26/2018 1426	9.07	688.98	0.00	688.98	
MH								5/16/2018 0927	9.10	688.95	0.00	688.95	
MH								6/12/2018 0935	9.05	689.00	0.00	689.00	
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA	1						
MH								3/26/2018 1321	10.75	687.42	0.00	687.42	
MH								5/16/2018 0826	10.19	687.98	0.00	687.98	
MH								6/12/2018 0841	10.90	687.27	0.00	687.27	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
SG								3/26/2018 1331	-0.77	690.77	0.00	690.77	
SG								5/16/2018 0837	-0.80	690.80	0.00	690.80	
SG								6/12/2018 0850	DRY		NM		DRY

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

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TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
SG-02	1073738.27	1116805.85	NM	NM	690.00	NA	1						
SG								3/26/2018 1349	-3.35	693.35	0.00	693.35	
SG								5/16/2018 0847	-3.30	693.30	0.00	693.30	
SG								6/12/2018 0902	DRY		NM		DRY
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								3/26/2018 1240	-4.0	688.02	0.00	688.02	
MH								5/16/2018 0730	-4.1	688.12	0.00	688.12	
MH								6/12/2018 0800	-4.0	688.02	0.00	688.02	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								3/26/2018 1240	-4.7	688.88	0.00	688.88	
MH								5/16/2018 0730	-4.7	688.88	0.00	688.88	
MH								6/12/2018 0800	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								3/26/2018 1355	-4.83	688.63	0.00	688.63	
MH								5/16/2018 0854	-4.48	688.28	0.00	688.28	
MH								6/12/2018 0908	-4.69	688.49	0.00	688.49	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								3/26/2018 1240	-6.9	683.52	0.00	683.52	
MH								5/16/2018 0730	-6.8	683.42	0.00	683.42	
MH								6/12/2018 0800	-7.3	683.92	0.00	683.92	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								3/26/2018 1240	-6.7	682.84	0.00	682.84	
MH								5/16/2018 0730	-6.5	682.64	0.00	682.64	
MH								6/12/2018 0800	-7.7	683.84	0.00	683.84	

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 C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
WW-06	1072988.420	1114811.518	NM	NM	681.89	NA	1						
MH								3/26/2018 1240	-5.8	687.69	0.00	687.69	
MH								5/16/2018 0730	-6.5	688.39	0.00	688.39	
MH								6/12/2018 0800	-5.6	687.49	0.00	687.49	

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

Filter = ([tblGWD].[LOGDATE] Between #1/1/2018# And #6/30/2018#)

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TABLE C-2
PFOHL BROTHERS LANDFILL SITE
OVERBURDEN HYDRAULIC GRADIENT

WELL PAIR:	WW-1	*	Level	WW-2	GW-8SR	Level	SG-02	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft)
3/26/2018	688.02	---	---	688.88	692.43	3.55	693.35	4.47
5/16/2018	688.12	---	---	688.88	692.44	3.56	693.30	4.42
6/12/2018	688.02	---	---	688.88	691.69	2.81	DRY	NA

WELL PAIR:	WW-3	GW-28S	Level	WW-4	*	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2018	688.63	692.43	3.80	683.52	---	---
5/16/2018	688.28	695.40	7.12	683.42	---	---
6/12/2018	688.49	690.68	2.19	683.92	---	---

WELL PAIR:	WW-5	GW-32S	Level	WW-6	GW-34S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2018	682.84	696.29	13.45	687.69	692.37	4.68
5/16/2018	682.64	694.92	12.28	688.39	692.26	3.87
6/12/2018	683.84	693.02	9.18	687.49	689.88	2.39

WELL PAIR:	MH-1	SG-1	Level	MH-15	GW-29S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2018	687.18	690.77	3.59	684.66	692.83	8.17
5/16/2018	687.95	690.80	2.85	684.52	690.75	6.23
6/12/2018	687.37	DRY	NA	684.67	690.10	5.43

WELL PAIR:	MH-16	GW-30S	Level	MH-17	GW-31S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2018	684.07	689.07	5.00	684.06	686.17	2.11
5/16/2018	684.07	688.87	4.80	684.04	695.13	11.09
6/12/2018	684.35	688.56	4.21	684.32	692.69	8.37

WELL PAIR:	MH-20	GW-35S	Level	MH-22	GW-33S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/26/2018	686.45	694.30	7.85	688.98	694.34	5.36
5/16/2018	686.45	693.68	7.23	688.95	693.48	4.53
6/12/2018	686.44	692.34	5.90	689.00	691.20	2.20

Notes:

* = No corresponding monitoring well.
NA = Not applicable

APPENDIX D

GROUNDWATER PURGE AND SAMPLE COLLECTION LOGS

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-01S

Date: 5/16/2018 Sampling Personnel: Sean Connelly, 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: 4.12' Depth to Well Bottom: 14.94' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.7 Estimated Purge Volume (liters): 11.3

Sample ID: GW-01S Sample Time: 14:20 QA/QC:

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.

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:25	8.56	13.24	1.07	5.41	895	-154	225	4.65
13:30	8.00	11.12	1.05	1.73	736	-150	225	5.16
13:35	8.32	10.58	1.09	0.89	364	-148	200	5.33
13:40	8.31	10.66	1.12	0.77	337	-148	200	5.35
13:45	8.29	10.78	1.16	0.71	352	-148	200	5.37
13:50	8.29	10.00	1.17	0.60	271	-147	200	5.38
13:55	8.26	10.59	1.19	0.61	197	-145	200	5.39
14:00	8.24	10.62	1.21	0.58	144	-144	200	5.40
14:05	8.22	10.60	1.23	0.56	98.2	-142	200	5.42
14:10	8.21	10.64	1.24	0.53	108	-141	200	5.41
14:15	8.26	10.77	1.25	0.52	80.5	-140	200	5.41
14:20	8.20	10.71	1.20	0.51	43.0	-140	200	5.41
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-01D

Date: 5/16/2018 Sampling Personnel: Sean Connelly, 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: 3.07' Depth to Well Bottom: 39.65' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 90.4 Estimated Purge Volume (liters): 42.0

Sample ID: GW-01D Sample Time: 13:00 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)
12:00	8.61	10.00	1.26	2.18	0.0	-146	700	3.10
12:05	8.47	10.02	1.26	1.23	0.0	-144	700	3.10
12:10	8.46	10.33	1.26	0.97	0.0	-145	700	3.10
12:15	8.42	10.38	1.26	0.84	0.0	-149	700	3.10
12:20	8.40	10.36	1.26	0.81	0.0	-157	700	3.10
12:25	8.38	10.28	1.26	0.76	0.0	-165	700	3.10
12:30	8.36	10.26	1.29	0.72	0.0	-173	700	3.10
12:35	8.36	10.29	1.29	0.70	0.0	-179	700	3.10
12:40	8.35	10.18	1.30	0.66	0.0	-182	700	3.10
12:45	8.35	10.23	1.29	0.60	0.0	-191	700	3.10
12:50	8.34	10.17	1.30	0.64	0.0	-193	700	3.10
12:55	8.35	10.23	1.29	0.60	0.0	-197	700	3.10
13:00	8.39	10.25	1.31	0.60	0.0	-198	700	3.10
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-03S

Date: 5/16/2018 Sampling Personnel: Sean Connelly, 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: 2.37' Depth to Well Bottom: 13.22' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.7 Estimated Purge Volume (liters): 6.0

Sample ID: GW-03S Sample Time: 7:12 QA/QC:

Sample Parameters:

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)
16:00	8.50	15.56	2.03	5.40	57.8	26	200	3.91
16:05	8.07	11.44	2.10	1.65	5.6	32	200	4.84
16:10	8.05	10.80	2.01	1.49	0.0	40	200	5.89
16:15	8.04	10.82	2.01	1.49	0.0	40	200	6.05
16:20	8.03	10.78	2.00	1.48	0.0	52	200	6.60
16:25	8.03	10.72	1.99	1.45	0.0	54	200	7.18
16:30	8.04	10.72	1.99	1.42	0.0	50	200	7.65
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-03D

Date: 5/16/2018 Sampling Personnel: Sean Connelly, 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: 1.93' Depth to Well Bottom: 35.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 83.4 Estimated Purge Volume (liters): 36.0

Sample ID: GW-03D Sample Time: 17:40 QA/QC: Duplicate (FD-051618)

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)
16:40	8.16	10.44	1.76	1.55	1.3	-81	600	1.93
16:45	8.14	10.25	1.74	0.85	0.0	-83	600	1.93
16:50	8.16	10.17	1.73	0.67	0.0	-85	600	1.93
16:55	8.13	10.10	1.72	0.57	0.0	-87	600	1.93
17:00	8.13	10.20	1.72	0.56	0.0	-88	600	1.93
17:05	8.13	10.10	1.72	0.52	0.0	-88	600	1.93
17:10	8.14	10.04	1.72	0.52	0.0	-89	600	1.93
17:15	8.13	10.05	1.72	0.52	0.0	-89	600	1.93
17:20	8.12	10.13	1.72	0.49	0.0	-90	600	1.93
17:25	8.11	10.20	1.72	0.48	0.0	-90	600	1.93
17:30	8.11	10.22	1.72	0.47	0.0	-90	600	1.93
17:35	8.11	10.19	1.72	0.47	0.0	-91	600	1.93
17:40	8.11	10.17	1.72	0.45	0.0	-91	600	1.93
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-04S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 4.32' Depth to Well Bottom: 16.23' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 7.3 Estimated Purge Volume (liters): 11.4

Sample ID: GW-04S Sample Time: VOC's: 07:43 SVOC's and Metals: 09:12 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/26/18, sampled VOCs from PDB at 07:43 on 5/17/18. Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 09:12.

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)
7:48	7.03	14.21	0.593	9.71	0.6	164	Initial	
7:52	8.21	11.15	0.522	7.42	127	112	1 Gallon	
7:54	8.48	10.05	0.523	8.10	368	71	2 Gallon	
7:56	8.78	10.73	0.509	4.59	638	-32	3 Gallon	
9:12	9.56	15.41	0.517	5.07	458	-148		12.41
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-04D

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 12.11' Depth to Well Bottom: 45.57' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 82.6 Estimated Purge Volume (liters): 11.0

Sample ID: GW-04D Sample Time: 9:07 QA/QC:

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)
8:12	8.29	11.56	1.89	3.58	0.0	-107	200	12.32
8:17	8.33	11.08	1.88	1.88	0.0	-117	200	12.58
8:22	8.35	11.02	1.89	1.33	0.0	-121	200	12.85
8:27	8.36	11.03	1.90	1.16	0.0	-144	200	13.06
8:32	8.36	11.05	1.91	0.98	0.0	-161	200	13.25
8:37	8.38	11.05	1.91	0.85	0.0	-171	200	13.41
8:42	8.39	11.06	1.92	0.79	0.0	-193	200	13.59
8:47	8.40	11.25	1.93	0.97	0.0	-221	200	13.75
8:52	8.39	11.24	1.94	0.75	0.0	-235	200	13.83
8:57	8.39	11.43	1.94	0.69	0.0	-268	200	13.90
9:02	8.39	11.39	1.95	0.60	0.0	-272	200	13.90
9:07	8.39	11.44	1.95	0.58	0.0	-276	200	13.90
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-07S

PROJECT NO.: 60411174

STAFF: Sean Connelly, Kevin McGovern

DATE(S): 5/16/18 5/17/18

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.33	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.09	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.24	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)	=	5.14	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	Sample					
pH	8.93	8.88	8.87	8.86	8.78	8.91					
SPEC. COND. (mS/cm)	0.704	0.700	0.707	0.706	0.685	0.749					
DO (mg/l)	2.10	11.37	3.64	12.42	4.52	6.50					
TEMPERATURE (^{0}C)	13.52	13.75	13.13	13.62	13.10	14.16					
TURBIDITY (NTU)	0.0	1.8	24.3	64.8	31.4	0.1					
ORP (millivolts)	-140	-97	-42	3	-25	-5					
TIME	10:59	11:04	11:12	11:20	11:25	9:35					

COMMENTS: 9:40 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/26/18
10:59 - Begin hand bailing well.
11:25 - Well dry after removing 7.5 gallons.
5/17/2018 9:27 - Return to well, depth to water = 5.18 feet.
9:35- Collect sample for SVOCs and Metals.

WELL PURGING LOG

URS Corporation

SITE NAME: Pfohl Brothers Landfill WELL NO.: GW-07D

PROJECT NO.: 60411174

STAFF: Sean Connelly, Kevin McGovern

DATE(S): 5/16/18 5/17/18

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	60.83	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	47.05	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	13.78	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)	=	9.09	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10.0	8"	2.60

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

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	Init	2.5	5	7	10.0	Sample					
pH	7.21	8.13	8.35	8.37	8.59	Well went dry, no sample parameters					
SPEC. COND. (mS/cm)	0.736	0.809	0.845	0.876	0.915						
DO (mg/l)	3.74	1.22	3.27	3.19	5.03						
TEMPERATURE (^{0}C)	15.71	13.69	14.75	15.69	15.27						
TURBIDITY (NTU)	0.0	0.0	0.0	0.0	7.9						
ORP (millivolts)	-34	-128	-165	-169	-170						
TIME	2:38	10:26	10:31	10:39	10:50						

COMMENTS: 9:44 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/26/18
10:11 - Begin hand bailing well.
10:50 - Well dry after removing 10 gallons
5/17/2018 9:25 - return to well, depth to water = 59.33 feet.
9:30 - Collect sample for SVOCs and Metals.

Strong Sulfur Odor

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-08SR

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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): 9.0

Sample ID: GW-8SR Sample Time: 12:10 QA/QC:

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)
11:25	7.91	11.45	1.20	1.37	95.9	-55	200	6.68
11:30	7.88	11.20	1.19	0.94	15.0	-58	200	7.40
11:35	7.85	11.04	1.20	0.80	12.0	-65	200	7.90
11:40	7.81	10.89	1.22	0.72	5.5	-74	200	8.24
11:45	7.79	10.93	1.28	0.69	0.0	-79	200	8.39
11:50	7.76	11.21	1.35	0.73	0.0	-83	200	8.39
11:55	7.74	11.27	1.56	0.73	0.0	-86	200	8.39
12:00	7.73	11.07	1.70	0.72	0.0	-89	200	8.46
12:05	7.72	10.91	1.76	0.64	0.0	-90	200	8.45
12:10	7.72	11.02	1.79	0.66	0.0	-91	200	8.44
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-08D

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 5.98' Depth to Well Bottom: 36.54' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 75.5 Estimated Purge Volume (liters): 42.0

Sample ID: GW-8D Sample Time: 13:15 QA/QC:

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)
12:15	8.35	12.70	1.84	6.41	0.0	-43	700	6.00
12:20	8.25	11.13	1.77	1.31	0.0	28	700	6.00
12:25	8.23	10.97	1.77	0.73	0.0	41	700	6.00
12:30	8.21	10.95	1.77	0.57	0.0	48	700	6.00
12:35	8.22	11.07	1.77	0.51	0.0	52	700	6.00
12:40	8.22	10.82	1.78	0.49	0.0	56	700	6.00
12:45	8.21	10.88	1.78	0.48	0.0	58	700	6.00
12:50	8.21	10.96	1.79	0.47	0.0	60	700	6.00
12:55	8.22	10.97	1.79	0.47	0.0	65	700	6.00
13:00	8.21	10.92	1.79	0.52	0.0	64	700	6.00
13:05	8.20	10.90	1.79	0.46	0.0	65	700	6.00
13:10	8.20	10.85	1.79	0.46	0.0	65	700	6.00
13:15	8.20	11.01	1.79	0.45	0.0	60	700	6.00
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-26D

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 6.83' Depth to Well Bottom: 40.70' Well Diameter: 4" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 83.7 Estimated Purge Volume (liters): 42.0

Sample ID: GW-26D Sample Time: 17:25 QA/QC:

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)
16:25	8.04	13.01	2.64	4.11	0.0	-58	700	6.84
16:30	7.97	12.62	2.64	4.01	0.0	-58	700	6.84
16:35	7.90	12.47	2.65	3.06	0.0	-60	700	6.84
16:40	7.88	12.56	2.65	1.19	0.0	-61	700	6.84
16:45	7.88	12.41	2.67	0.81	0.0	-63	700	6.84
16:50	7.87	12.58	2.68	0.90	0.0	-64	700	6.84
16:55	7.87	12.40	2.67	0.86	0.0	-64	700	6.84
17:00	7.88	12.48	2.66	0.96	0.0	-65	700	6.84
17:05	7.89	12.47	2.66	0.70	0.0	-66	700	6.84
17:10	7.89	12.45	2.66	0.58	0.0	-67	700	6.84
17:15	7.89	12.47	2.65	0.55	0.0	-68	700	6.84
17:20	7.89	12.46	2.66	0.50	0.0	-68	700	6.84
17:25	7.90	12.40	2.60	0.46	0.0	-69	700	6.84
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-28S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 9.55' Depth to Well Bottom: 15.52' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.7 Estimated Purge Volume (liters): 5.0

Sample ID: GW-28S Sample Time: 13:12 QA/QC:

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)
13:30	8.56	16.54	0.704	4.39	26.8	35	200	10.15
13:35	8.43	12.93	0.678	1.93	8.8	13	200	10.43
13:40	8.38	12.14	0.632	1.01	9.2	8	200	10.85
13:45	8.36	11.80	0.618	0.76	10.9	9	200	11.04
13:50	8.37	11.65	0.615	0.85	10.7	10	200	11.14
13:55	8.37	11.43	0.614	0.87	10.4	8	200	11.14
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-29S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 8.98' Depth to Well Bottom: 20.04' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.8 Estimated Purge Volume (liters): 8.1

Sample ID: GW-29S Sample Time: 15:22 QA/QC:

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)
14:37	8.09	17.14	1.19	2.26	190	-97	180	10.07
14:42	8.04	15.47	1.18	0.99	192	-101	180	10.71
14:47	8.06	14.97	1.13	0.68	163	-103	180	11.15
14:52	8.11	14.66	1.08	0.75	158	-102	180	11.61
14:57	8.10	14.62	1.08	0.79	146	-102	180	11.82
15:02	8.06	14.66	1.08	0.79	147	-102	180	12.04
15:07	8.04	14.61	1.09	0.73	118	-102	180	12.20
15:12	8.02	14.59	1.09	0.69	69.5	-102	180	12.32
15:17	8.01	14.52	1.10	0.64	69.5	-102	180	12.40
15:22	8.01	14.51	1.10	0.69	62.5	-102	180	12.40
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-30S

Date: 5/18/2018 Sampling Personnel: Sean Connelly, Rob Murphy 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: 7.82' Depth to Well Bottom: 17.97' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 6.3 Estimated Purge Volume (liters): 9.0

Sample ID: GW-30S Sample Time: 9:52 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange particulates at start

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)
9:22	7.30	10.14	2.70	4.94	407	-62	300	7.85
9:27	7.62	9.66	1.53	1.43	190	-74	300	7.85
9:32	7.75	9.43	0.957	0.91	56.0	-85	300	7.85
9:37	7.79	9.38	0.907	0.78	21.2	-93	300	7.85
9:42	7.81	9.39	0.906	0.73	11.6	-96	300	7.85
9:47	7.83	9.33	0.908	0.68	1.6	-100	300	7.85
9:52	7.84	9.21	0.912	0.64	0.0	-103	300	7.85
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-31S

Date: 5/18/2018 Sampling Personnel: Sean Connelly, Rob Murphy 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: 4.12' Depth to Well Bottom: 9.57' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.4 Estimated Purge Volume (liters): 6.9

Sample ID: GW-31S Sample Time: 10:50 QA/QC:

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)
10:10	8.13	11.83	0.605	2.97	0.0	3	250	4.12
10:15	8.01	11.26	0.603	1.14	0.0	-14	160	5.58
10:20	8.00	11.22	0.605	1.13	0.0	-25	160	5.71
10:25	7.99	11.20	0.607	1.11	0.0	-37	160	5.88
10:30	7.98	11.08	0.614	1.06	0.0	-46	160	5.97
10:35	7.98	11.06	0.628	0.93	0.0	-53	160	6.03
10:40	7.98	11.08	0.634	0.94	0.0	-57	160	6.08
10:45	7.98	11.03	0.642	0.87	0.0	-64	160	6.12
10:50	7.98	11.06	0.648	0.82	0.0	-67	160	6.16
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-32S

Date: 5/18/2018 Sampling Personnel: Sean Connelly, Rob Murphy 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: 4.10' Depth to Well Bottom: 9.93' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.6 Estimated Purge Volume (liters): 6.0

Sample ID: GW-32S Sample Time: 11:47 QA/QC:

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)
11:17	8.41	17.22	0.564	3.22	0.0	50	200	4.10
11:22	8.35	11.17	0.563	1.15	0.0	50	200	4.71
11:27	8.36	10.90	0.562	0.83	0.0	47	200	4.75
11:32	8.38	10.77	0.563	0.70	0.0	45	200	4.78
11:37	8.39	10.70	0.564	0.63	0.0	44	200	4.80
11:42	8.40	10.66	0.567	0.59	0.0	43	200	4.82
11:47	8.40	10.66	0.567	0.56	0.0	42	200	4.84
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-33S

Date: 5/18/2018 Sampling Personnel: Sean Connelly, Rob Murphy Company: URS Corporation

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

Measuring Point: Below Top of Riser Initial Depth to Water: 5.52' Depth to Well Bottom: 8.21' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 1.7 Estimated Purge Volume (liters): 4.5

Sample ID: GW-33S Sample Time: 12:53 QA/QC:

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)
12:18	8.40	13.09	0.670	3.94	0.0	82	150	5.52
12:23	8.30	12.92	0.659	2.94	0.0	85	125	6.42
12:28	8.30	12.83	0.660	2.91	0.0	85	125	6.53
12:33	8.27	12.70	0.647	1.80	0.0	83	125	6.68
12:38	8.27	13.09	0.627	1.16	0.0	82	125	6.76
12:43	8.27	12.79	0.633	1.01	0.0	77	125	6.87
12:48	8.27	12.76	0.634	0.93	0.0	70	125	7.00
12:53	8.27	12.75	0.634	0.90	0.0	67	125	7.06
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-34S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 10.01' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 3.9 Estimated Purge Volume (liters): 7.0

Sample ID: GW-34S Sample Time: 10:55 QA/QC:

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)
10:20	8.04	12.00	1.46	3.00	0.0	13	200	3.73
10:25	7.97	11.32	1.45	2.16	0.0	18	200	3.84
10:30	7.91	10.76	1.43	1.12	1.5	21	200	4.10
10:35	7.92	10.99	1.26	1.03	0.0	18	200	4.16
10:40	7.92	11.05	1.20	1.01	0.0	10	200	4.19
10:45	7.92	11.01	1.18	0.94	0.0	2	200	4.24
10:50	7.94	11.05	1.17	0.94	0.0	-4	200	4.26
10:55	7.94	11.09	1.16	0.90	0.0	-8	200	4.30
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: 60411174 Site: Pfohl Brothers Well I.D.: GW-35S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, 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: 4.02' Depth to Well Bottom: 7.46' Well Diameter: 2" Screen Length:

Casing Type: Stainless Steel Volume in 1 Well Casing (liters): 2.1 Estimated Purge Volume (liters): 5.6

Sample ID: GW-35S Sample Time: 16:15 QA/QC:

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)
15:40	8.49	15.67	0.540	3.49	0.0	32	160	4.38
15:45	8.40	14.39	0.534	1.79	0.0	29	160	4.41
15:50	8.37	13.85	0.520	1.08	0.0	18	160	4.45
15:55	8.36	13.51	0.517	0.77	0.0	8	160	4.45
16:00	8.35	13.43	0.517	0.70	0.0	3	160	4.48
16:05	8.35	13.36	0.519	0.63	0.0	2	160	4.49
16:10	8.35	13.23	0.519	0.60	0.0	2	160	4.50
16:15	8.35	13.15	0.521	0.69	0.0	3	160	4.51
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: *60411174*

Sampling Crew Members: *S. Connelly, K. McGovern* Supervisor: *R. Murphy*

Date of Sampling: *May 16, 2018*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-01D	GW-01D	90.4	42.0	13:00	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-01D-MS	GW-01D	90.4	42.0	13:00	Groundwater		Not Applicable
GW-01D-MSD	GW-01D	90.4	42.0	13:00	Groundwater		Not Applicable
GW-01S	GW-01S	6.7	11.3	14:20	Groundwater		Not Applicable
GW-03S	GW-03S	6.7	6.0	16:30	Groundwater		Not Applicable
GW-03D	GW-03D	83.4	36.0	17:40	Groundwater		Not Applicable
FD-051618	GW-03D	83.4	36.0	__	Groundwater		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: *60411174*

Sampling Crew Members: *S. Connelly, K. McGovern* Supervisor: *R. Murphy*

Date of Sampling: *May 16, 2018*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-07S	GW-07S	19.5	30.3	9:47	Groundwater	VOCs	Not Applicable
GW-07D	GW-07D	34.4	37.9	9:44	Groundwater	VOCs	Not Applicable
TRIP BLANK	—	—	—	—	Trip Blank	VOCs	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.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers Landfill* Project Number: *60411174*

Sampling Crew Members: *S. Connelly, K. McGovern* Supervisor: *R. Murphy*

Date of Sampling: *May 17, 2018*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-04S	GW-04S	7.3	11.4	7:43 & 9:12	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-04D	GW-04D	82.6	11.0	9:07	Groundwater		Not Applicable
GW-07D	GW-07D	34.4	37.9	9:25	Groundwater	SVOCs/ Metals	Not Applicable
GW-07S	GW-07S	19.5	30.3	9:27	Groundwater		Not Applicable
GW-34S	GW-34S	3.9	7.0	10:55	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-08SR	GW-08SR	4.9	9.0	12:10	Groundwater		Not Applicable
GW-08D	GW-08D	75.5	42.0	13:15	Groundwater		Not Applicable

Additional Comments: GW-04S was sampled for VOCs using a PDB. GW-04S was then purged dry and remaining parameters were collected after recovery. GW-07D and GW-07S 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: *60411174*

Sampling Crew Members: *S. Connelly, K. McGovern* Supervisor: *R. Murphy*

Date of Sampling: *May 17, 2018*

Sample I.D. Number	***Well Number***	***Well Volume (liters)***	***Volume Purged (liters)***	***Sample Time***	***Sample Description***	***Analysis Required***	***Chain-of-Custody Number***
GW-28S	GW-28S	3.7	5.0	13:12	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-29S	GW-29S	6.8	8.1	15:22	Groundwater		Not Applicable
GW-35S	GW-35S	2.1	5.6	16:15	Groundwater		Not Applicable
GW-26D	GW-26D	83.7	42.0	17:25	Groundwater		Not Applicable
TRIP BLANK	—	—	—	—	Trip Blank	VOCs	Not Applicable
							Not Applicable
							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: *60411174*

Sampling Crew Members: *R. Murphy, S. Connelly* Supervisor: *R. Murphy*

Date of Sampling: *May 18, 2018*

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	6.3	9.0	9:52	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-31S	GW-31S	3.4	6.9	10:50	Groundwater		Not Applicable
GW-32S	GW-32S	3.6	6.0	11:47	Groundwater		Not Applicable
GW-33S	GW-33S	1.7	4.5	12:53	Groundwater		Not Applicable
TB-051818	—	—	—	—	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-01D

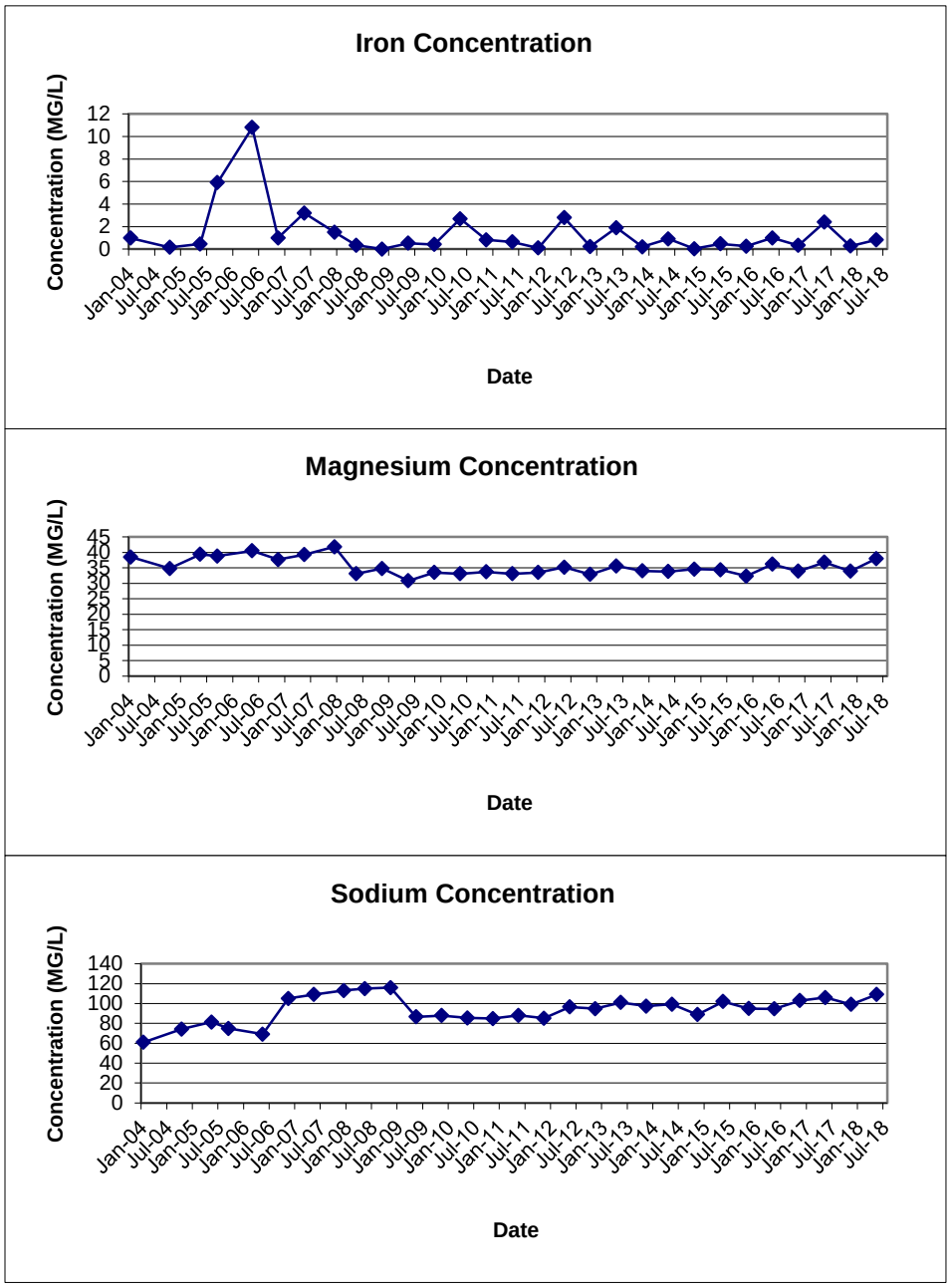


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01S

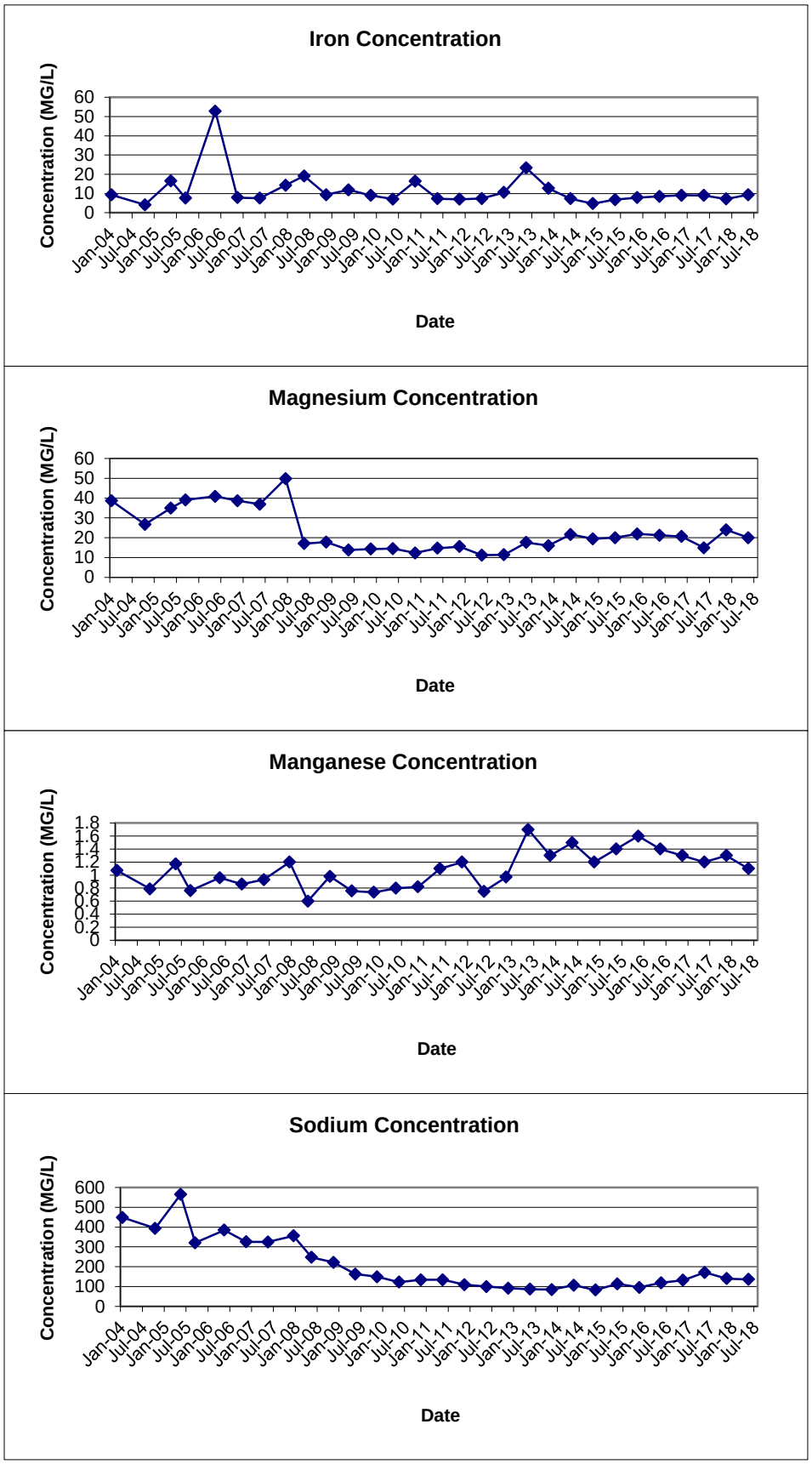


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03D

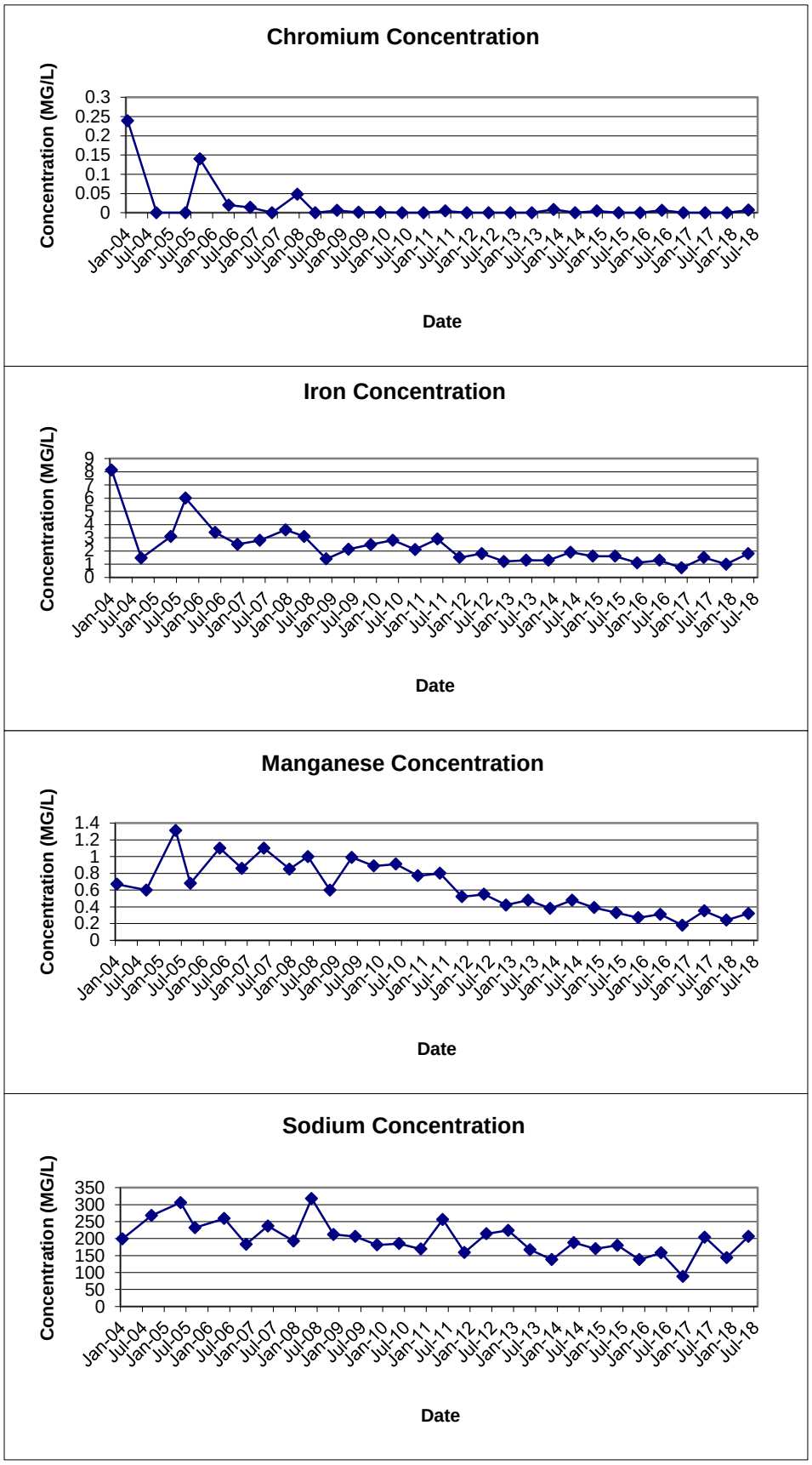
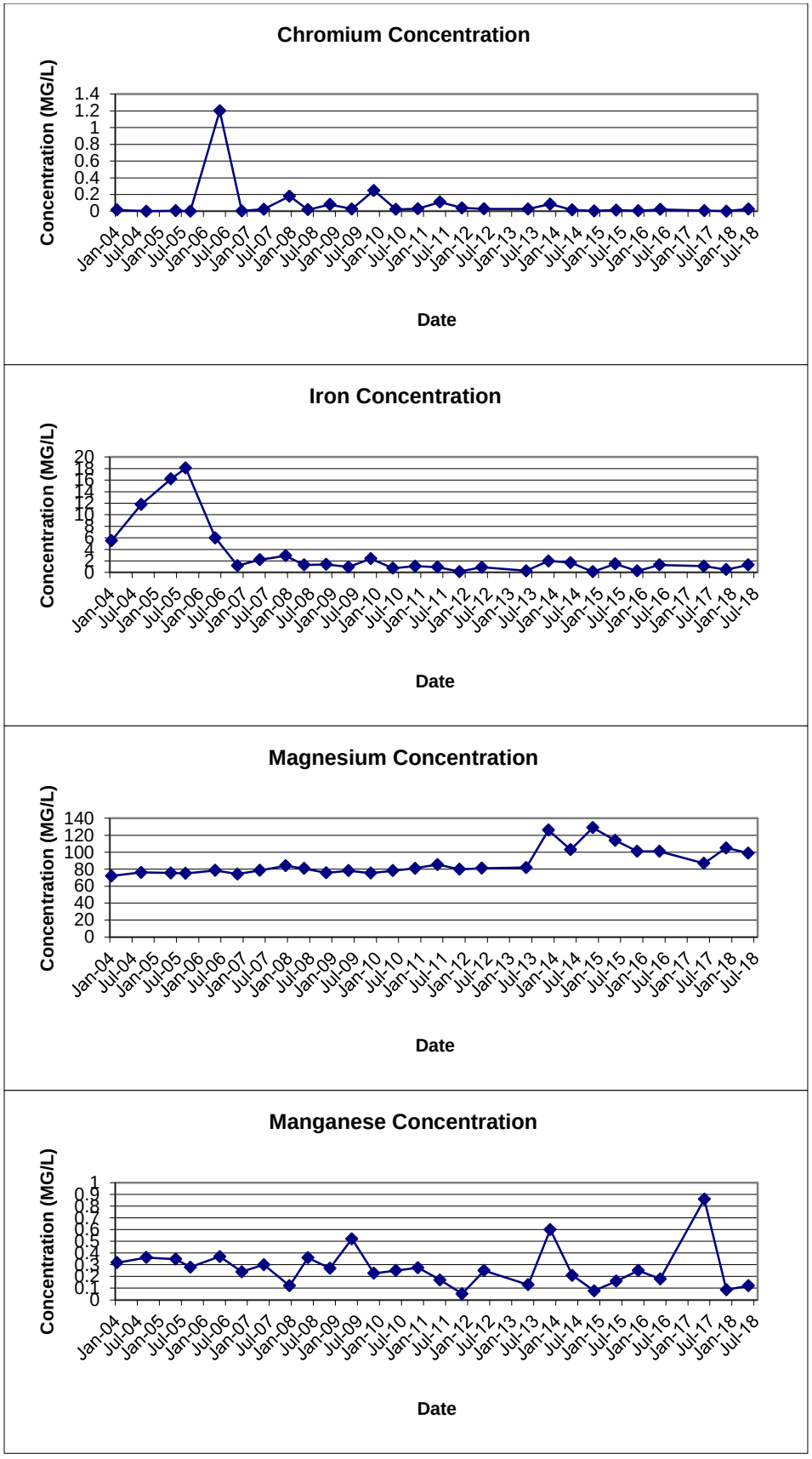
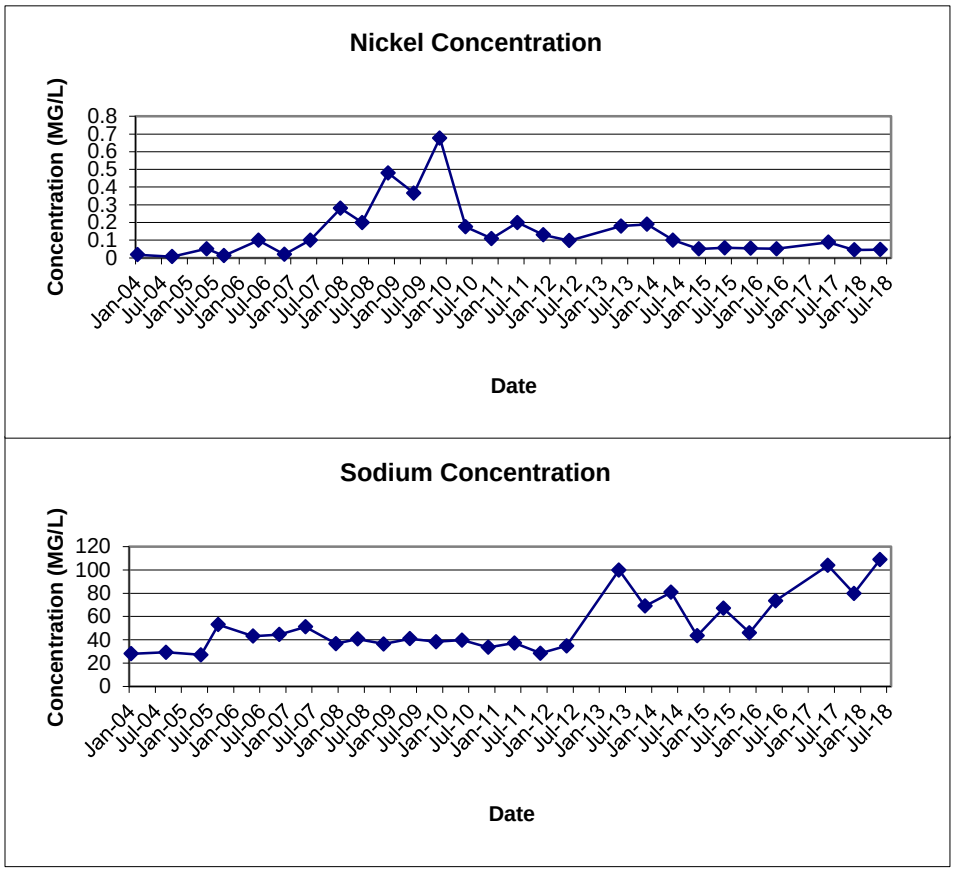


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



Well was Dry and was not sampled in November 2016

FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



Well was Dry and was not sampled in November 2016

FIGURE E-5
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04D

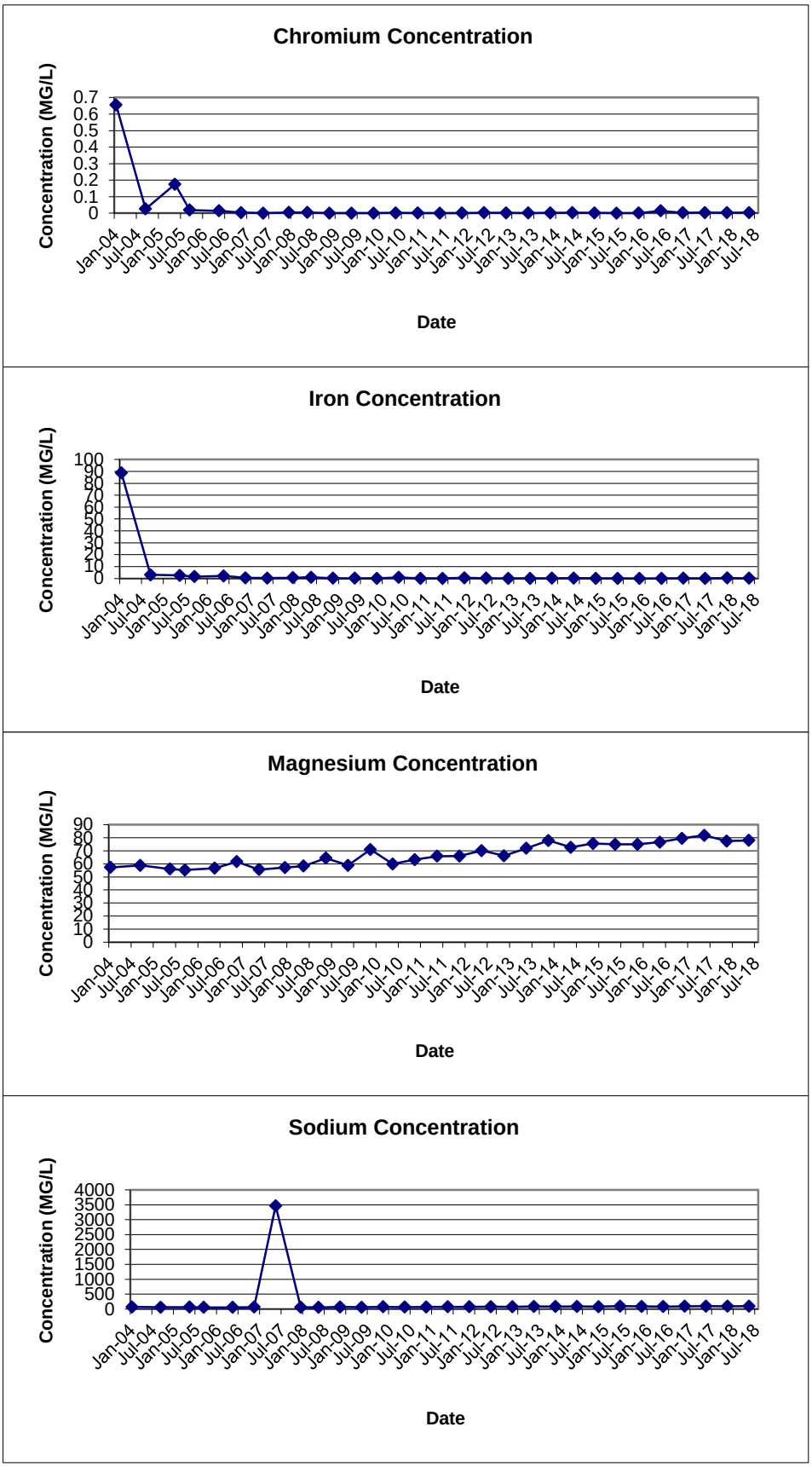


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04S

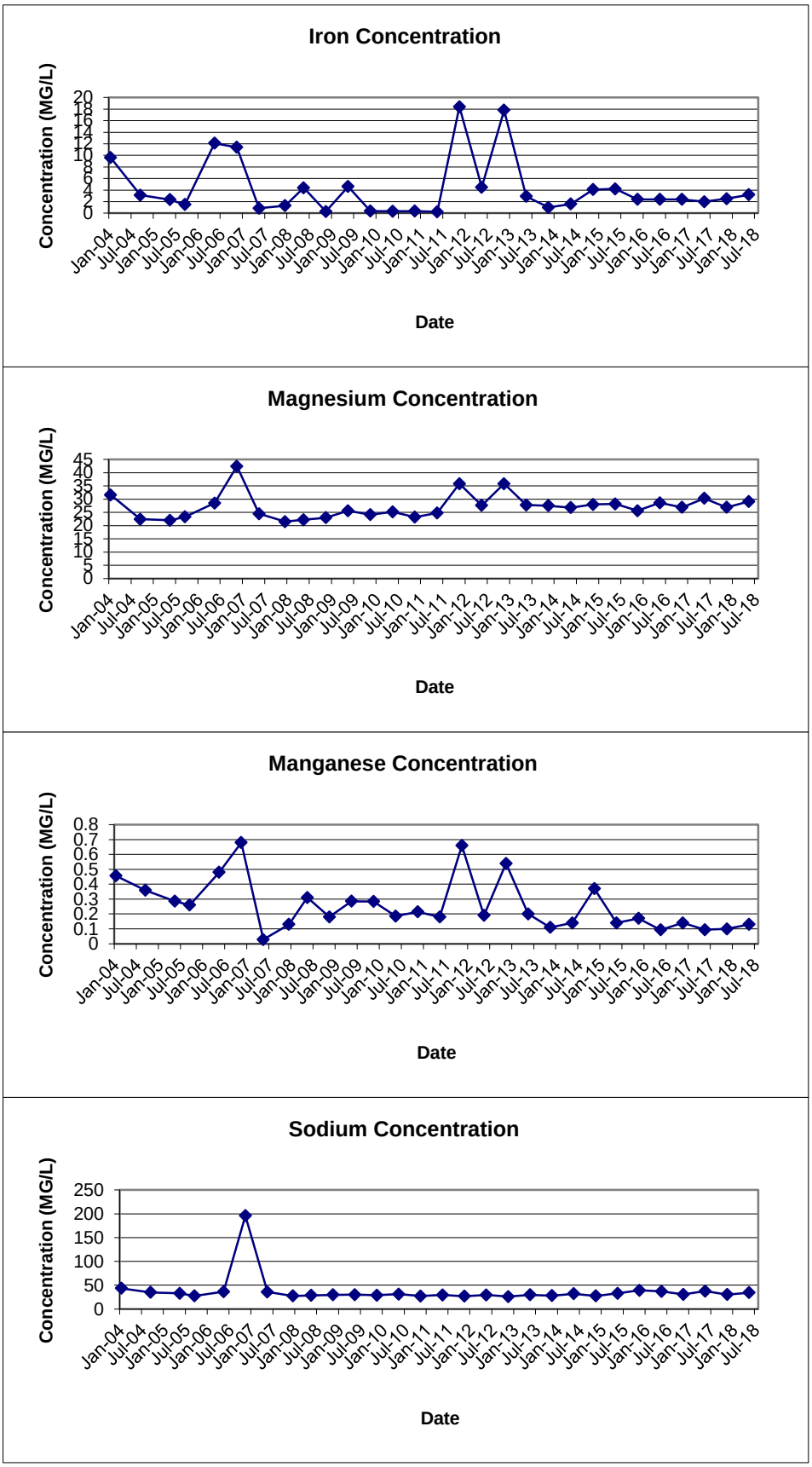


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

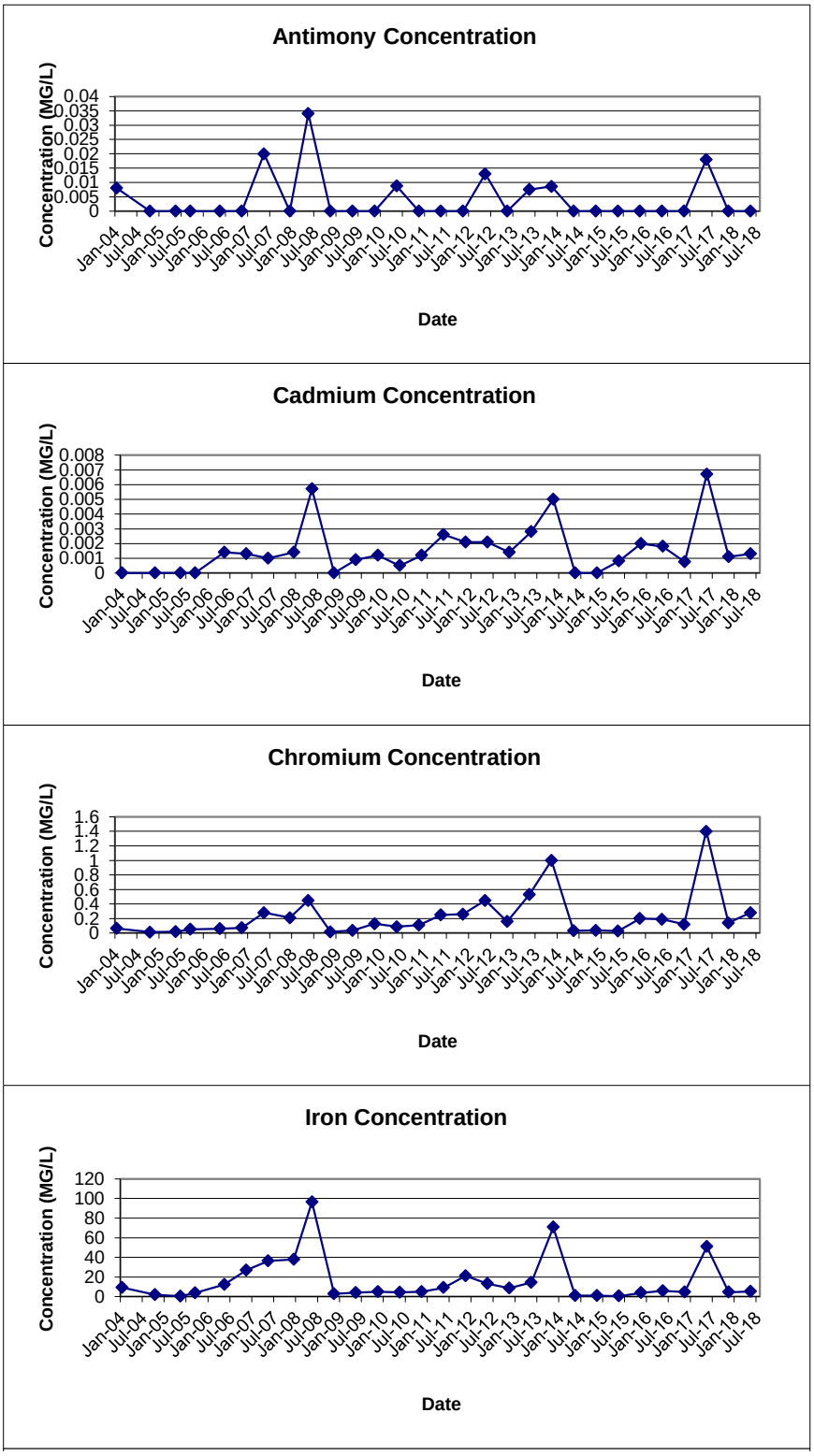


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

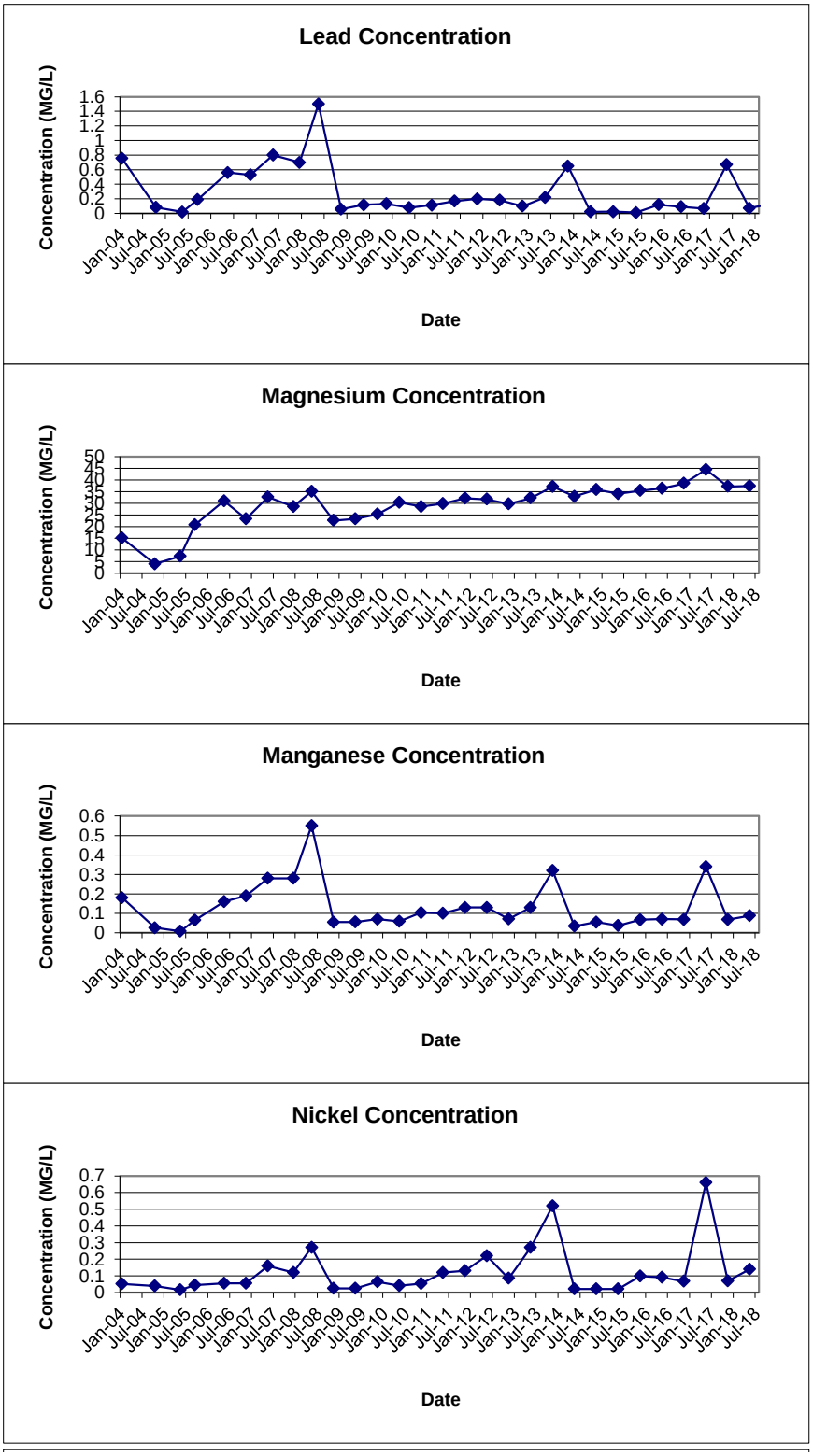


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

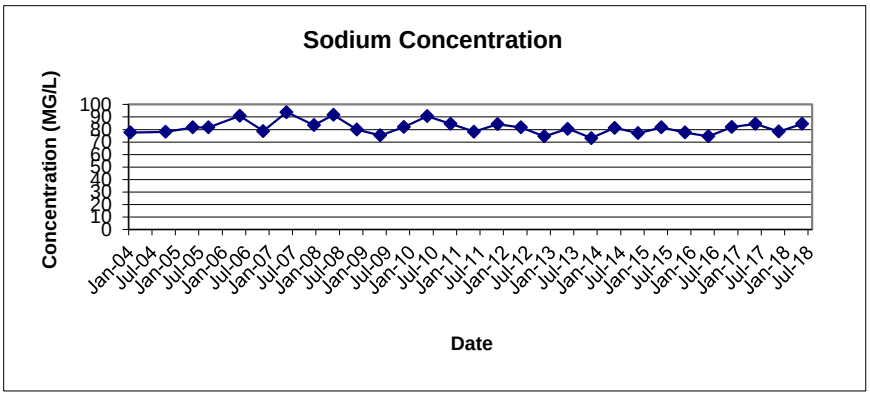


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07S

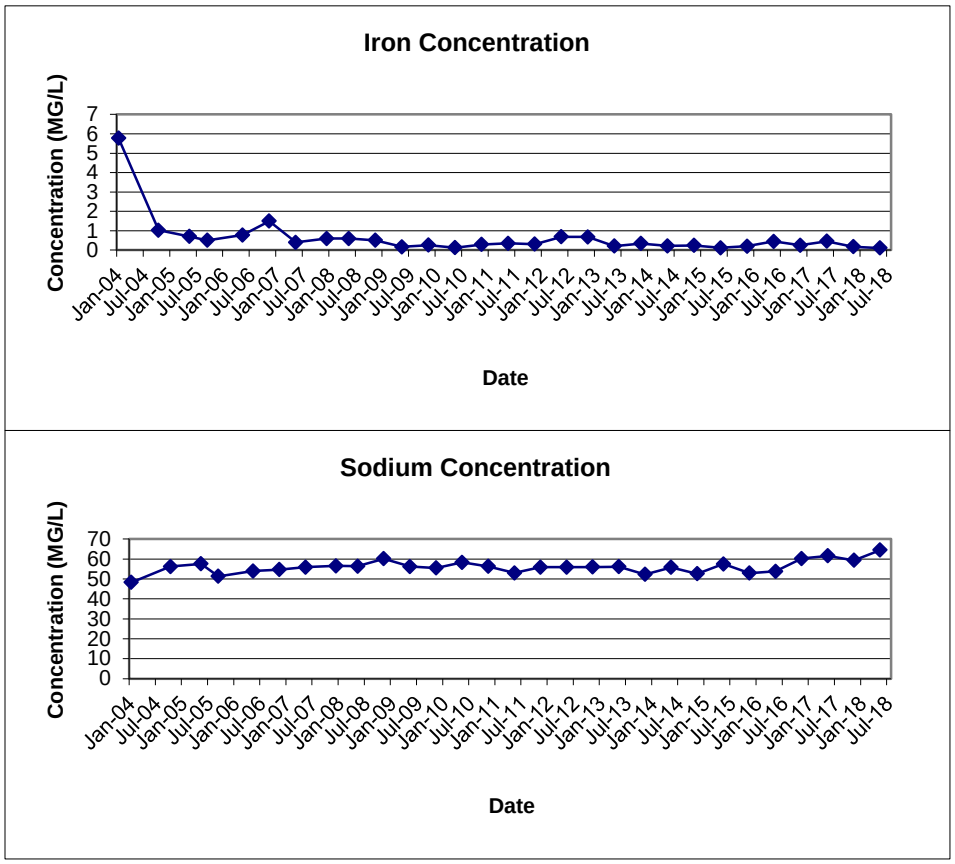


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08D

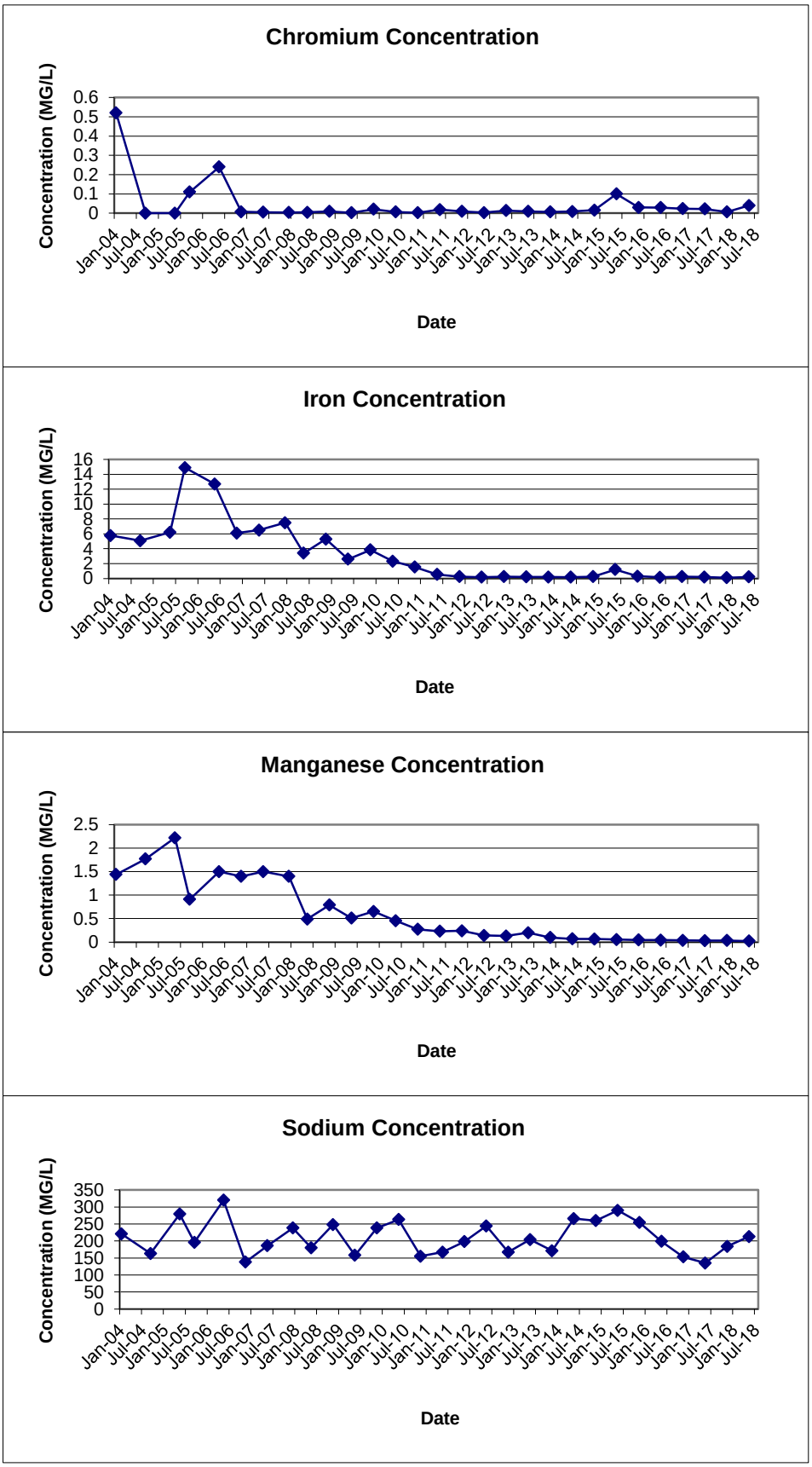


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08SR

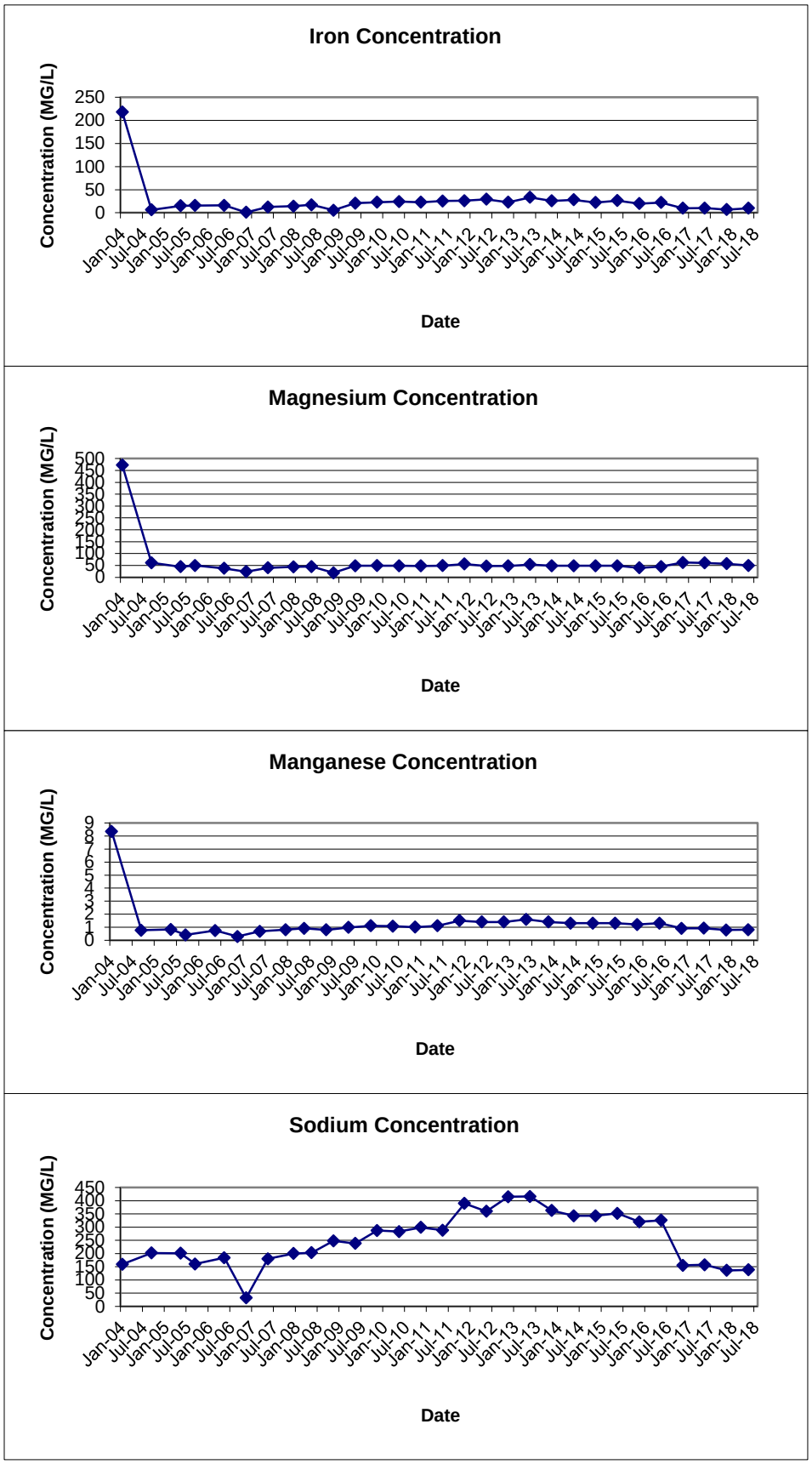


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

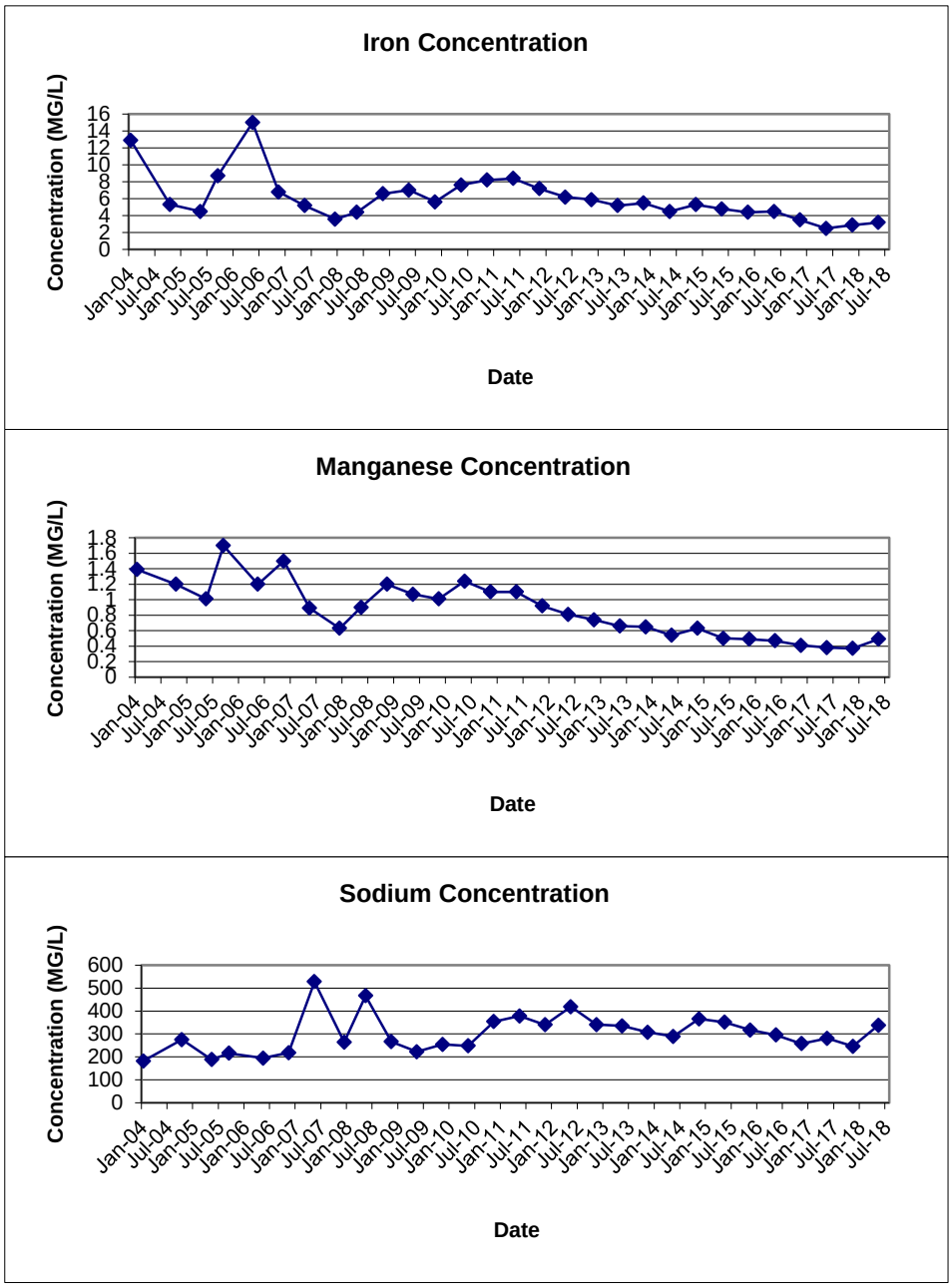


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

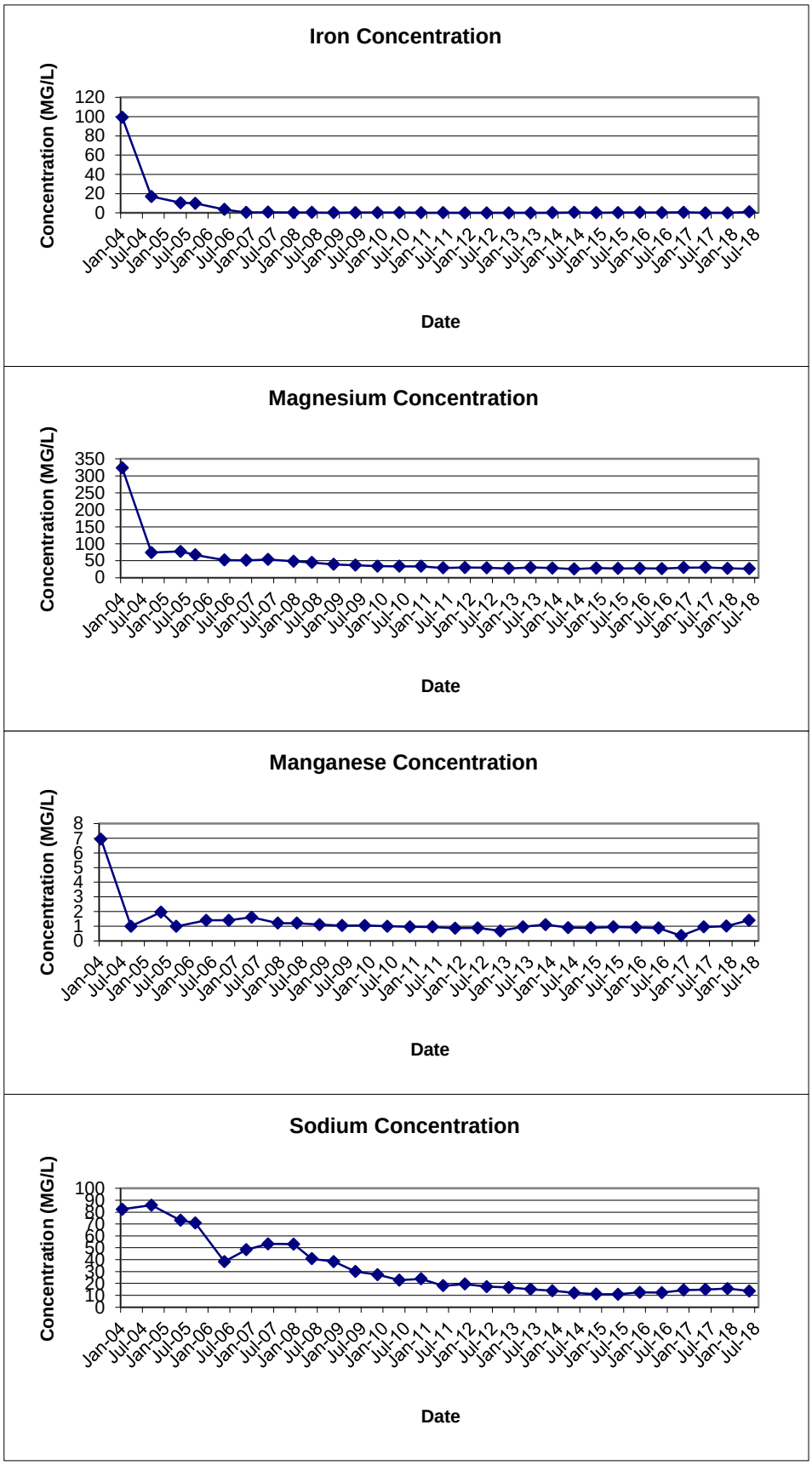


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

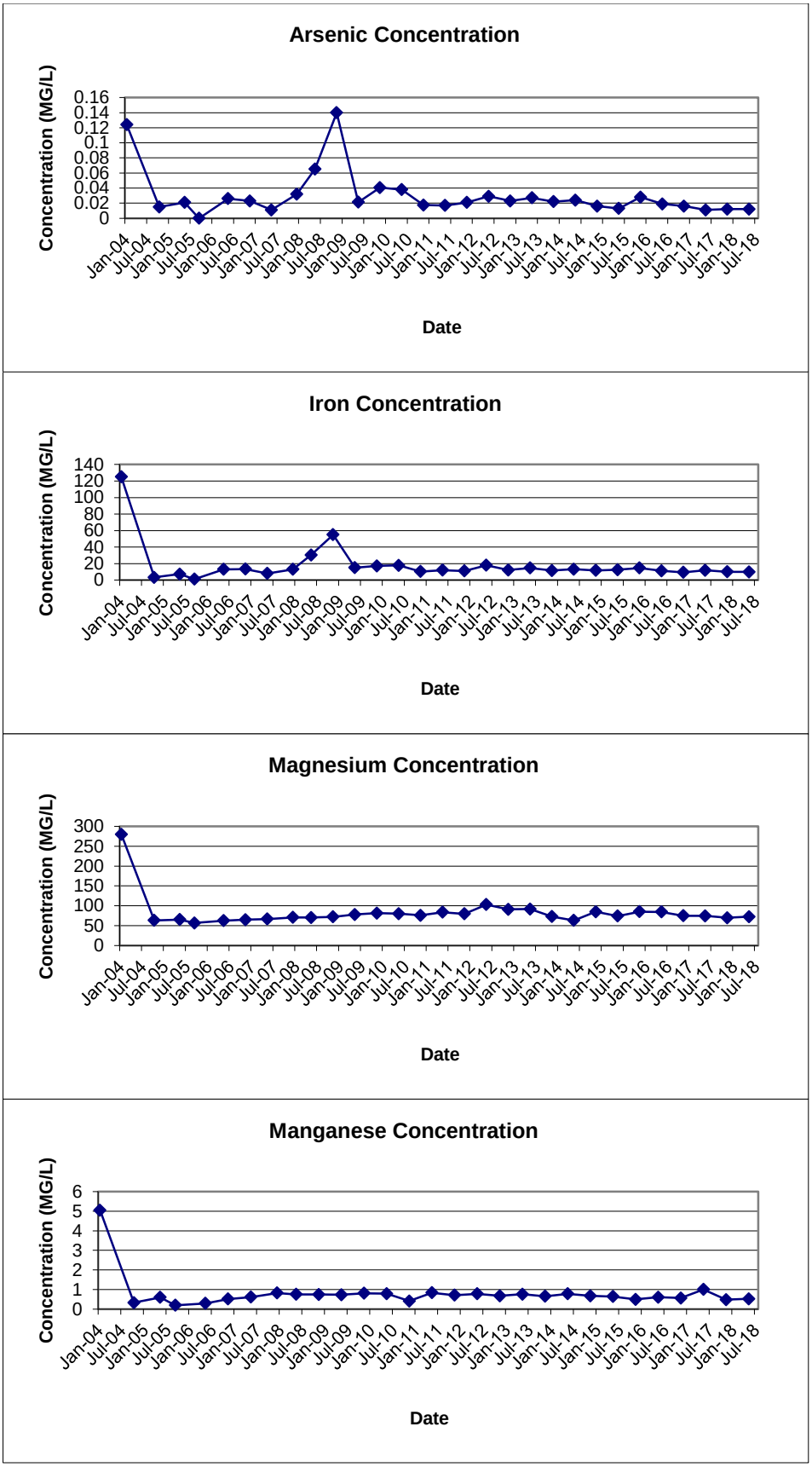


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

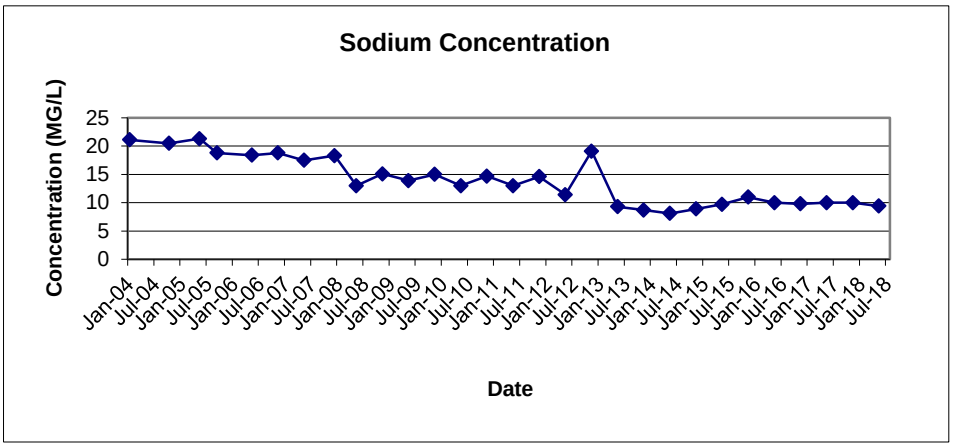


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

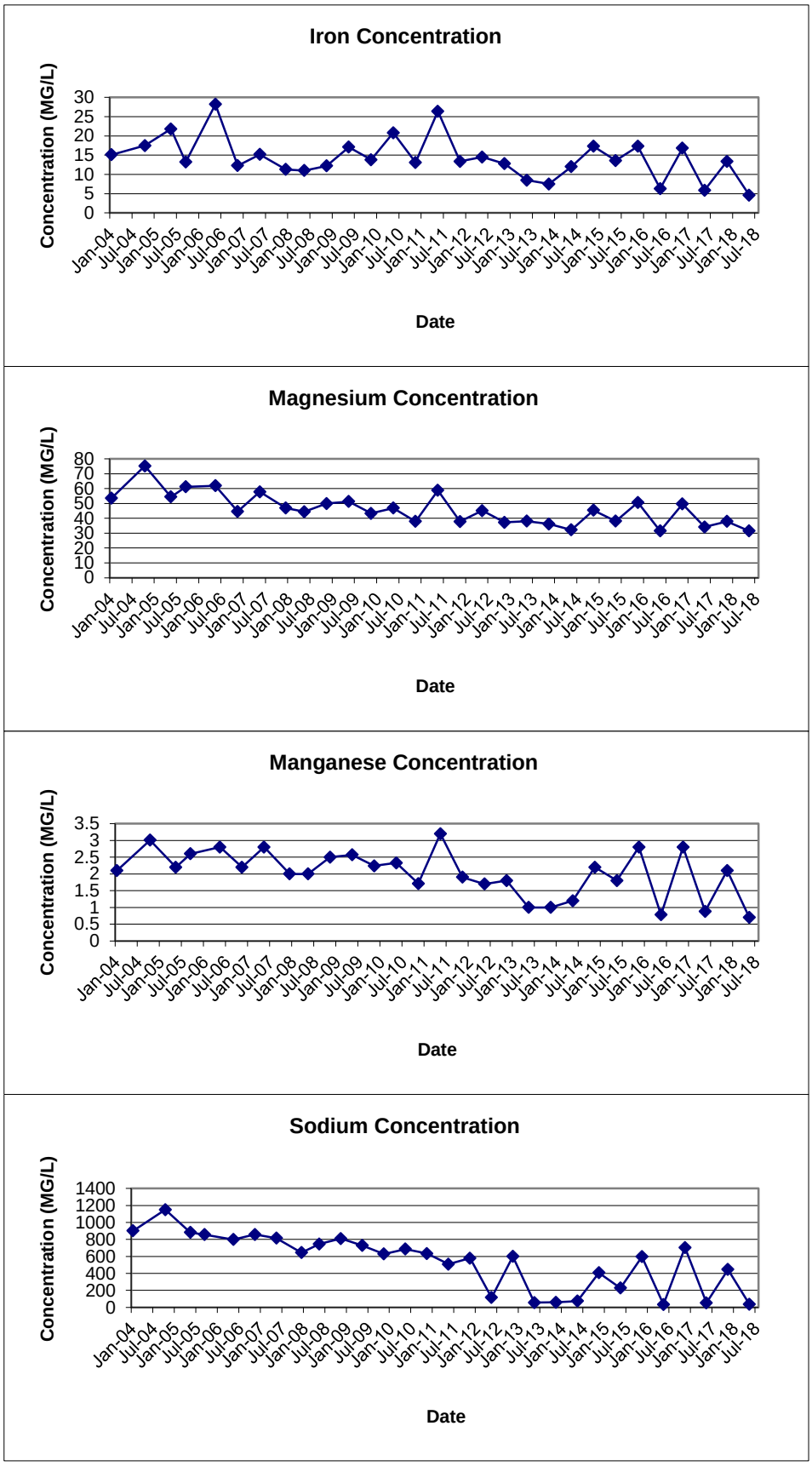


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

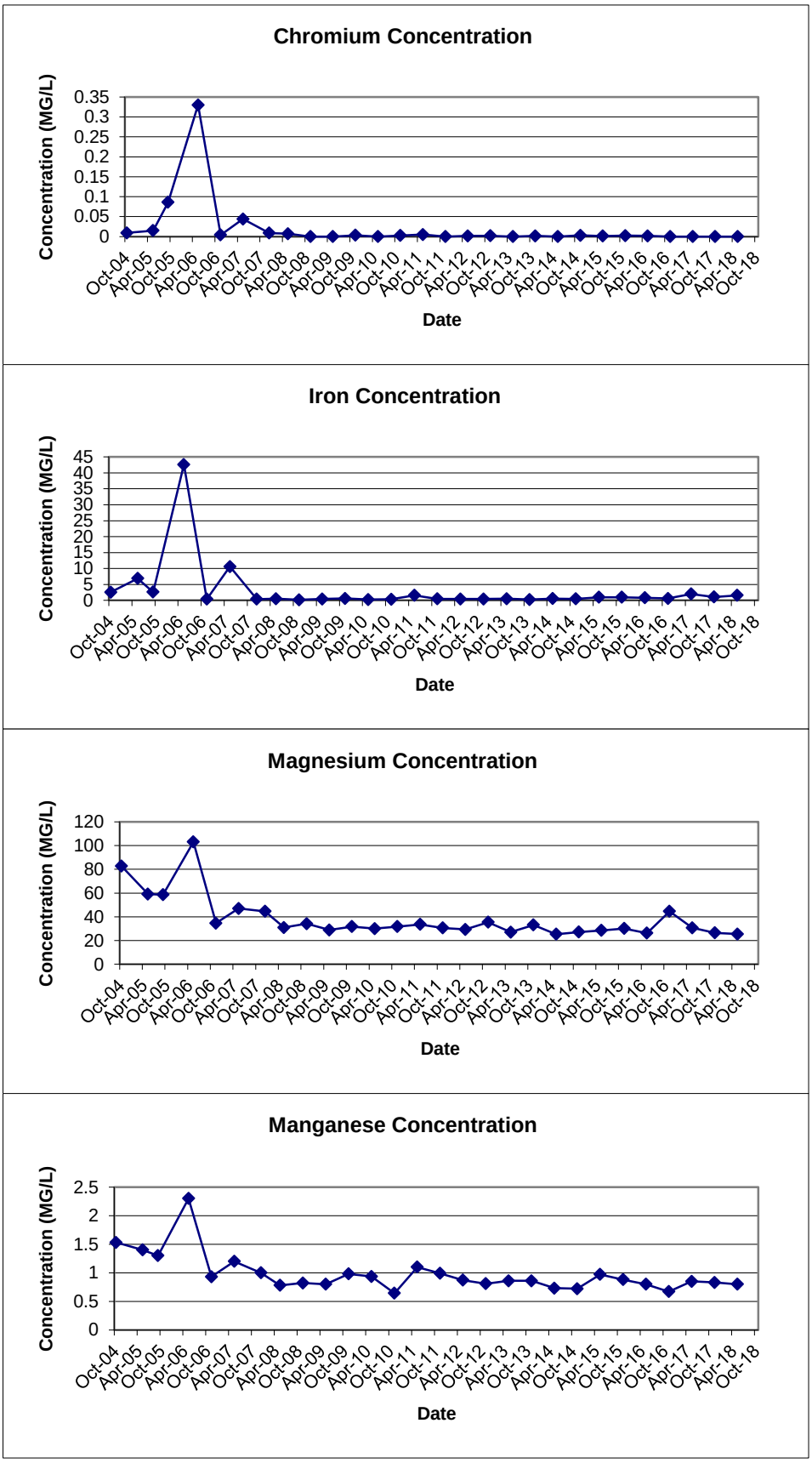


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

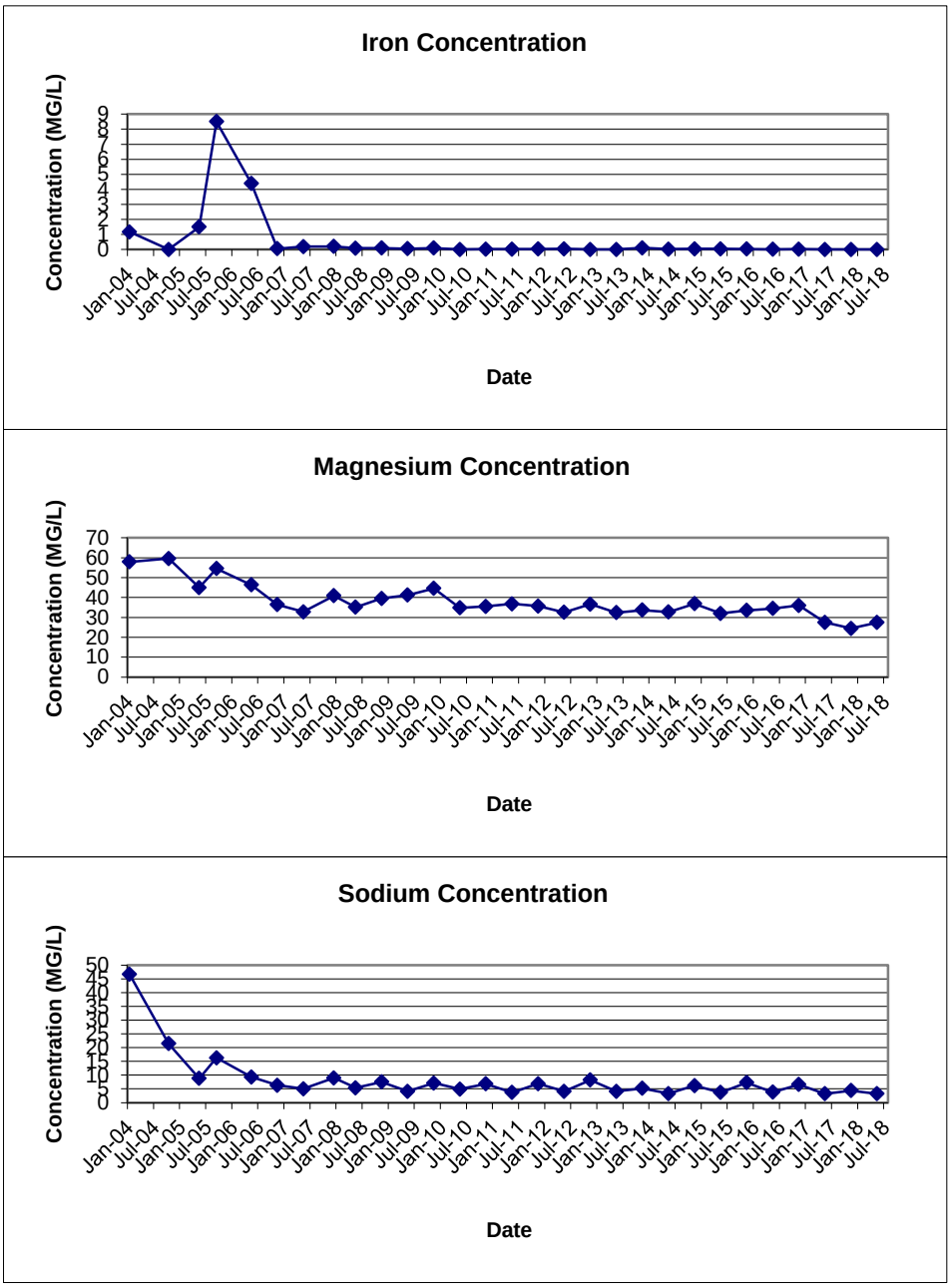


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

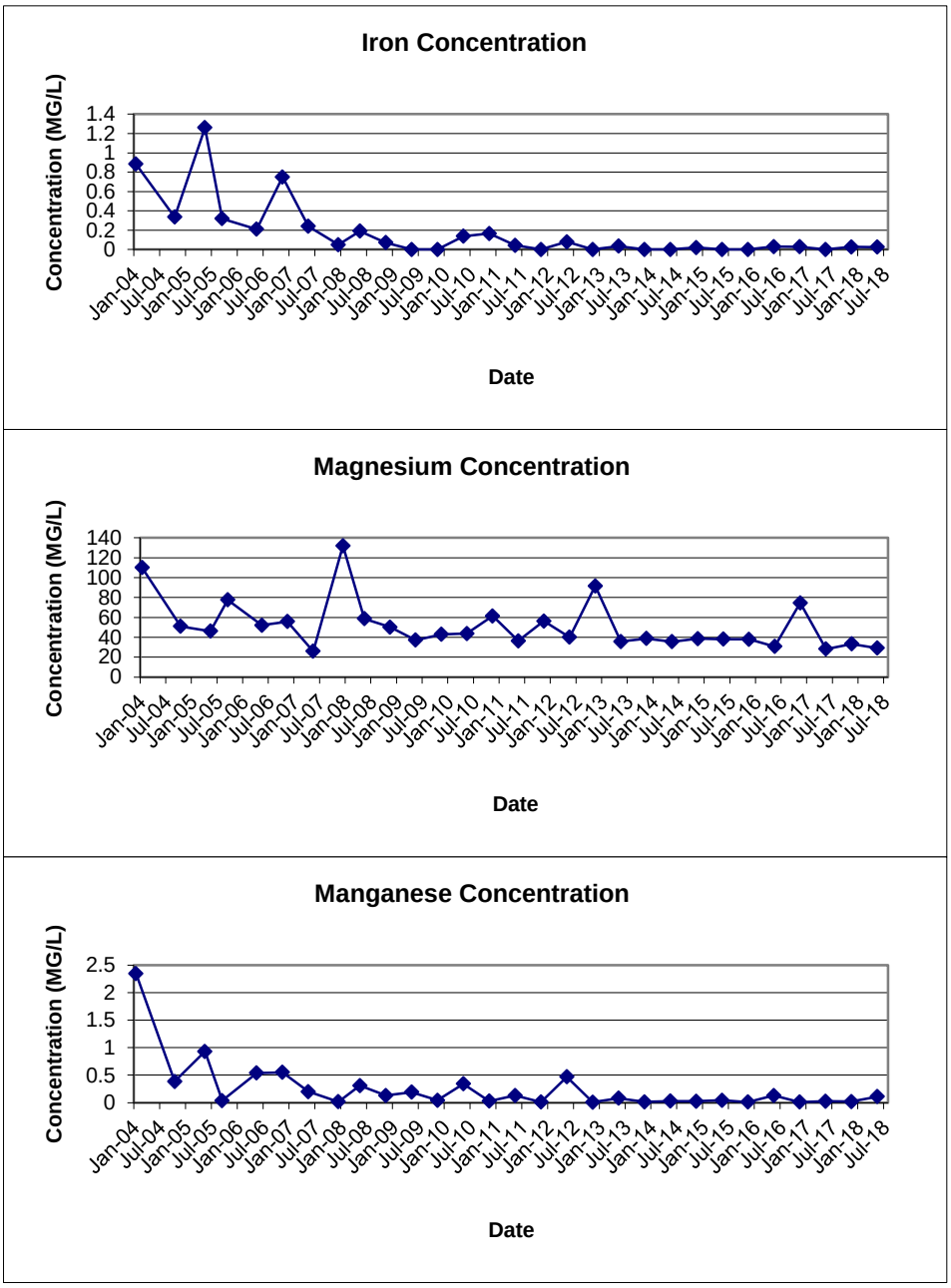


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

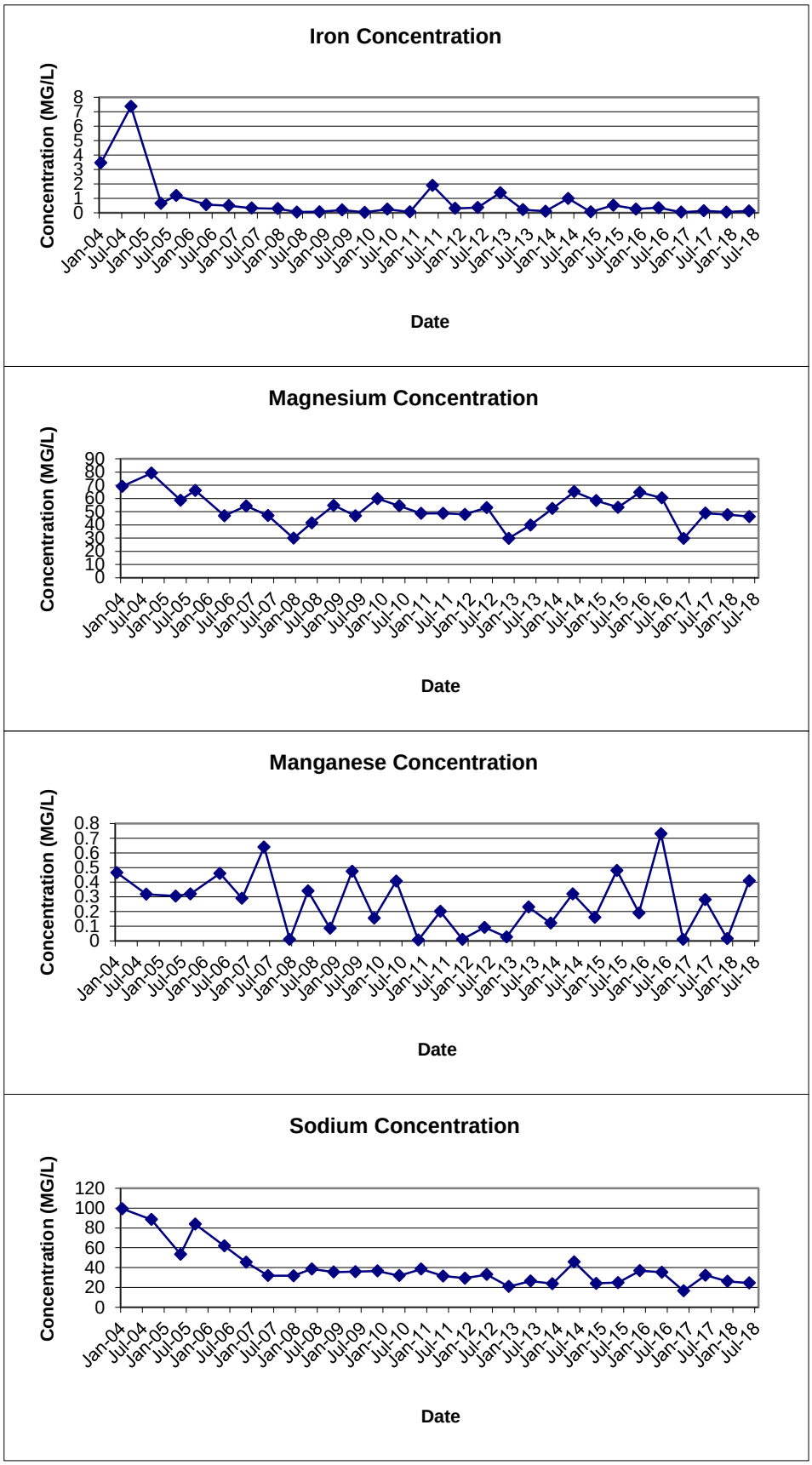
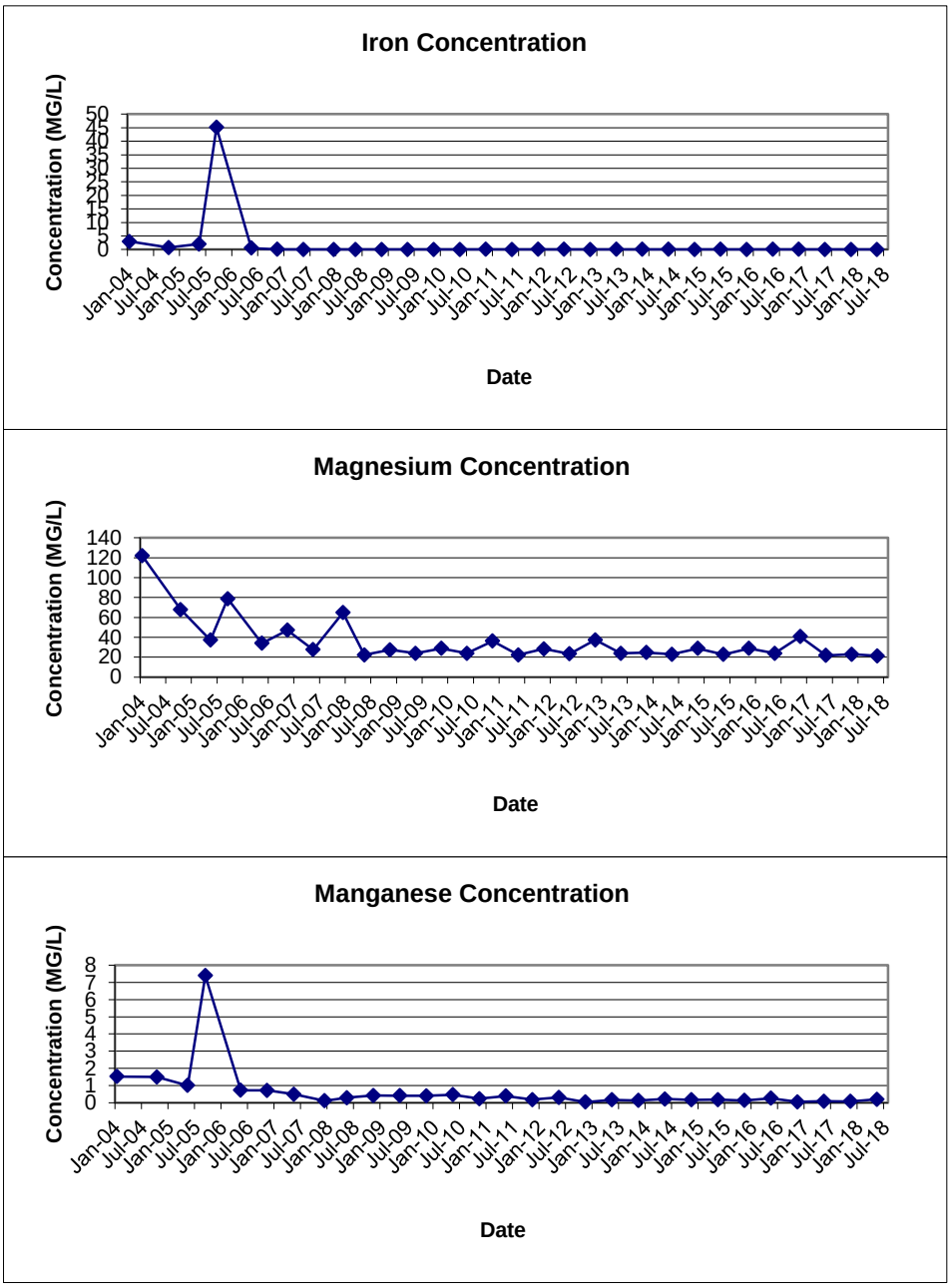


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 16-04-CH016

AUTHORIZATION TO DISCHARGE UNDER THE BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT NO. 16-04-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 **July 6, 2016** 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, 2016

To Expire the 31st day of March, 2019

General Manager

Signed this 11th **day of** July **, 2016**

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		Discharge Limitations[1]	Sampling Requirements	
Point	**Parameter**	**Daily Max**	**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	June 30, 2016	Every March 31st, June 30th, September 30th and December 31st
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016	

* Please submit new discharge application 6 months prior to the expiration of this permit*

PART I: SPECIFIC CONDITIONS

C. SPECIAL REQUIREMENTS

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

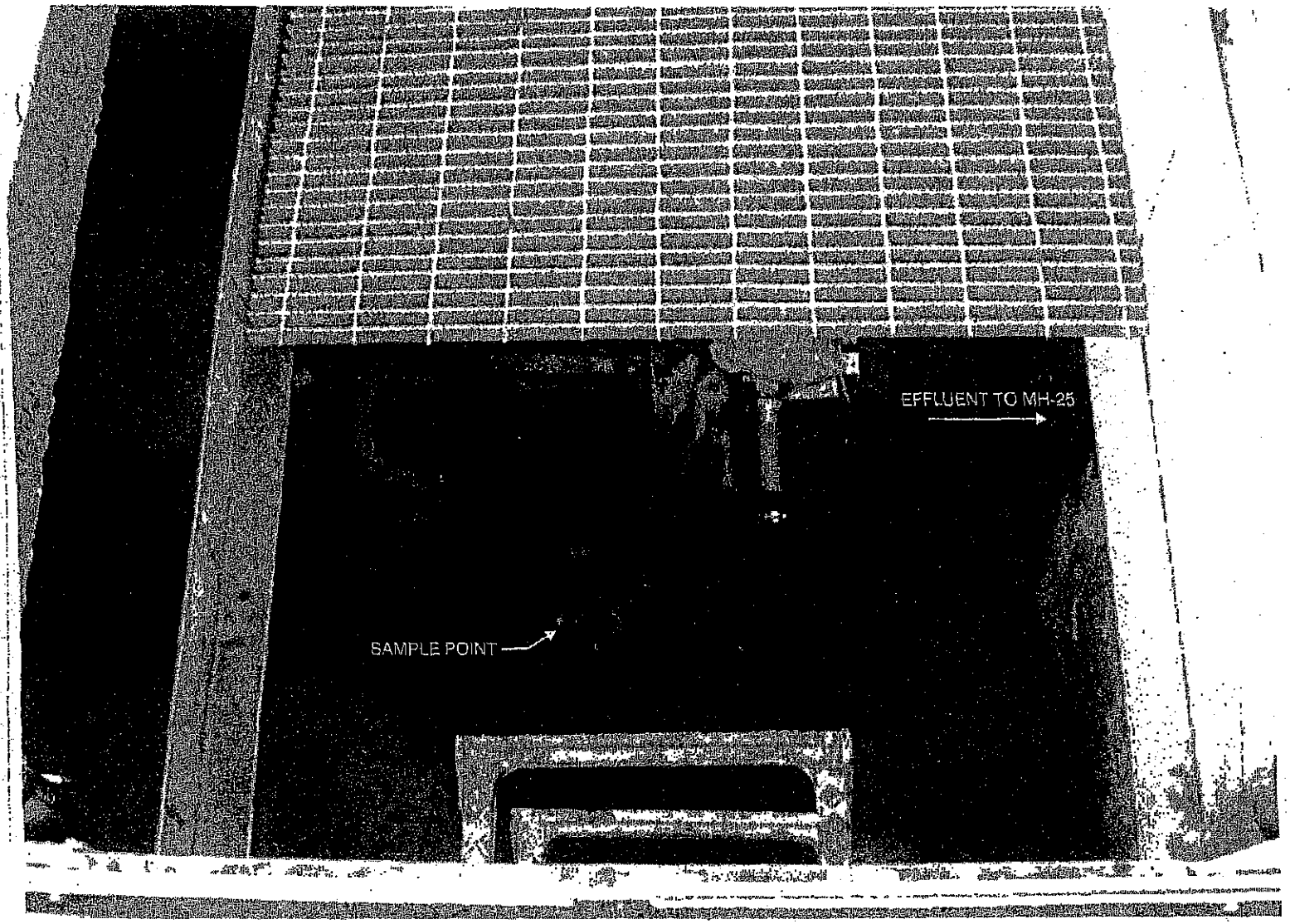
2. Composite samples may be time proportioned.

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

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

5. Surchargeable over 250 mg/L.

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



URS

PFOHL BROTHERS LANDFILL
EFFLUENT SAMPLE POINT

FIGURE 1

PART II GENERAL CONDITIONS

A. MONITORING AND REPORTING

1. Local Limits

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

2. Definitions

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

3. Discharge Sampling Analysis

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

4. Recording of Results

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

5. Additional Monitoring by Permittee

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

6. Reporting

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

PAT BOWEN
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

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.

7. Certification Statement

All self-monitoring reports shall include the following certification statement, signed by the preparer of the report:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing

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. Slug Control Plan

Upon written notification by the BSA that a slug control plan is necessary for the permittee, the plan shall be prepared in accordance with the BSA "Sampling Measurement and Analytical Guidelines" sheet. Within 90 days of the BSA notification, the permittee must implement the slug control plan

4. 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 of the quantity and character of such discharge. During normal business hours, Monday- Friday, 7:30 AM – 3:00 PM call 716-851-4664, ext 5374. After normal business hours call 716-851-4664, ext 600. For all slug discharges, and when requested by the B.S.A. following an accidental discharge or spill, 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.

5. 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 716-851-4664 ext. 5374 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.

Additionally, the permittee shall repeat the sampling and analysis and sumbit these results of the report analysis to the Industrial Waste Section within 30 days after becoming aware of these violations

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

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.

Revised March 17, 2014 by LS

APPENDIX G

DISCHARGE REPORT SUMMARY TABLES

SAMPLING FIELD SHEET

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Patrick T. Bowen, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

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

Date: 3/26/18 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 47° F, Clear

Sampling Device: NA

Time of Installation: 13:10 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Wells WW-05 and WW-06 were running at the time of sample set-up.
PLC display volumes: WW-01 (1,199,996 gals), WW-02 (-4,613 gals), WW-03 (1,138 gals),
WW-04 (-116,620 gals), WW-05 (4,069,478 gals), WW-06 (4,106,550 gals) & MH-25 (9,463,720 gals).

Date: 3/27/18 Crew: R. Murphy, S. Moeller, T. Urban

Weather: 41° F, Cloudy

Time of Collection: 13:10

Field Measurements:

13:10/RJM
(time/initial)

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

pH Measurement: 8.49

Temperature: 7.6°C

Identification: EFF-032718

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: Well WW-06 was running at the time of sample collection.
PLC display volumes: WW-01 (1,199,996 gals), WW-02 (-4,613 gals), WW-03 (1,138 gals),
WW-04 (-116,620 gals), WW-05 (4,104,006 gals), WW-06 (4,169,458 gals) & MH-25 (9,561,969 gals).

Reviewed By: Robert J Murphy Date: 3/27/18
(Supervisor)

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS MARCH 2018

Sample ID	EFF-032718			
Matrix	Effluent Water			
Date Sampled	3/27/2018			
Parameter	**Result**	**Mass Loading**	**Discharge Limitation**	**Violations**
	(mg/L)	**(lbs/day)**	**(lbs/day)**	**(Y/N)**
Total Barium	0.13	0.11	2.34	No
Total Cadmuim	<(1) 0.0005	< 0.0004	1.17	No
Total Chromium	< 0.0010	< 0.00082	1.17	No
Total Copper	0.0031	0.003	3.74	No
Total Lead	< 0.0030	< 0.002	1.17	No
Total Nickel	0.0018	0.001	3.27	No
Total Zinc	0.0110	0.009	5.84	No
Total Suspended Solids	6.0	NA(2)	250 (3)	No
pH (4)	8.49	NA	5.0 - 12.0	No
Total Flow (5)		98,249	140,100	No

Notes:

(1) < = Compound not detected, method detection limit shown
(2) NA = Not Applicable
(3) Discharge Limitation in units of mg/L
(4) pH measurement and Discharge Limitation in Standard Units
(5) Total Flow reported in gallons, sample was collected over a 24 hour period

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

SAMPLING FIELD SHEET

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Patrick T. Bowen, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

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

Date: 6/12/18 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 69° F, Clear

Sampling Device: NA

Time of Installation: 08:25 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-06 was running at the time of sample set-up.
PLC display volumes: WW-01 (1,787,884 gals), WW-02 (-4,613 gals), WW-03 (1,138 gals),
WW-04 (-116,620 gals), WW-05 (5,294,887 gals), WW-06 (5,051,021 gals) & MH-25 (12,219,290 gals).

Date: 6/13/18 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 69° F, Cloudy, light rain

Time of Collection: 08:25

Field Measurements:

08:25/RJM
(time/initial)

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

pH Measurement: 6.90

Temperature: 17.2°C

Identification: EFF-061318

Physical Observations:

Laboratory: TestAmerica, Buffalo, NY

Comments: Well WW-06 was running at the time of sample collection.
PLC display volumes: WW-01 (1,787,884 gals), WW-02 (-4,613 gals), WW-03 (1,138 gals),
WW-04 (-116,620 gals), WW-05 (5,334,759 gals), WW-06 (5,052,172 gals) & MH-25 (12,260,278 gals).

Reviewed By: Robert J Murphy (Supervisor) Date: 6/13/18

TABLE 1

PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2018

Sample ID	EFF-061318			
Matrix	Effluent Water			
Date Sampled	6/13/2018			
Parameter	**Result**	**Mass Loading**	**Discharge Limitation**	**Violations**
	(mg/L)	**(lbs/day)**	**(lbs/day)**	**(Y/N)**
Total Barium	0.66	0.23	2.34	No
Total Cadmuim	<(1) 0.0005	< 0.0002	1.17	No
Total Chromium	0.0012	0.00041	1.17	No
Total Copper	0.0030	0.001	3.74	No
Total Lead	0.0071	0.002	1.17	No
Total Nickel	0.0050	0.002	3.27	No
Total Zinc	0.0230	0.008	5.84	No
Total Suspended Solids	222	NA(2)	250 (3)	No
pH (4)	6.9	NA	5.0 - 12.0	No
Total Flow (5)		40,988	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: *60411174*

Inspection Crew Members: *K. McGovern, S. Connelly* Supervisor: *R. Murphy*

Date(s) of Inspection: *May 16, 2018*

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	4.12	14.94	
GW-01D	OK	OK	OK	Bulged	3.07	39.65	
GW-03S	OK	OK	OK	OK	2.37	13.22	
GW-03D	OK	OK	OK	OK	1.93	35.70	
GW-04S	OK	OK	OK	OK	4.31	16.23	
GW-04D	OK	OK	OK	OK	12.08	45.57	
GW-07S	OK	OK	OK	OK	5.09	35.33	
GW-07D	OK	OK	OK	Damaged	47.05	60.83	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *60411174*

Inspection Crew Members: *K. McGovern, S. Connelly* Supervisor: *R. Murphy*

Date(s) of Inspection: *May 16, 2018*

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	5.06	13.02	
GW-08D	OK	OK	OK	OK	5.89	36.54	
GW-26D	OK	OK	OK	OK	6.72	40.70	
GW-28S	OK	OK	OK	OK	5.55	15.52	
GW-29S	OK	OK	OK	OK	8.88	20.04	
GW-30S	OK	OK	OK	OK	7.71	17.97	
GW-31S	OK	OK	OK	OK	3.49	9.57	
GW-32S	OK	OK	OK	OK	3.45	9.93	

Additional Comments: _____

_____

_____

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *60411174*

Inspection Crew Members: *K. McGovern, S. Connelly* Supervisor: *R. Murphy*

Date(s) of Inspection: *May 16, 2018*

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	4.76	8.21	
GW-34S	OK	OK	OK	OK	2.51	10.01	
GW-35S	OK	OK	OK	OK	3.71	7.46	

Additional Comments: _____

_____

_____