

**PERIODIC REVIEW REPORT 2017
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
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Prepared for:

**TOWN OF CHEEKTOWAGA
ENGINEERING DEPARTMENT
275 ALEXANDER AVE
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JUNE 2018

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Figure 2-1 Site Plan

ATTACHMENTS

Attachment A January 2017 – June 2017 Semi Annual Report and Data Applicability Report
Attachment B July 2017 – December 2017 Semi Annual Report and Data Applicability Report
Attachment C IC/EC Certification

1.0 INTRODUCTION

1.1 Background

This Pfohl Brothers Landfill Site (No. 915043) is a 130 acre landfill located on the north and south sides of Aero Drive in the Town of Cheektowaga, Erie County. The site is located in a commercial area just west of Transit Road. The landfill was operated between 1940 and 1969 receiving household and industrial wastes. The industrial waste materials included paints, waste solvents, thinners, pine tar pitch, cellulose, rubber, scrap metal and phenolic tars. A Remedial Investigation and Feasibility Study was completed in 1991. The data showed that on-site soils, groundwater, seeps, and sediments were contaminated with Volatile and Semi-Volatile Organic Compounds, and metals at various concentrations. The data did not show any significant off-site impact. A Record of Decision (ROD) was issued in 1992 requiring the landfill to be consolidated and closed. A second ROD was issued in 1994 which removed the northern portion of the site (located immediately south of Interstate 90) from the site description. The ROD also stated that there will be no action in regard to off-site groundwater. The final remedial design for the site was completed in 2000. The remedial construction consisted of waste consolidation; capping of landfills on either side of Aero Drive; providing leachate collection around these areas; restoring wetlands; and fencing the landfill. Work commenced in 2001 and was completed in 2002. The consolidated landfill was reduced to 94 acres. Deed restrictions have been filed by the Potentially Responsible Parties (PRPs). The Operation, Maintenance and Monitoring (OM&M) Plan was approved in March 2006 and is being implemented by the Town of Cheektowaga.

1.2 Effectiveness of Remedial Program

During 2017, the capping and remedial action remedy continued to successfully prevent exposure of buried waste to human health or environmental receptors. Effectiveness has been demonstrated through maintenance of the landfill cap, effective hydraulic control of groundwater beneath the cap, and regular semi-annual groundwater sampling.

1.3 Compliance

The management of the site is in compliance with the OM&M Plan. Institutional controls in the form of deed restrictions remain in place.

1.4 Recommendations

No changes to the operation, maintenance, and monitoring of the site are recommended.

2.0 SITE OVERVIEW

2.1 Site Description

The boundaries of the site are shown on Figure 2-1. The site is located immediately southwest of the intersection of Interstate 90 and Transit Road in the Town of Cheektowaga. The site is bisected by the east/west Aero Drive. Each of the two portions of the landfill are covered with a cap comprising a gas venting layer, a low permeability synthetic membrane, and a barrier protection fill layer. Surrounding the entire site is a groundwater/leachate collection system consisting of a collection trench that drains into six wetwells. Leachate and groundwater collected in the wetwells is pumped via submersible pumps in the wetwells to a fifteen-inch sanitary sewer line on the south side of Aero Drive. This sanitary sewer, installed as part of the remedy, connects to the existing fifteen-inch sanitary sewer on Rein Road south of Aero Drive. The collected groundwater/leachate discharges to the sanitary sewer under a permit from the Buffalo Sewer Authority (BSA).

2.2 Chronology

The principal elements of the remedy were consolidation of waste materials, construction of a landfill cap and construction of a perimeter leachate collection system. Construction of the remedy was completed in 2002.

OM&M commenced in 2002 upon completion of construction. These efforts are performed in accordance with the OM&M plan issued as draft in 2002 and approved as final in 2006. Based upon the results of the first three years of surface water, sediment and monitoring results, the surface water/sediment sampling was discontinued in 2008, and the list of parameters evaluated during groundwater sampling was reduced in 2006 (limiting the list of VOC and SVOC parameters and metals) and 2007 (discontinuing dioxin and radionuclide analyses).

3.0 REMEDY PERFORMANCE, EFFECTIVENESS AND PROTECTIVENESS

The principal elements of the OM&M are:

- ▶ Groundwater Monitoring

- ▶ Surface Water/Sediment Sampling
- ▶ Effluent Monitoring
- ▶ Hydraulic Monitoring
- ▶ Wetlands Monitoring
- ▶ General physical and mechanical maintenance.

The Town of Cheektowaga submits OM&M reports to NYSDEC twice per year reporting on the performance, effectiveness, and protectiveness of each of these elements. The two reports covering the calendar year of 2017 are attached to this Periodic Review Report. A summary of the findings of performance, effectiveness, and protectiveness for 2017 is presented in the sections below.

3.1 Groundwater Monitoring

As the OM&M contractor for the Town of Cheektowaga, URS Corporation (URS) has performed twenty-eight rounds of semi-annual groundwater sampling. The most recent sampling was conducted in May and November 2017. Results of this sampling continue to show no impacts to groundwater from the landfill. In brief, no VOCs or SVOCs were detected above Class GA water quality standards, with one exception. The SVOC 1,4-dichlorobenzene was detected during both events at concentrations slightly exceeding its quality standard of 3.0 micrograms per liter (ug/L) in monitoring well GW-03D. It was detected at estimated concentrations of 3.1 and 3.8 ug/L in May and November, respectively.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. Other metals detected above Class GA standards in 2017 were chromium and lead in upgradient well GW-07D during both sampling events. In addition, antimony, cadmium, and nickel were above Class GA standards in well GW-07D during the May event. No significant changes in metals concentrations were observed when compared to previous sampling event analytical results and were within the historical range of concentrations observed for these metals. The attached semi-annual reports present the 2017 data in tables, graphs, and charts.

3.2 Surface Water/Sediment Sampling

Surface water and sediment sampling was discontinued in 2008 after three years of sampling showed that no site-related contaminants were present in these media. This sampling was eliminated in accordance with the approved OM&M plan and as approved by NYSDEC.

3.3 Effluent Monitoring

URS performed effluent monitoring on a quarterly basis during 2017. The results of the sampling are reported in the attached semi-annual reports. The parameter values in the effluent were well below the discharge criteria for all quarterly sampling events conducted in 2017.

3.4 Hydraulic Monitoring

URS performed hydraulic monitoring on a quarterly basis during 2017. Hydraulic monitoring is performed through measuring the water elevation in each of the six wetwells and in nine manholes associated with the perimeter collection system, and comparing each of these elevations with the groundwater elevations in paired monitoring wells adjacent to each wetwell or manhole. Hydraulic control is demonstrated by an inward hydraulic gradient from the monitoring wells to the collection system. The hydraulic gradient was towards the groundwater collection system for every quarterly measurement taken during 2017. Therefore, these data demonstrate that the collection system is operating as designed.

3.5 Wetlands Monitoring

The monitoring of wetlands mitigation has not gone as originally planned in the OM&M manual. Initially, the wetlands species planted for mitigation fared poorly due to trampling from geese and deer. Fences were erected in 2004 to keep this wildlife out. Some wetland vegetation was also lost during landfill cap mowing in 2005 when the mowing contractor mowed a greater area than had been specified. The wetland vegetation species were replanted in 2005. However, in the time since construction ended in 2002, the *Phragmites sp.* vegetation that is quite abundant in this area has spread and established itself throughout the areas formerly disturbed during construction. *Phragmites sp.* does not provide robust food source for wildlife, but does act to stabilize soil in the interface zone between the landfill and the existing pond and wetland.

3.6 General Physical and Mechanical Maintenance

The Town of Cheektowaga performs the necessary general physical and mechanical maintenance as needed. Example maintenance items are routine maintenance and replacement of pumps and instrumentation used for groundwater/leachate collection, annual cap mowing, snow plowing, etc. A summary of the general maintenance activities performed during 2017 is provided in the attached semi-annual reports.

4.0 IC/EC PLAN COMPLIANCE

There is no formal Institutional Control/Engineering Control (IC/EC) plan for this site. However, there are institutional and engineering controls in place and they are functioning as intended. These are discussed below.

4.1 Institutional Controls

Institutional controls (ICs) consist of restrictions on land use for the various parcels that comprise this site. The parcels subject and their restrictions are listed on the attached Site Management Periodic Review Report Notice Institutional and Engineering Controls Certification Form. The restrictions address building use, groundwater use, and land use. Compliance with these ICs is evaluated by observation to see if any infringing activities are occurring on these parcels. These ICs remain in effect, as certified in Attachment C.

4.2 Engineering Controls

Engineering controls (ECs) consist of the landfill cap, fencing and access control, collection of the groundwater/leachate, and vapor mitigation. Compliance with these ECs is evaluated at a minimum through inspection of these elements during each semi-annual monitoring event. In most cases, inspection is more frequent. For example, collection of the groundwater/leachate is monitored continuously by Town of Cheektowaga personnel and effluent compliance reports are submitted quarterly. These ECs remain in effect, as certified in Attachment C.

5.0 OPERATION & MAINTENANCE AND MONITORING PLAN COMPLIANCE

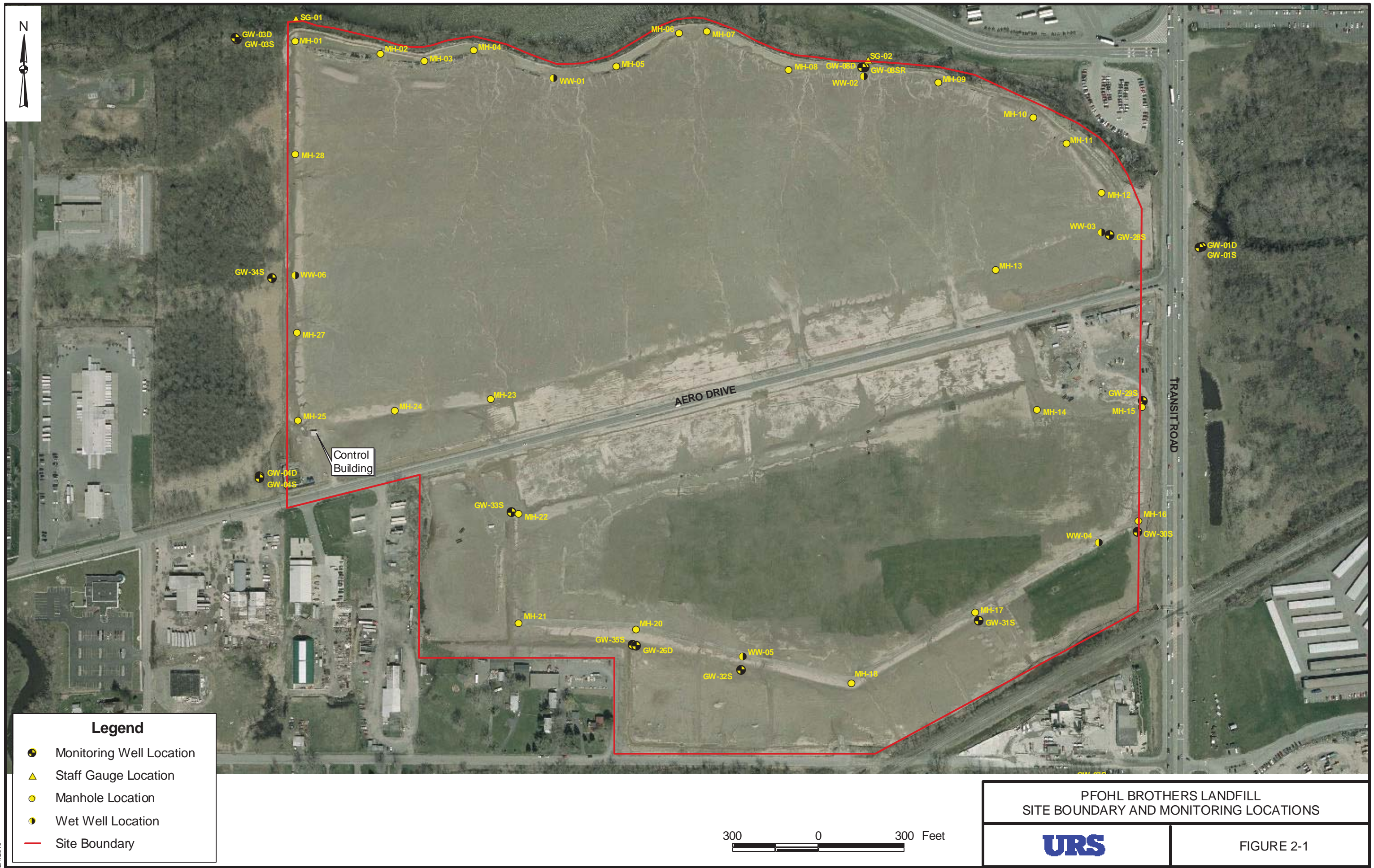
The components of the OM&M Plan are discussed above in Section 3.0. Summaries of OM&M activities performed during 2017 are provided in the attached semi-annual reports. The

OM&M activities show that the landfill and its groundwater/leachate collection system are operating as intended, and receive repairs and maintenance as needed in a timely fashion. Sampling of the groundwater in monitoring wells and the effluent generated by the groundwater/leachate collection system show that no landfill contamination is migrating to these media, and therefore the wastes remain effectively contained. No changes to the OM&M for this site are recommended.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The remedy at the Pfohl Brothers Site Landfill is operating as designed and remains protective of human health and the environment. No changes to the OM&M for this site are recommended.

FIGURES



ATTACHMENTS

ATTACHMENT A

January 2017 – June 2017

Semi Annual Report

And

Data Applicability Report

**SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2017 TO JUNE 2017
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY**

Submitted to:

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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Prepared by:

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Prepared for:

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**FEBRUARY
2018**



February 13, 2018

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

**Re: Semi-Annual Report January 2017 – June 2017
 Pfohl Brothers Landfill, Town of Cheektowaga, New York**

Dear Mr. Szymanski:

Enclosed is one copy of the January 2017 – June 2017 Semi-Annual Report for the Pfohl Brothers Landfill in Cheektowaga, New York. A copy has also been sent to Ms. Pamela Tames, P.E. of the United States Environmental Protection Agency.

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

Sincerely,

URS CORPORATION

A handwritten signature in black ink, appearing to read "Jon Sundquist".

Jon Sundquist, Ph.D.
Project Manager

Enclosures

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

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Figure 1-1	Site Location Map
Figure 3-1	Monitoring Locations

APPENDICES

Appendix A	Example Daily Inspection Sheets
Appendix B	Monthly Flow Summaries (January 2017 – June 2017)
Appendix C	Hydraulic Monitoring Tables
Appendix D	Groundwater Purge and Sample Collection Logs
Appendix E	Groundwater Trend Analysis
Appendix F	BSA Permit No. 16-04-CH016
Appendix G	Discharge Report Summary Tables
Appendix H	Monitoring Well Inspection Logs

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 2017 through June 2017 include the following actions:

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet are attached in Appendix A.
- Total cumulative effluent flow rates and volumes were summarized on a monthly basis starting in February 2003. The monthly totals for the period of January 2017 through June 2017, 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 need for pump station instrumentation equipment.

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 24 and 26, 2017. 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 22, 2017. 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, with one exception. The SVOC 1,4-dichlorobenzene was detected at an estimated concentration of 3.1 micrograms per liter (ug/L) slightly exceeding its quality standard of 3.0 ug/L in monitoring well GW-03D.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. In addition, antimony, cadmium, chromium, lead, and nickel 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. There were increases in some metals in well GW-07D, but this well is upgradient of the site and has exhibited similar fluctuations in the past. The concentration of iron, magnesium, manganese, and sodium in most site wells was similar to the concentrations found during previous sampling events.

Sodium concentrations were generally higher in bedrock wells (GW-01D, GW-03D, GW-08D and GW-26D) and shallow wells adjacent to roads (GW-01S and GW-30S). The sodium concentration was also elevated in GW-08SR. The higher sodium concentrations in the

bedrock wells may be attributed to the local bedrock composition and the elevated concentration in the shallow wells may be the result of seasonal road de-icing activities.

Trend Analysis

A trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards was performed and is presented in Figures E-1 through E-19 of Appendix E. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters exceeding groundwater standards have occurred over the semi-annual sampling events except as described below. Figure E-2 for GW-01S indicates an overall upward trend in manganese concentration since monitoring began, although concentrations have decreased over the last three events. The Figure also indicates an overall downward trend in sodium concentration since monitoring began with slight increases observed over the last three events. Figure E-3 for GW-03D indicates downward trends for iron and manganese. Figure E-4 indicates upward trends for magnesium and sodium in GW-03S since monitoring began and results for manganese and sodium were at their historical highs at this well during this event. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-7 for GW-07D indicates all metals spiked higher during this 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-10 for GW-08SR shows an increasing trend for sodium since monitoring began; however, there was a sharp decrease during the most recent sampling events. Figure E-11 for GW-26D indicates downward trends for iron and manganese and a slight upward trend for sodium. 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. 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-2016-002, September 2016; and *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2016-001, September

2016. 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 July 2017 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2017 and June 2017) 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 2017 and June 2017, 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 2017 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 2017. 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 2017

Location ID			GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Sample ID			GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/26/17	05/26/17	05/24/17	05/24/17	05/24/17
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Acetone	UG/L	50					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			2.1 J		
1,4-Dichlorobenzene	UG/L	3			3.1 J		
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.084	0.15	0.099	0.12	0.093
Cadmium	MG/L	0.005		0.0014		0.00094 J	
Chromium	MG/L	0.05	0.0051	0.0034 J		0.0067	0.0037 J
Copper	MG/L	0.2				0.0023 J	
Iron	MG/L	0.3	2.4	9.0	1.5	1.1	0.12
Lead	MG/L	0.025	0.0038 J		0.0032 J	0.0035 J	
Magnesium	MG/L	35	36.8	14.9	19.6	86.9	81.9
Manganese	MG/L	0.3	0.023	1.2	0.35	0.86	0.023
Nickel	MG/L	0.1	0.0016 J	0.0025 J	0.0061 J	0.088	
Sodium	MG/L	20	106	171	204	104	94.2
Zinc	MG/L	2	0.013		0.013	0.17	0.047

* - 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 arachnids.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2017

Location ID			GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Sample ID			GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/24/17	05/24/17	05/25/17	05/24/17	05/25/17
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			NA		NA
Acetone	UG/L	50			NA	4.7 J	NA
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3		NA		NA	
1,4-Dichlorobenzene	UG/L	3		NA		NA	
Metals							
Antimony	MG/L	0.003		NA	0.018 J	NA	
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.11	NA	0.15	NA	0.34
Cadmium	MG/L	0.005		NA	0.0067	NA	0.00052 J
Chromium	MG/L	0.05	0.0078	NA	1.4	NA	0.0076
Copper	MG/L	0.2	0.0043 J	NA	0.16	NA	
Iron	MG/L	0.3	2.0	NA	50.8	NA	0.46
Lead	MG/L	0.025	0.0053	NA	0.67	NA	
Magnesium	MG/L	35	30.3	NA	44.4	NA	42.4
Manganese	MG/L	0.3	0.094	NA	0.34	NA	0.11
Nickel	MG/L	0.1	0.0071 J	NA	0.66	NA	0.012
Sodium	MG/L	20	37.5	NA	84.6	NA	61.6
Zinc	MG/L	2	0.0089 J	NA	0.43	NA	

* - 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 arachnids.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2017

Location ID			GW-08D	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID			FD-052517	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/25/17	05/25/17	05/25/17	05/25/17	05/25/17
Parameter	Units	*	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5				1.1 J	
Acetone	UG/L	50		3.3 J			
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.048	0.049	0.12	0.12	0.092
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.022	0.021			
Copper	MG/L	0.2					
Iron	MG/L	0.3	0.20	0.19	10.2	2.5	0.077
Lead	MG/L	0.025					
Magnesium	MG/L	35	11.7	11.9	60.6	17.7	30.4
Manganese	MG/L	0.3	0.031	0.031	0.92	0.38	0.96
Nickel	MG/L	0.1	0.0055 J	0.0059 J	0.0030 J	0.0020 J	0.0020 J
Sodium	MG/L	20	133	135	157	281	14.9
Zinc	MG/L	2	0.011	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.

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2017

Location ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/25/17	05/26/17	05/26/17	05/26/17	05/25/17
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Acetone	UG/L	50					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025	0.011				
Barium	MG/L	1	0.19	0.12	0.065	0.053	0.031
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05					
Copper	MG/L	0.2					
Iron	MG/L	0.3	11.9	5.9	2.0		
Lead	MG/L	0.025	0.0035 J				
Magnesium	MG/L	35	74.5	34.2	30.7	27.5	28.1
Manganese	MG/L	0.3	1.0	0.88	0.85	0.32	0.026
Nickel	MG/L	0.1			0.0036 J	0.0015 J	0.0018 J
Sodium	MG/L	20	10	52.9	4.2	3.2	2.8
Zinc	MG/L	2	0.051				

* - 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 aromatics.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2017

Location ID			GW-34S	GW-35S
Sample ID			GW-34S	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			05/26/17	05/25/17
Parameter	Units	*		
Volatile Organic Compounds				
1,2-Dichloroethene (total)	UG/L	5		
Acetone	UG/L	50		
Semivolatile Organic Compounds				
1,3-Dichlorobenzene	UG/L	3		
1,4-Dichlorobenzene	UG/L	3		
Metals				
Antimony	MG/L	0.003		
Arsenic	MG/L	0.025		
Barium	MG/L	1	0.10	0.085
Cadmium	MG/L	0.005		
Chromium	MG/L	0.05	0.0016 J	
Copper	MG/L	0.2		
Iron	MG/L	0.3	0.15	0.024 J
Lead	MG/L	0.025		
Magnesium	MG/L	35	48.8	21.8
Manganese	MG/L	0.3	0.28	0.077
Nickel	MG/L	0.1	0.011	0.0017 J
Sodium	MG/L	20	32.3	2.4
Zinc	MG/L	2		

* - 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 aromatics.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

NA - Not Analyzed.

Only Detected Results Reported.

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

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

TABLE 3-2 (continued)

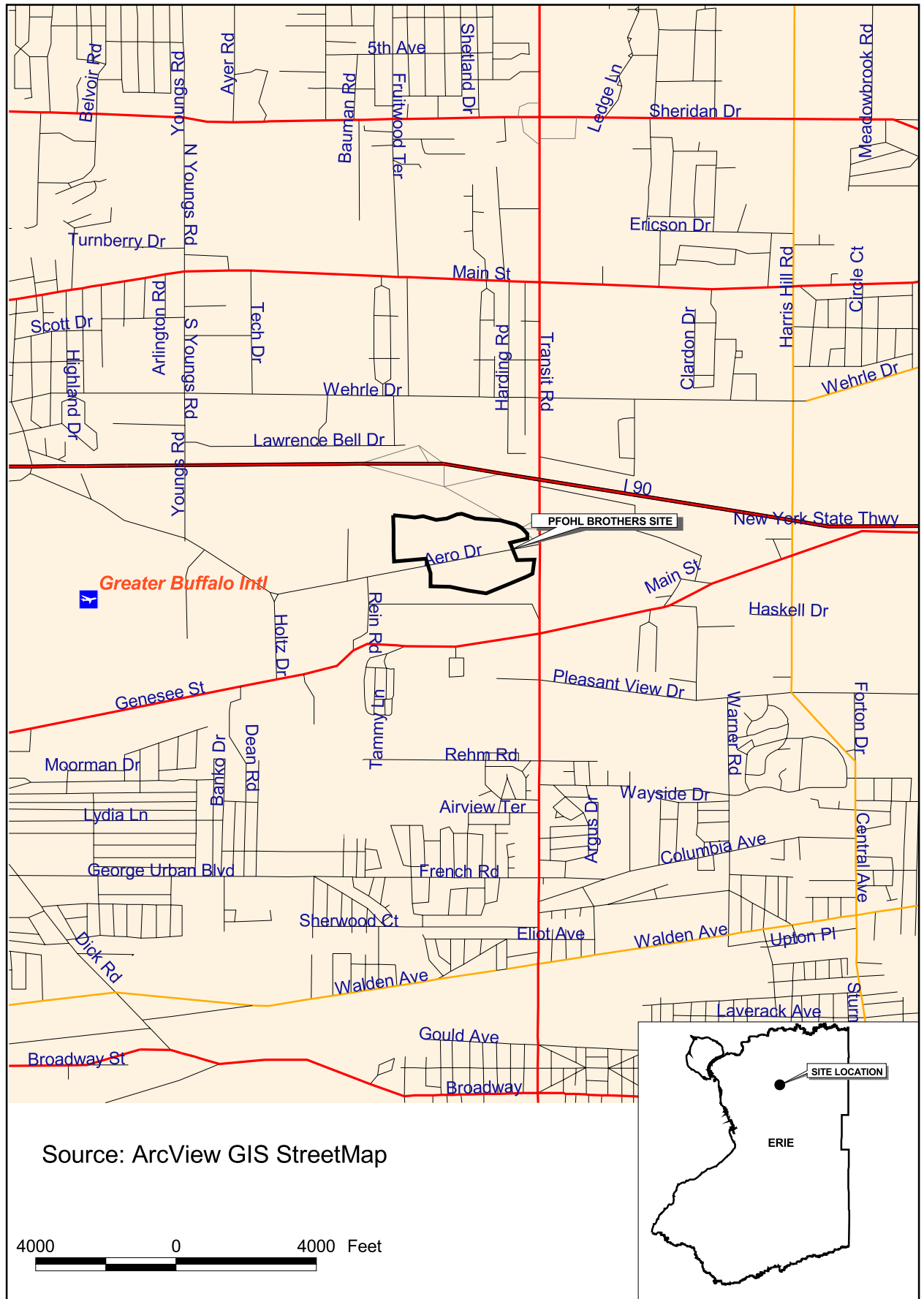
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

PARAMETERS (cont'd)

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

FIGURES



N:\1172700\000000\GIS\ArcView\pfohl.apr WELL LOCATIONS
12/15/2005



Legend

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

400 0 400 Feet

PFOHL BROTHERS LANDFILL
MONITORING LOCATIONS

URS

FIGURE 3-1

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheets

Town of Cheektowaga

Date

3/17/17

Weather conditions

Clear/Cold

Time

1055

Read by:

JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	152	2791
WW-2	4.7	0	0	161
WW-1	5.2	30.8	1743999	5546
WW-6	8.2	54.3	21025794	14210
WW-4	9.2	20.8	7710253	7379
WW-5	9.7	17.9	2437262	17630

Flow Totalizer at Meter chamber

Heat Trace

Outside temp T = 40
Current A = 2.2

Set point SP = 40

Surge Suppressor events

4116683

Motor Control Center

Volts 480 volts
Amps 12 amps

Which WW was running?

1 ☒ 2 ☐ 3 ☐ 4 ☒ 5 ☒ 6 ☒

Filter

Checked ☒

Changed ☐

Comments and/or Current Conditions

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 4/4/17

Weather conditions Rain

Time 1152

Read by: JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	152	2791
WW-2	4.6	0	0	1161
WW-1	4.4	31.0	2188085	5725
WW-6	7.4	52.9	2978027	14305
WW-4	7.0	0	874805	7454
WW-5	6.9	32.9	2791605	17833

Flow Totalizer at Meter chamber

Heat Trace

Outside temp T = 55

Set point SP = 40

Current A = 0

Surge Suppressor events

416692

Motor Control Center

Volts 480 volts

Which WW was running?

Amps 10 amps

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5 ☒ 6

Filter

Checked ☐

Changed ☐

Comments and/or Current Conditions

DATA
site OK

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 5/6/17
Time 1:55

Weather conditions Rain
Read by: JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	0	2791
WW-2	4.7	0	0	16.1
WW-1	5.3	30.7	2296190	5781
WW-6	8.2 8.2	50.7	3559430	14465
WW-4	10.5	18.1	1037451	7582
WW-5	11.2	14.1	3272163	18132

Flow Totalizer at Meter chamber

10156164

Heat Trace

Outside temp T = 44
Current A = 2

Set point SP = 40

Surge Suppressor events

Motor Control Center
Volts 480 volts
Amps 12 amps

Which WW was running?

23456

Filter Checked Changed

Comments and/or Current Conditions

OK

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2017 – JUNE 2017

The
TOWN OF
CHEEKTOWAGA



Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

February 2, 2017

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

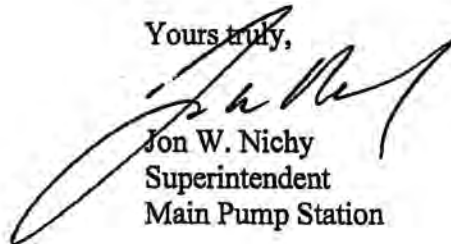
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the January 2017 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,



Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

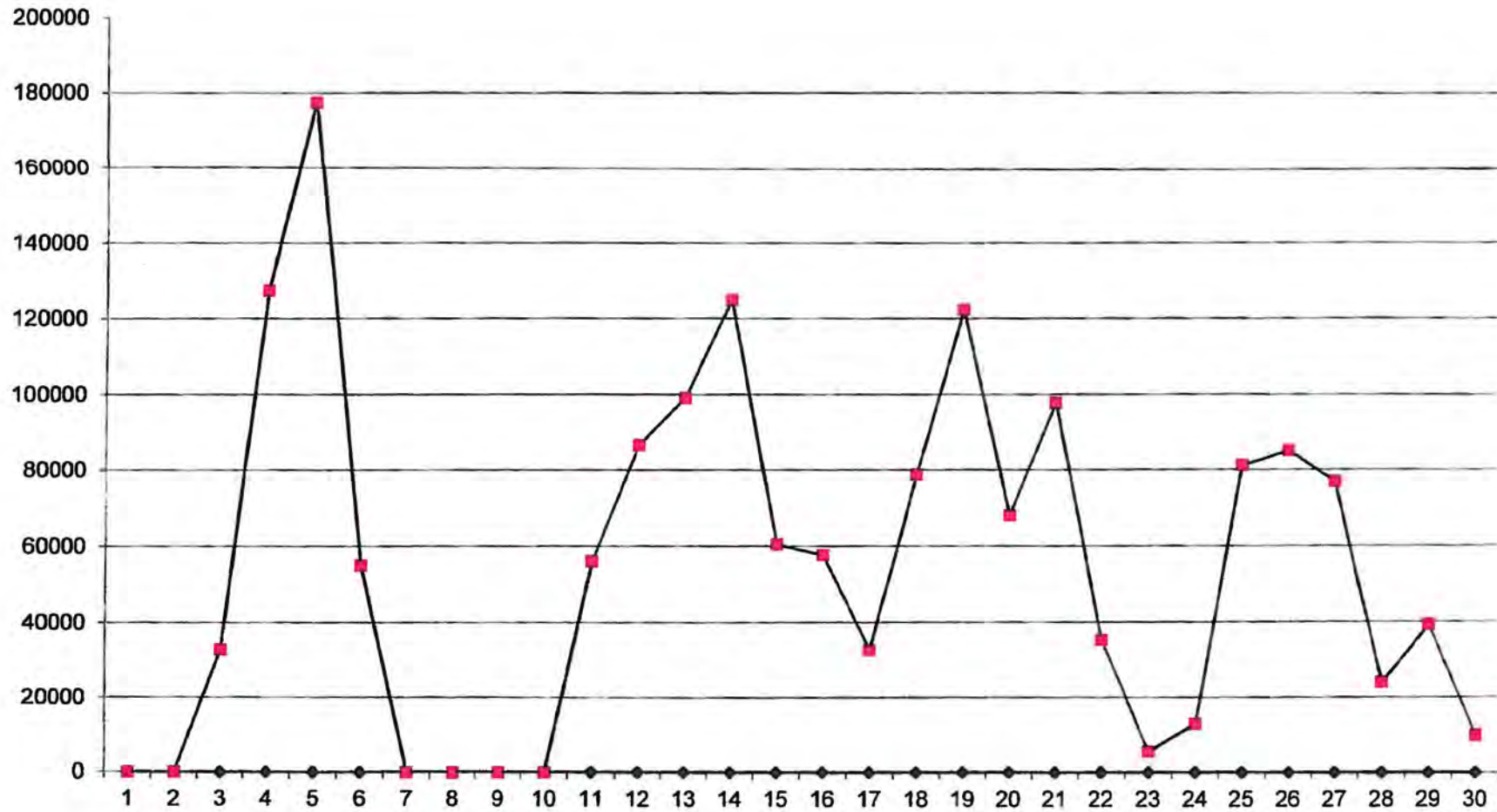
12/31/2016

4388621

0

Jan-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		4,388,621	0	
2		4,388,621	0	
3		4,421,335	32,714	12:57 enable 17:14 inhibit
4		4,548,733	127,397	07:22 enable
5		4,726,150	177,417	
6		4,780,987	54,836	
7		4,780,987	0	
8		4,780,987	0	
9		4,780,987	0	
10		4,780,987	0	21:45 inhibit
11		4,836,975	55,988	15:28 enable
12		4,923,510	86,535	13:19 inhibit
13		5,022,602	99,092	8:35
14		5,147,477	124,875	enable
15		5,207,909	60,432	
16		5,265,537	57,628	
17		5,298,130	32,593	12:19 inhibit
18		5,376,908	78,778	11:19 enable
19		5,499,209	122,300	
20		5,567,122	67,913	
21		5,664,868	97,746	
22		5,700,016	35,147	
23		5,705,502	5,486	
24		5,718,454	12,952	
25		5,799,625	81,170	
26		5,884,737	85,112	
27		5,961,586	76,849	
28		5,985,517	23,931	
29		6,024,743	39,225	
30		6,034,640	9,897	
31		6,055,302	20662	
		1,666,681	1,666,675	

January
2017



The
TOWN OF
CHEEKTOWAGA



Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

March 8, 2017

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 2017 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,

A handwritten signature in black ink, appearing to read "Jon W. Nichy", written over a horizontal line.

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

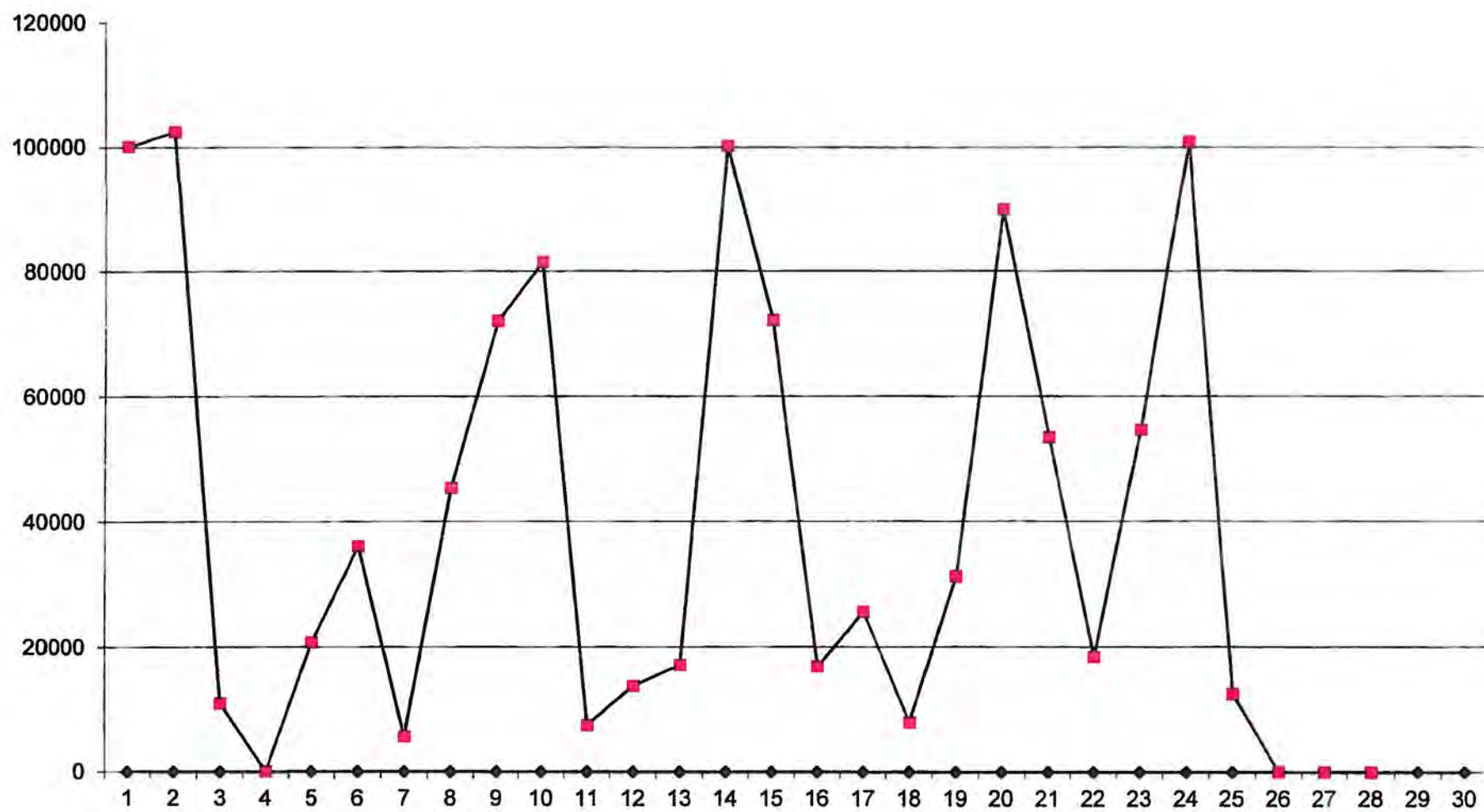
1/31/2017

6055302

20,662

Feb-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		6,155,306	100,004	
2		6,257,692	102,386	
3		6,268,591	10,898	
4		6,268,591	0	
5		6,289,308	20,717	
6		6,325,388	36,079	
7		6,330,947	5,559	18:01 inhibit
8		6,376,315	45,368	09:20 enable
9		6,448,341	72,026	
10		6,529,742	81,401	
11		6,537,177	7,435	
12		6,550,884	13,707	15:15 inhibit
13		6,567,959	17,075	20:20 enable
14		6,668,065	100,105	
15		6,740,220	72,155	
16		6,757,033	16,813	
17		6,782,641	25,608	
18		6,790,539	7,897	
19		6,821,862	31,323	
20		6,911,690	89,827	
21		6,965,113	53,423	
22		6,983,442	18,329	
23		7,038,076	54,633	
24		7,138,788	100,712	
25		7,151,179	12,391	08:05 inhibit
26		7,151,179	0	
27		7,151,179	0	
28		7,151,179	0	
29				
30				
31				
		1,095,877	1,095,871	

February
2017



The
TOWN OF
CHEEKTOWAGA



Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

April 5, 2017

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

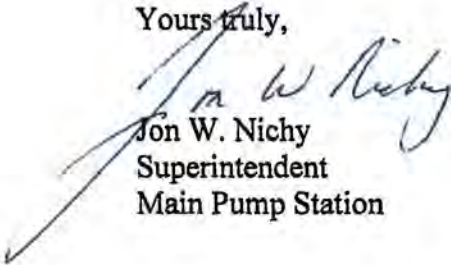
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the March 2017 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

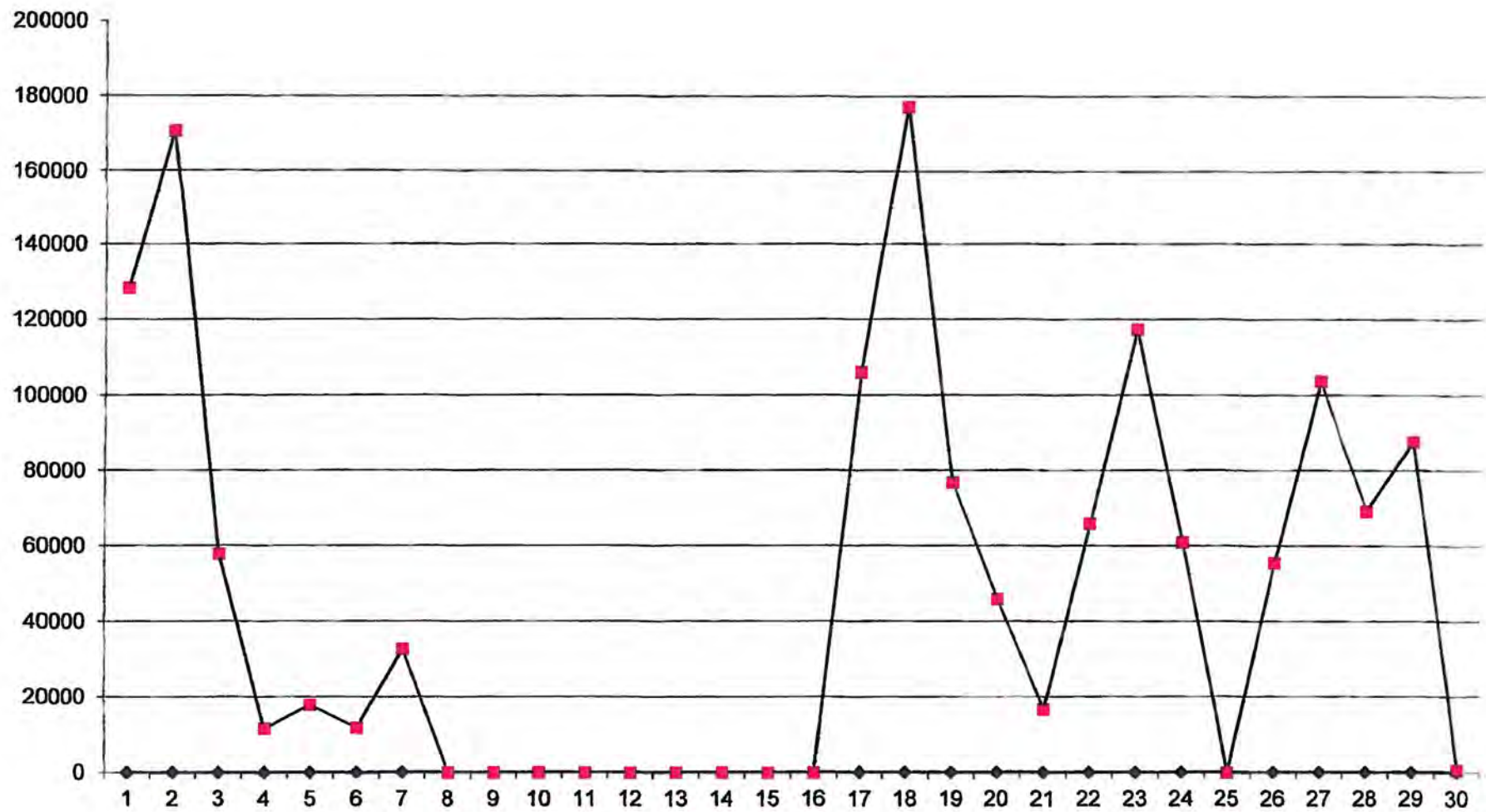
2/28/2017

7151179

0

Mar-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		7,279,233	128,053	06:59 enable
2		7,449,699	170,466	
3		7,507,514	57,815	
4		7,518,974	11,459	
5		7,536,732	17,758	
6		7,548,495	11,763	
7		7,580,998	32,503	07:51 inhibit
8		7,580,998	0	
9		7,580,998	0	
10		7,580,998	0	
11		7,580,998	0	
12		7,580,998	0	
13		7,580,998	0	
14		7,580,998	0	
15		7,580,998	0	
16		7,580,998	0	
17		7,686,841	105,843	09:57 enable
18		7,863,828	176,986	
19		7,940,498	76,670	
20		7,986,262	45,764	
21		8,002,758	16,496	13:47 inhibit
22		8,068,447	65,688	12:56 enable
23		8,185,698	117,251	
24		8,246,446	60,748	
25		8,246,446	0	02:59 inhibit
26		8,301,743	55,296	07:54 enable
27		8,405,318	103,575	
28		8,474,421	69,103	
29		8,562,075	87,654	
30		8,562,606	531	21:41 inhibit
31		8,562,606	0	
		1,411,427	1,411,422	

March
2017



Direct Discharge Flow Data

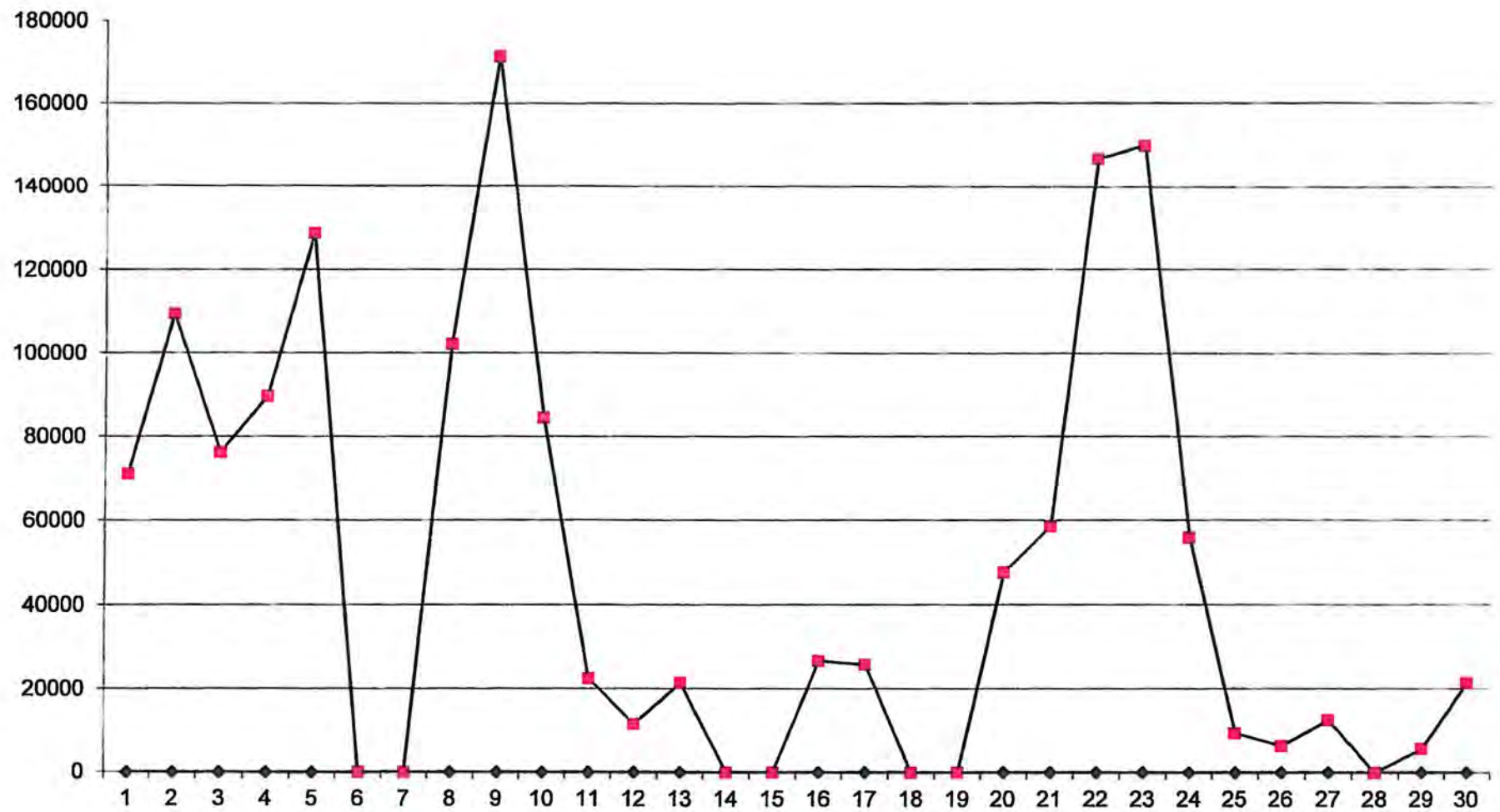
3/31/2017

8562606

0

Apr-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		8,633,790	71,184	08:21 enable
2		8,743,230	109,440	
3		8,819,503	76,273	
4		8,909,205	89,702	00:27 inhibit 11:46 enable
5		9,037,958	128,753	23:47 inhibit
6		9,037,958	0	
7		9,037,958	0	
8		9,140,140	102,182	09:35 enable
9		9,311,516	171,376	
10		9,396,084	84,568	
11		9,418,565	22,481	
12		9,430,147	11,582	
13		9,451,507	21,360	
14		9,451,507	0	
15		9,451,507	0	
16		9,478,203	26,696	
17		9,503,995	25,792	
18		9,503,995	0	
19		9,503,995	0	11:28 inhibit
20		9,551,688	47,693	07:07 enable 15:14 inhibit
21		9,610,278	58,590	14:00 enable
22		9,756,834	146,556	
23		9,906,594	149,760	
24		9,962,473	55,879	
25		9,971,873	9,400	
26		9,978,206	6,333	
27		9,990,734	12,528	
28		9,990,734	0	
29		9,996,367	5,633	
30		10,017,715	21,348	09:50inhibit
31				
		1,455,109	1,455,109	

April
2017



The
TOWN OF
CHEEKTOWAGA



Jon W. Nichy
Superintendent
Joseph Glab
Asst. Superintendent

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

June 13, 2017

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 2017 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,

A handwritten signature in black ink, appearing to read "Jon W. Nichy", is written over the typed name and title.

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

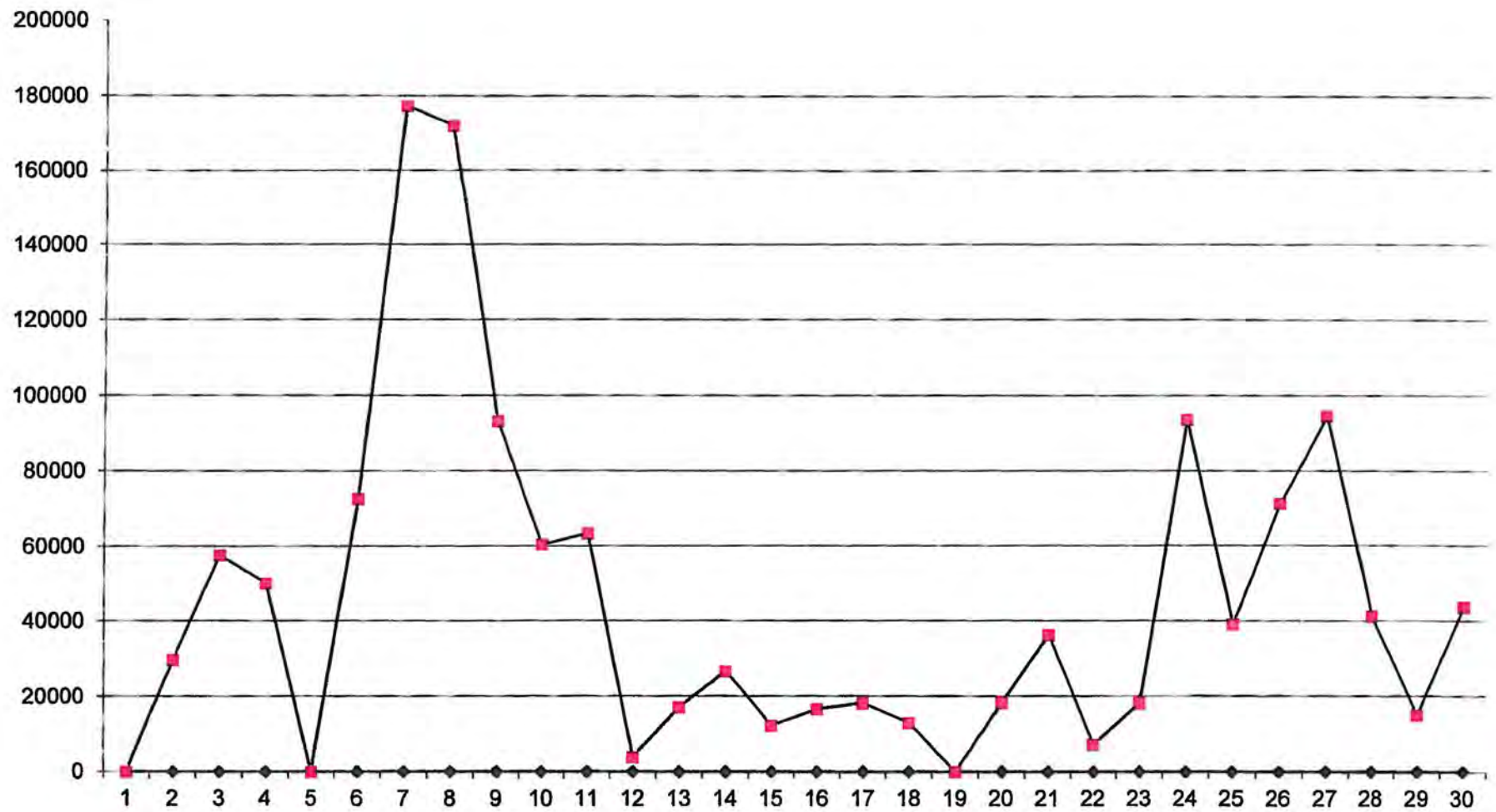
4/30/2017

10017715

21,348

May-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		10,017,715	0	
2		10,047,425	29,710	10:07 enabled
3		10,104,987	57,562	
4		10,155,017	50,030	20:48 inhibit
5		10,155,017	0	
6		10,227,506	72,489	13:52 enable
7		10,404,839	177,333	
8		10,576,971	172,132	
9		10,670,238	93,267	
10		10,730,577	60,339	
11		10,793,920	63,343	
12		10,797,812	3,892	
13		10,814,903	17,091	
14		10,841,609	26,706	14:17 inhibit 21:27 enable
15		10,853,830	12,221	
16		10,870,404	16,574	
17		10,888,580	18,176	
18		10,901,524	12,944	
19		10,901,524	0	
20		10,919,755	18,231	
21		10,955,994	36,239	
22		10,963,089	7,095	
23		10,981,263	18,174	
24		11,074,932	93,669	
25		11,114,048	39,116	07:08 inhibit
26		11,185,320	71,272	11:02 enable
27		11,279,917	94,597	
28		11,321,085	41,168	
29		11,336,060	14,975	
30		11,379,780	43,720	
31		11,381,657	1877	
		1,363,942	1,363,942	

May
2017



The
TOWN OF
CHEEKTOWAGA



Jon W. Nichy
Superintendent

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

July 5, 2017

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 2017 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,

A handwritten signature in black ink, appearing to read "Jon W. Nichy", is written over the typed name and title.

Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

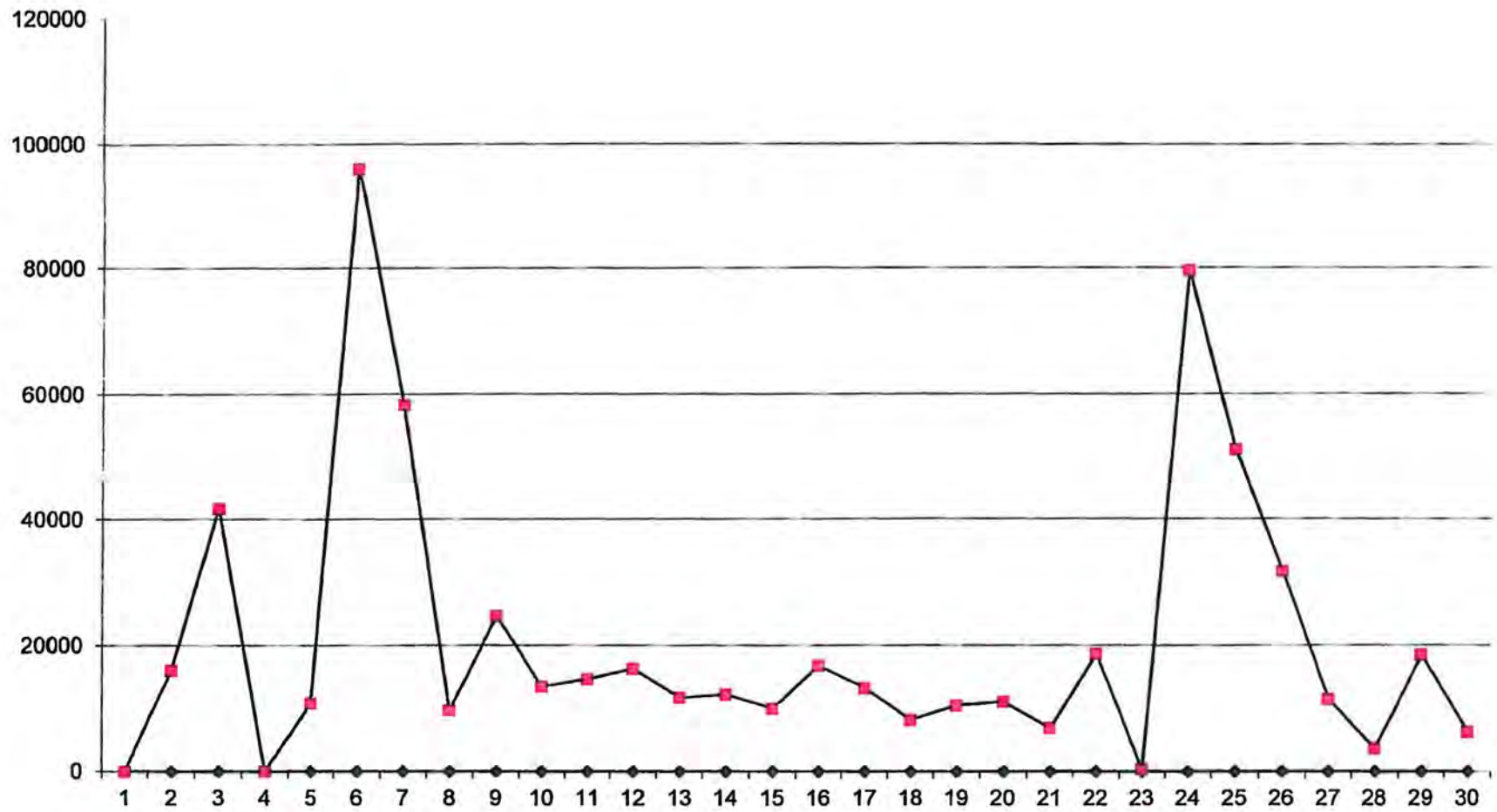
5/31/2017

11381657

1,877

Jun-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		11,381,657	0	
2		11,397,699	16,042	
3		11,439,420	41,721	
4		11,439,420	0	
5		11,450,211	10,791	
6		11,546,298	96,087	
7		11,604,663	58,365	
8		11,614,424	9,761	
9		11,639,081	24,657	
10		11,652,556	13,475	
11		11,667,216	14,660	
12		11,683,510	16,294	
13		11,695,180	11,670	
14		11,707,366	12,186	
15		11,717,291	9,925	
16		11,734,068	16,777	
17		11,747,299	13,231	
18		11,755,449	8,150	
19		11,765,885	10,436	
20		11,776,872	10,987	
21		11,783,721	6,849	
22		11,802,302	18,581	
23		11,802,631	329	
24		11,882,248	79,617	
25		11,933,328	51,080	
26		11,964,956	31,628	
27		11,976,381	11,425	
28		11,979,977	3,596	
29		11,998,433	18,446	00:29 inhibit 13:05 enable
30		12,004,621	6,198	
31				
		622,964	622,964	

**June
2017**



APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2017

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								3/22/2017 1607	2.00	694.12	0.00	694.12	
MNW								5/24/2017 1139	2.95	693.17	0.00	693.17	
MNW								6/22/2017 1011	3.58	692.54	0.00	692.54	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								3/22/2017 1606	3.20	692.99	0.00	692.99	
MNW								5/24/2017 1139	3.37	692.82	0.00	692.82	
MNW								6/22/2017 1012	5.38	690.81	0.00	690.81	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								3/22/2017 1459	1.52	692.36	0.00	692.36	
MNW								5/24/2017 0858	2.02	691.86	0.00	691.86	
MNW								6/22/2017 0858	1.93	691.95	0.00	691.95	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								3/22/2017 1458	2.60	691.20	0.00	691.20	
MNW								5/24/2017 0857	2.92	690.88	0.00	690.88	
MNW								6/22/2017 0859	6.47	687.33	0.00	687.33	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								3/22/2017 1614	12.78	679.97	0.00	679.97	
MNW								5/24/2017 1423	11.68	681.07	0.00	681.07	
MNW								6/22/2017 1020	12.50	680.25	0.00	680.25	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								3/22/2017 1614	3.87	688.85	0.00	688.85	
MNW								5/24/2017 1424	4.45	688.27	0.00	688.27	
MNW								6/22/2017 1019	5.38	687.34	0.00	687.34	

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 2017

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								3/22/2017 1552	48.91	651.03	0.00	651.03	
MNW								5/24/2017 0953	44.65	655.29	0.00	655.29	
MNW								6/22/2017 1005	57.72	642.22	0.00	642.22	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								3/22/2017 1552	5.40	694.11	0.00	694.11	
MNW								5/24/2017 0953	4.88	694.63	0.00	694.63	
MNW								6/22/2017 1004	5.88	693.63	0.00	693.63	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								3/22/2017 1507	5.45	692.34	0.00	692.34	
MNW								5/24/2017 0911	6.01	691.78	0.00	691.78	
MNW								6/22/2017 0909	5.94	691.85	0.00	691.85	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								3/22/2017 1507	5.07	692.43	0.00	692.43	
MNW								5/24/2017 0910	5.17	692.33	0.00	692.33	
MNW								6/22/2017 0908	5.43	692.07	0.00	692.07	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								3/22/2017 1543	6.31	692.19	0.00	692.19	
MNW								5/24/2017 0941	6.85	691.65	0.00	691.65	
MNW								6/22/2017 0955	6.76	691.74	0.00	691.74	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								3/22/2017 1513	8.56	692.39	0.00	692.39	
MNW								5/24/2017 0916	9.25	691.70	0.00	691.70	
MNW								6/22/2017 0915	10.05	690.90	0.00	690.90	

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2017

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								3/22/2017 1530	6.03	693.60	0.00	693.60	
MNW								5/24/2017 0926	8.82	690.81	0.00	690.81	
MNW								6/22/2017 0942	9.46	690.17	0.00	690.17	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								3/22/2017 1533	6.76	689.82	0.00	689.82	
MNW								5/24/2017 0929	7.93	688.65	0.00	688.65	
MNW								6/22/2017 0945	8.13	688.45	0.00	688.45	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								3/22/2017 1535	2.50	696.12	0.00	696.12	Frozen at 2.50'
MNW								5/24/2017 0934	3.57	695.05	0.00	695.05	
MNW								6/22/2017 0948	5.65	692.97	0.00	692.97	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								3/22/2017 1539	2.10	696.27	0.00	696.27	
MNW								5/24/2017 0937	3.80	694.57	0.00	694.57	
MNW								6/22/2017 0951	5.21	693.16	0.00	693.16	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								3/22/2017 1543	3.09	695.15	0.00	695.15	
MNW								5/24/2017 0944	5.24	693.00	0.00	693.00	
MNW								6/22/2017 0957	6.82	691.42	0.00	691.42	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								3/22/2017 1451	2.62	692.15	0.00	692.15	
MNW								5/24/2017 0849	2.97	691.80	0.00	691.80	
MNW								6/22/2017 0850	4.51	690.26	0.00	690.26	

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 2017

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								3/22/2017 1546	3.62	693.77	0.00	693.77	
MNW								5/24/2017 0941	3.65	693.74	0.00	693.74	
MNW								6/22/2017 0954	4.90	692.49	0.00	692.49	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								3/22/2017 1455	9.80	688.82	0.00	688.82	
MH								5/24/2017 0854	9.92	688.70	0.00	688.70	
MH								6/22/2017 0854	9.70	688.92	0.00	688.92	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								3/22/2017 1502	10.61	688.79	0.00	688.79	
MH								5/24/2017 0903	10.80	688.60	0.00	688.60	
MH								6/22/2017 0904	10.57	688.83	0.00	688.83	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								3/22/2017 1504	8.83	687.99	0.00	687.99	
MH								5/24/2017 0906	8.95	687.87	0.00	687.87	
MH								6/22/2017 0906	8.77	688.05	0.00	688.05	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								3/22/2017 1509	14.46	688.55	0.00	688.55	
MH								5/24/2017 0914	14.44	688.57	0.00	688.57	
MH								6/22/2017 0913	14.46	688.55	0.00	688.55	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								3/22/2017 1529	14.36	684.66	0.00	684.66	
MH								5/24/2017 0925	14.14	684.88	0.00	684.88	
MH								6/22/2017 0941	14.26	684.76	0.00	684.76	

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 2017

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 MH	1072133.714	1117748.238	698.57	NM	698.57	NA	1	3/22/2017 1532	14.46	684.11	0.00	684.11	
								5/24/2017 0928	14.48	684.09	0.00	684.09	
								6/22/2017 0944	14.50	684.07	0.00	684.07	
MH-17 MH	1071813.137	1117180.019	702.16	NM	702.16	NA	1	3/22/2017 1535	18.11	684.05	0.00	684.05	
								5/24/2017 0933	18.12	684.04	0.00	684.04	
								6/22/2017 0947	18.14	684.02	0.00	684.02	
MH-20 MH	1071756.395	1115997.024	706.20	NM	706.20	NA	1	3/22/2017 1541	19.78	686.42	0.00	686.42	
								5/24/2017 0939	19.73	686.47	0.00	686.47	
								6/22/2017 0952	19.73	686.47	0.00	686.47	
MH-22 MH	1072158.023	1115589.309	698.05	NM	698.05	NA	1	3/22/2017 1544	8.62	689.43	0.00	689.43	
								5/24/2017 0943	8.98	689.07	0.00	689.07	
								6/22/2017 0956	9.03	689.02	0.00	689.02	
MH-25 MH	1072483.928	1114820.313	698.17	NM	698.17	NA	1	3/22/2017 1447	8.95	689.22	0.00	689.22	
								5/24/2017 0837	9.50	688.67	0.00	688.67	
								6/22/2017 0847	9.30	688.87	0.00	688.87	
SG-01 SG	1073882.887	1114813.101	NM	NM	690.00	NA	1	3/22/2017 1456	-0.80	690.80	0.00	690.80	
								5/24/2017 0855	-0.72	690.72	0.00	690.72	
								6/22/2017 0855	DRY		0.00		DRY

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2017

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								3/22/2017 1507	-3.27	693.27	0.00	693.27	
SG								5/24/2017 0910	-3.18	693.18	0.00	693.18	
SG								6/22/2017 0910	DRY		0.00		DRY
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								3/22/2017 1345	-4.9	688.92	0.00	688.92	
MH								5/24/2017 0700	-4.5	688.52	0.00	688.52	
MH								6/22/2017 0800	-4.7	688.72	0.00	688.72	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								3/22/2017 1345	-4.7	688.88	0.00	688.88	
MH								5/24/2017 0700	-4.7	688.88	0.00	688.88	
MH								6/22/2017 0800	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								3/22/2017 1512	-4.78	688.58	0.00	688.58	
MH								5/24/2017 0917	-4.67	688.47	0.00	688.47	
MH								6/22/2017 0917	-4.62	688.42	0.00	688.42	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								3/22/2017 1345	-6.9	683.52	0.00	683.52	
MH								5/24/2017 0700	-6.9	683.52	0.00	683.52	
MH								6/22/2017 0800	-6.9	683.52	0.00	683.52	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								3/22/2017 1345	-7.0	683.14	0.00	683.14	
MH								5/24/2017 0700	-6.1	682.24	0.00	682.24	
MH								6/22/2017 0800	-5.9	682.04	0.00	682.04	

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 2017

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								3/22/2017 1345	-7.7	689.59	0.00	689.59	
MH								5/24/2017 0700	-7.2	689.09	0.00	689.09	
MH								6/22/2017 0800	-7.4	689.29	0.00	689.29	

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

**TABLE 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)
3/22/2017	688.92	---	---	688.88	692.43	3.55	693.27	4.39
5/24/2017	688.52	---	---	688.88	692.33	3.45	693.18	4.30
6/22/2017	688.72	---	---	688.88	692.07	3.19	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)
3/22/2017	688.58	692.39	3.81	683.52	---	---
5/24/2017	688.47	691.70	3.23	683.52	---	---
6/22/2017	688.42	690.90	2.48	683.52	---	---

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)
3/22/2017	683.14	696.27	13.13	689.59	692.15	2.56
5/24/2017	682.24	694.57	12.33	689.09	691.80	2.71
6/22/2017	682.04	693.16	11.12	689.29	690.26	0.97

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)
3/22/2017	688.82	690.80	1.98	684.66	693.60	8.94
5/24/2017	688.70	690.72	2.02	684.88	690.81	5.93
6/22/2017	688.92	DRY	NA	684.76	690.17	5.41

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)
3/22/2017	684.11	689.82	5.71	684.05	696.12	12.07
5/24/2017	684.09	688.65	4.56	684.04	695.05	11.01
6/22/2017	684.07	688.45	4.38	684.02	692.97	8.95

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)
3/22/2017	686.42	693.77	7.35	689.43	695.15	5.72
5/24/2017	686.47	693.74	7.27	689.07	693.00	3.93
6/22/2017	686.47	692.49	6.02	689.02	691.42	2.40

Notes:

* = No corresponding monitoring well.
NA = Not applicable

APPENDIX D

**GROUNDWATER PURGE AND SAMPLE COLLECTION
LOGS**

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 24, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-07D	GW-07D	10.7	PDB	10:15	Groundwater	VOCs	Not Applicable
GW-07S	GW-07S	5.2	PDB	10:20	Groundwater	VOCs	Not Applicable
GW-03S	GW-03S	6.4	9.4	12:35	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-03D	GW-03D	83.2	51.0	13:50	Groundwater		Not Applicable
GW-03D-MS	GW-03D	83.2	51.0	14:50	Groundwater		Not Applicable
GW-03D-MSD	GW-03D	83.2	51.0	15:50	Groundwater		Not Applicable
GW-04S	GW-04S	7.3	PDB	14:30	Groundwater	VOCs	Not Applicable

Additional Comments: GW-4S, GW-7D, and GW-7S were sampled for VOCs using passive diffusion bags (PDBs). GW-4S, GW-7D, and GW-7S were then purged dry, and remaining parameters were collected after recovery.
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: E. Thalhamer, T. Urban Supervisor: J. Sundquist

Date of Sampling: May 24, 2017

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	13.2	16:15	Groundwater	SVOCs/Metals	Not Applicable
GW-04D	GW-04D	0.7	83.7	7:12	Groundwater	VOCs/SVOCs/ Metals	Not Applicable

Additional Comments: GW-4S was sampled for SVOCs and Metals after recharging.
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: E. Thalhamer, T. Urban Supervisor: J. Sundquist

Date of Sampling: May 25 & 26*, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-07D	GW-07D	10.7	10.7	8:10	Groundwater	SVOCs/Metals	Not Applicable
GW-07S	GW-07S	5.2	6.0	8:20	Groundwater		Not Applicable
GW-28S	GW-28S	3.8	6.0	9:10	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-08D	GW-08D	76.9	33.0	10:35	Groundwater		Not Applicable
FD-052517	GW-08D	76.9	33.0	—	Groundwater		Not Applicable
GW-08SR	GW-08SR	4.7	10.0	11:40	Groundwater		Not Applicable
GW-33S	GW-33S	3.2	5.7	12:35	Groundwater		Not Applicable

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

* wells were sampled on May 26, 2017

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 25 & 26*, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-29S	GW-29S	7.3	7.6	13:35	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-35S	GW-35S	2.9	5.9	14:25	Groundwater		Not Applicable
GW-26D	GW-26D	86.3	45.0	15:35	Groundwater		Not Applicable
GW-34S*	GW-34S	4.4	6.0	8:23	Groundwater		Not Applicable
GW-01S*	GW-01S	7.6	6.9	9:20	Groundwater		Not Applicable
GW-01D*	GW-01D	93.7	48.0	10:30	Groundwater		Not Applicable
GW-30S*	GW-30S	7.1	16	11:30	Groundwater		Not Applicable

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

* wells were sampled on May 26, 2017

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 25 & 26*, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-31S*	GW-31S	4.2	6.0	12:15	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-32S*	GW-32S	4.6	8.4	13:00	Groundwater		Not Applicable

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

* wells were sampled on May 26, 2017

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.58'	Depth to Well Bottom:	14.94'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	7.6	Estimated Purge Volume (liters):	6.9
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Sample ID:	GW-01S	Sample Time:	9:20	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

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

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:45	6.98	10.32	1.150	2.11	710	-50	300	2.58
8:50	7.25	10.40	1.130	0.00	357	-87	180	3.40
8:55	7.31	10.34	1.11	0.00	242	-88	180	3.46
9:00	7.44	10.45	0.988	0.00	132	-87	180	3.50
9:05	7.44	10.44	1.04	0.00	50.5	-84	180	3.53
9:10	7.44	10.42	1.06	0.00	43.0	-84	180	3.55
9:15	7.44	10.42	1.08	0.00	39.9	-85	180	3.56
9:20	7.45	10.37	1.08	0.00	42.1	-86	180	3.57
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.72'	Depth to Well Bottom:	39.65'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	93.7	Estimated Purge Volume (liters):	48.0
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Sample ID:	GW-01D	Sample Time:	10:30	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-03S

Date: 5/24/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.88'	Depth to Well Bottom:	13.22'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	6.4	Estimated Purge Volume (liters):	9.4
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Sample ID:	GW-03S	Sample Time:	12:35	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-03D

Date: 5/24/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.02'	Depth to Well Bottom:	35.70'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	83.2	Estimated Purge Volume (liters):	51.0
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Sample ID:	GW-03D	Sample Time:	13:50	QA/QC:	MS/MSD
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-04S

Date: 5/24/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device: <u>Geopump 2</u>	Tubing Type: <u>LDPE/Silicone</u>	Pump/Tubing Inlet Location: <u>Screen midpoint</u>
Measuring Point: <u>Below Top of Riser</u>	Initial Depth to Water: <u>4.45'</u>	Depth to Well Bottom: <u>16.23'</u>
	Well Diameter: <u>2"</u>	Screen Length: <u> </u>
Casing Type: <u>Stainless Steel</u>	Volume in 1 Well Casing (liters): <u>7.3</u>	Estimated Purge Volume (liters): <u>13.2</u>

Sample ID: GW-04S Sample Time: 14:30 (VOCs) & 16:15 (SVOCs/Metals) QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/22/17, sampled VOCs from PDB at 14:30 on 5/24/17.

Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 16:15.

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)
14:35	8.20	15.55	0.470	7.21	0.4	51	initial	4.45
14:40	8.31	12.37	0.463	2.51	8.2	68	1 gal	-
14:42	8.28	10.54	0.477	2.45	518	65	2 gal	-
14:44	8.26	10.64	0.471	0.00	>1000	4	3.5 gal	Dry
16:11								12.42
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-04D

Date: 5/24/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	11.68'	Depth to Well Bottom:	45.57'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	83.7	Estimated Purge Volume (liters):	13.3
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Sample ID:	GW-04D	Sample Time:	16:00	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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:	Rob Murphy, Tom Urban		
DATE(S):	5/24/17 and 5/25/17		

		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.)	=	4.88	2" 0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.45	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)	=	5.18	5" 1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6" 1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	6.0	8" 2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Initial	2	4	6						
pH	7.29	7.40	7.42	7.49						
SPEC. COND. (mS/cm)	0.602	0.592	0.601	0.618						
DO (mg/l)	1.82	0.26	1.31	1.96						
TEMPERATURE (°C)	12.38	11.07	10.74	11.33						
TURBIDITY (NTU)	0.3	4.2	7.0	247						
ORP (millivolts)	-52	-38	-23	6						
TIME	11:15	11:18	11:22	11:29						

COMMENTS:

10:20 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/22/17

11:14 - Begin hand bailing well.

11:29 - Well dry after removing 6 gallons.

5/25/2017 08:20 - return to well, depth to water = 4.94 feet.

08:20- Collect sample for SVOCs and Metals.

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07D
PROJECT NO.:	60411174		
STAFF:	Rob Murphy, Tom Urban		
DATE(S):	5/24/17 and 5/25/17		

		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.)	=	44.65	2" 0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	16.18	3" 0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4" 0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	10.68	5" 1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6" 1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10.7	8" 2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Init	3	6	9	10.7					
pH	6.98	6.98	6.89	6.90	7.06					
SPEC. COND. (mS/cm)	0.684	0.759	0.855	0.877	0.883					
DO (mg/l)	7.48	2.42	3.01	3.13	2.19					
TEMPERATURE (°C)	16.18	13.94	13.25	12.86	13.03					
TURBIDITY (NTU)	1.3	6.5	15.7	22.2	37.9					
ORP (millivolts)	39	-69	-94	-88	-76					
TIME	10:35	10:45	10:56	11:03	11:09					

COMMENTS:

10:15 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 3/22/17

10:34 - Begin hand bailing well.

11:11 - Well dry after removing 10.7 gallons

5/25/2017 08:10 - return to well, depth to water = 59.82 feet.

08:10- 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: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.42'	Depth to Well Bottom:	13.02'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.7	Estimated Purge Volume (liters):	10.0
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Sample ID:	GW-08SR	Sample Time:	11:40	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.42'	Depth to Well Bottom:	36.54'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	76.9	Estimated Purge Volume (liters):	39.0
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Sample ID:	GW-08D	Sample Time:	10:35	QA/QC:	Duplicate (FD-052517)
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.76'	Depth to Well Bottom:	40.70'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	86.3	Estimated Purge Volume (liters):	45.0
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Sample ID:	GW-26D	Sample Time:	15:35	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	9.30'	Depth to Well Bottom:	15.52'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.8	Estimated Purge Volume (liters):	6.0
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Sample ID:	GW-28S	Sample Time:	9:10	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:40	7.91	10.61	0.672	0.00	0.0	95	200	-
8:45	7.74	10.20	0.620	0.00	0.0	93	200	10.55
8:50	7.65	10.17	0.608	0.00	0.0	89	200	10.81
8:55	7.61	10.11	0.597	0.00	0.2	87	200	10.92
9:00	7.57	10.05	0.604	0.00	0.3	86	200	10.98
9:05	7.53	10.04	0.611	0.00	0.0	84	200	11.03
9:10	7.52	10.04	0.615	0.00	0.0	82	200	11.05
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: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.16'	Depth to Well Bottom:	20.04'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	7.3	Estimated Purge Volume (liters):	7.6
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Sample ID:	GW-29S	Sample Time:	13:35	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

Orange iron particulates at start of purge

PURGE PARAMETERS

[illegible]

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-30S

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.54'	Depth to Well Bottom:	17.97'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	7.1	Estimated Purge Volume (liters):	16.0
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Sample ID:	GW-30S	Sample Time:	11:30	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-31S

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban 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:	2.77'	Depth to Well Bottom:	9.57'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.2	Estimated Purge Volume (liters):	6.0
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Sample ID:	GW-31S	Sample Time:	12:15	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-32S

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban 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:	2.41'	Depth to Well Bottom:	9.93'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.6	Estimated Purge Volume (liters):	8.4
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Sample ID:	GW-32S	Sample Time:	13:00	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-33S

Date: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.03'	Depth to Well Bottom:	8.21'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.2	Estimated Purge Volume (liters):	5.7
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Sample ID:	GW-33S	Sample Time:	12:35	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:05	7.85	11.95	0.526	0.00	0.1	-30	190	3.03
12:10	7.71	12.04	0.524	0.00	0.0	-16	190	3.92
12:15	7.62	12.13	0.522	0.00	0.0	-1	190	4.62
12:20	7.60	12.14	0.529	0.00	0.0	7	190	4.90
12:25	7.57	12.16	0.531	0.00	0.0	15	190	5.20
12:30	7.55	12.17	0.536	0.00	0.0	21	190	5.38
12:35	7.54	12.18	0.538	0.00	0.0	25	190	5.50
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-34S

Date: 5/26/2017 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.82'	Depth to Well Bottom:	10.01'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.4	Estimated Purge Volume (liters):
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Sample ID: GW-34S Sample Time: 8:23 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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: 5/25/2017 Sampling Personnel: Rob Murphy, Tom Urban 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:	2.78'	Depth to Well Bottom:	7.46'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	2.9	Estimated Purge Volume (liters):	5.9
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Sample ID:	GW-35S	Sample Time:	14:25	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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

APPENDIX E

GROUNDWATER TREND ANALYSIS

FIGURE E-1
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01D

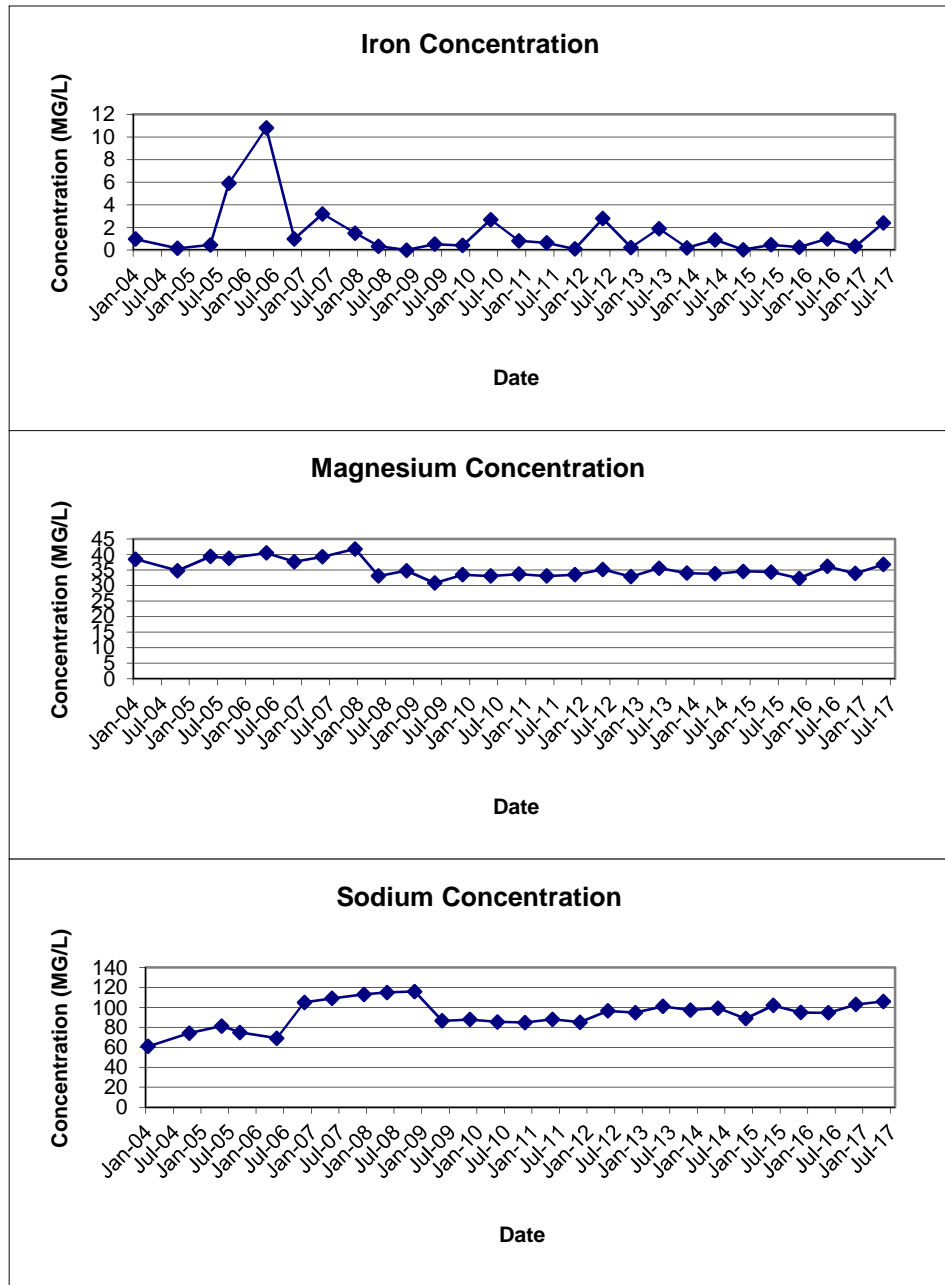


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01S

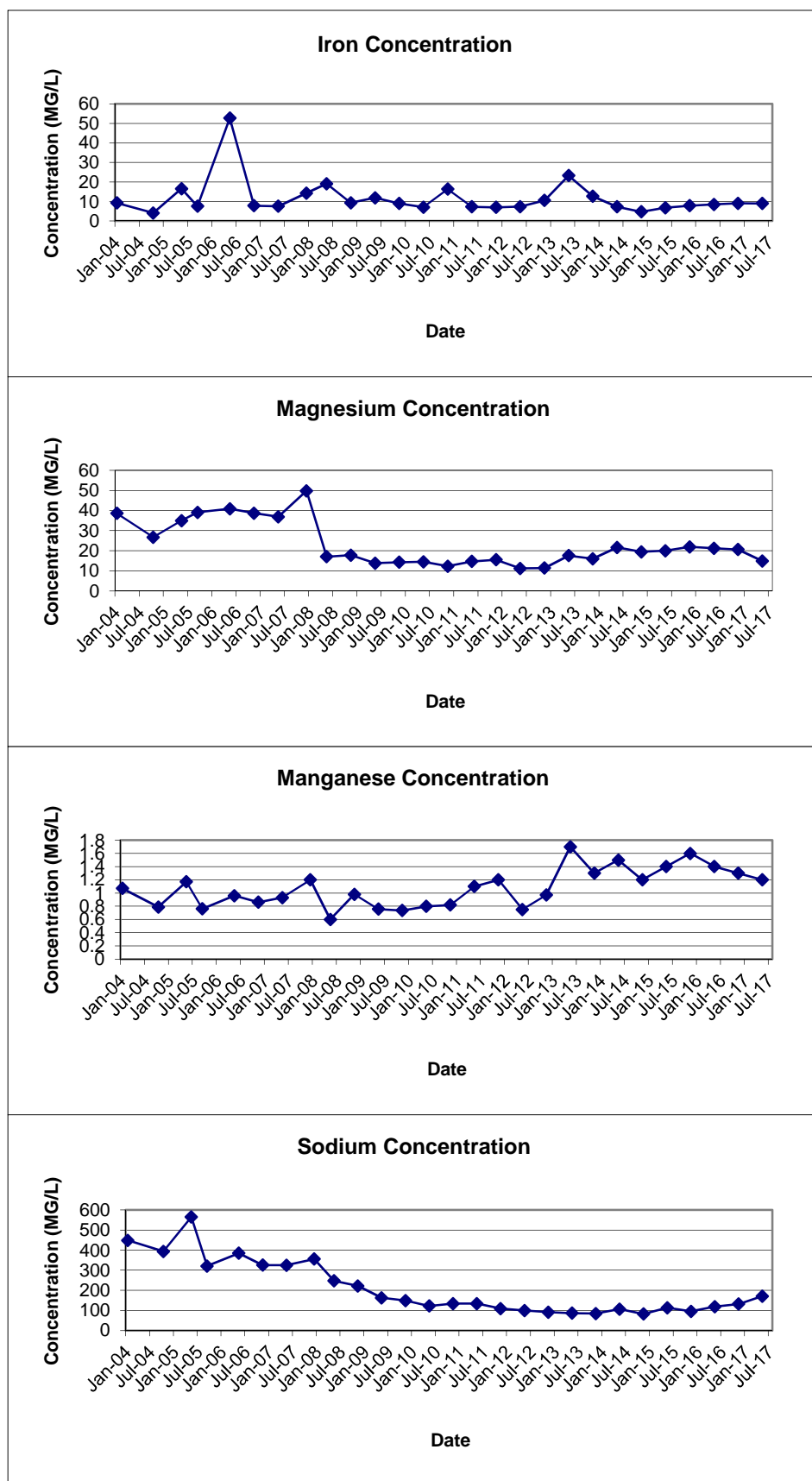


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03D

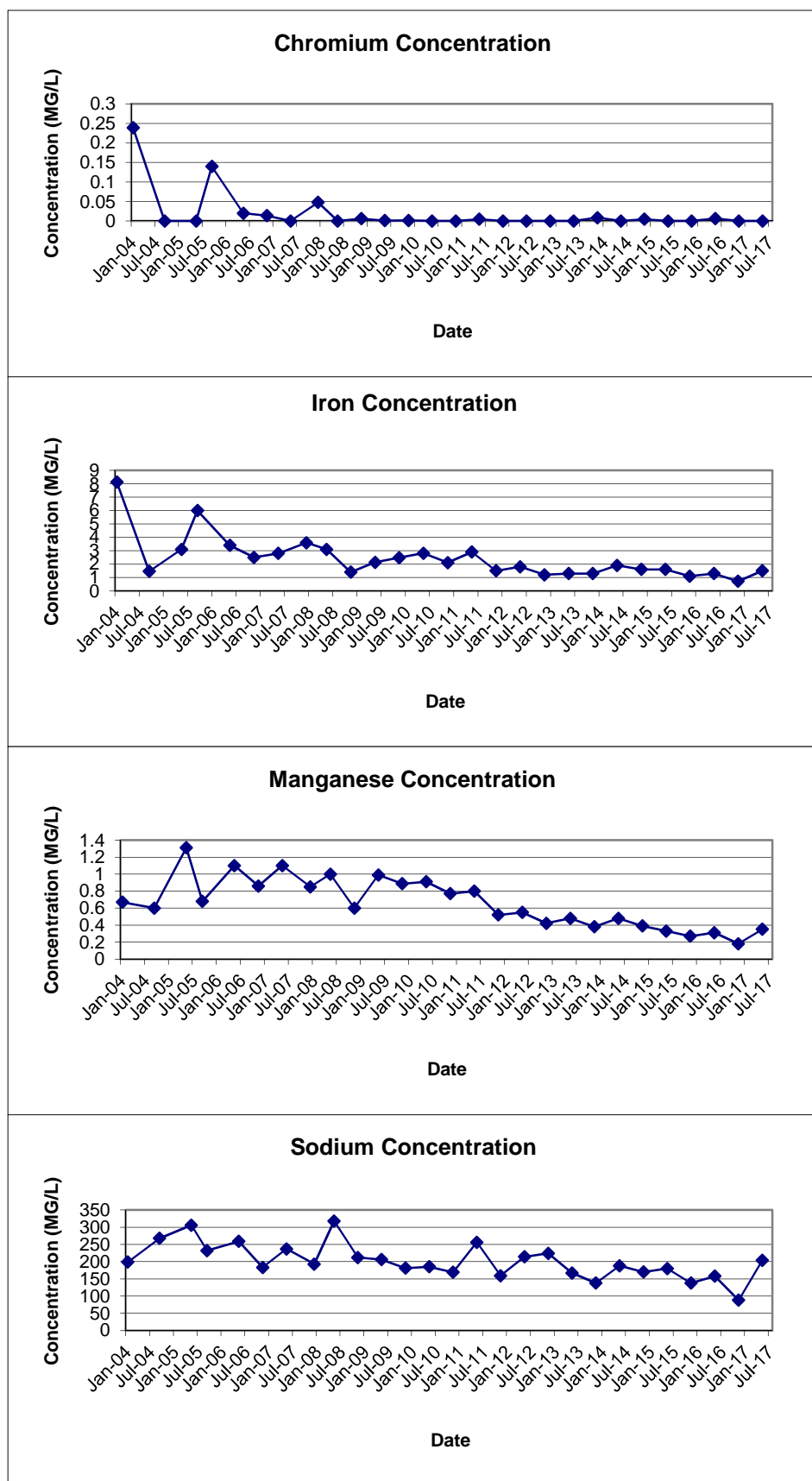
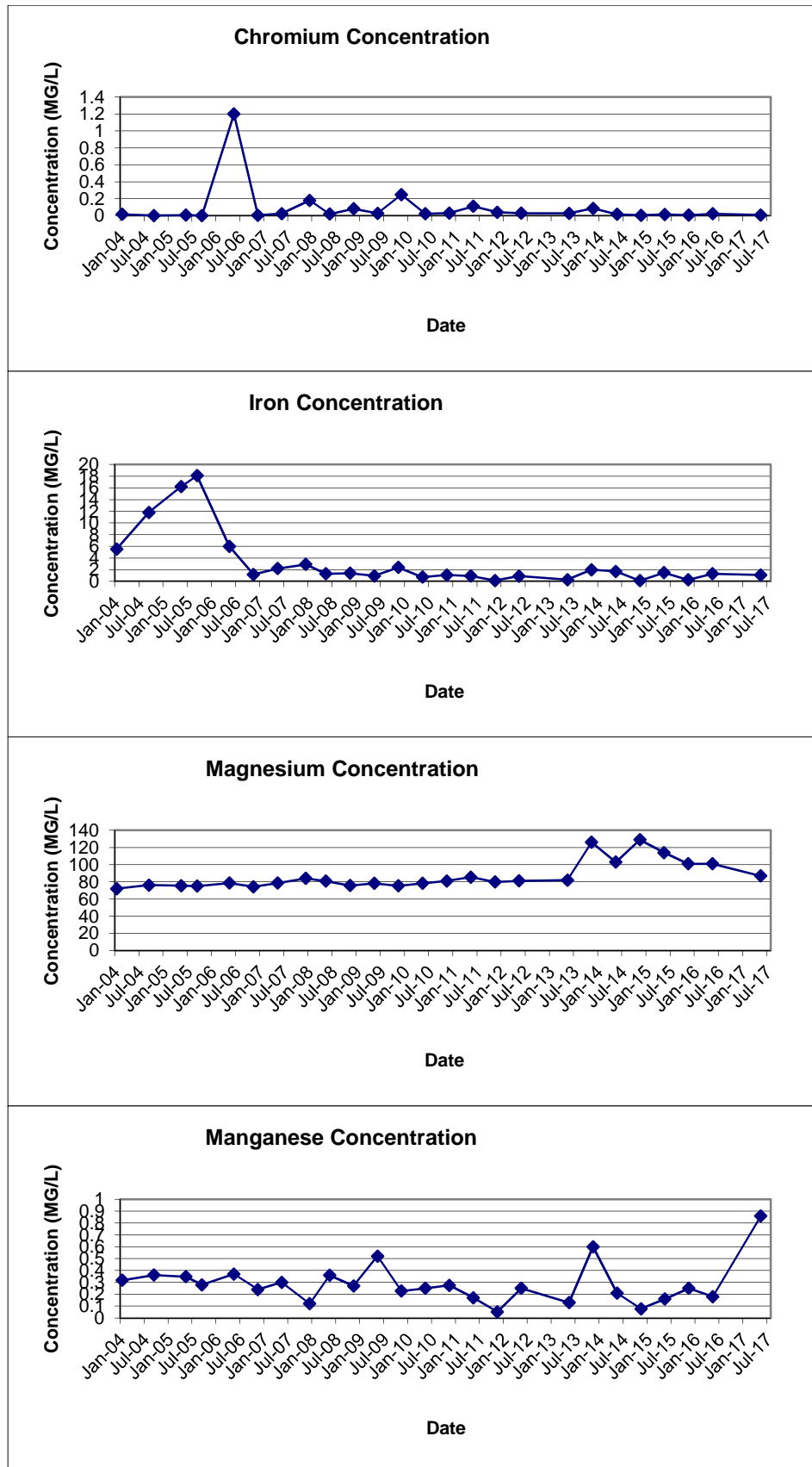
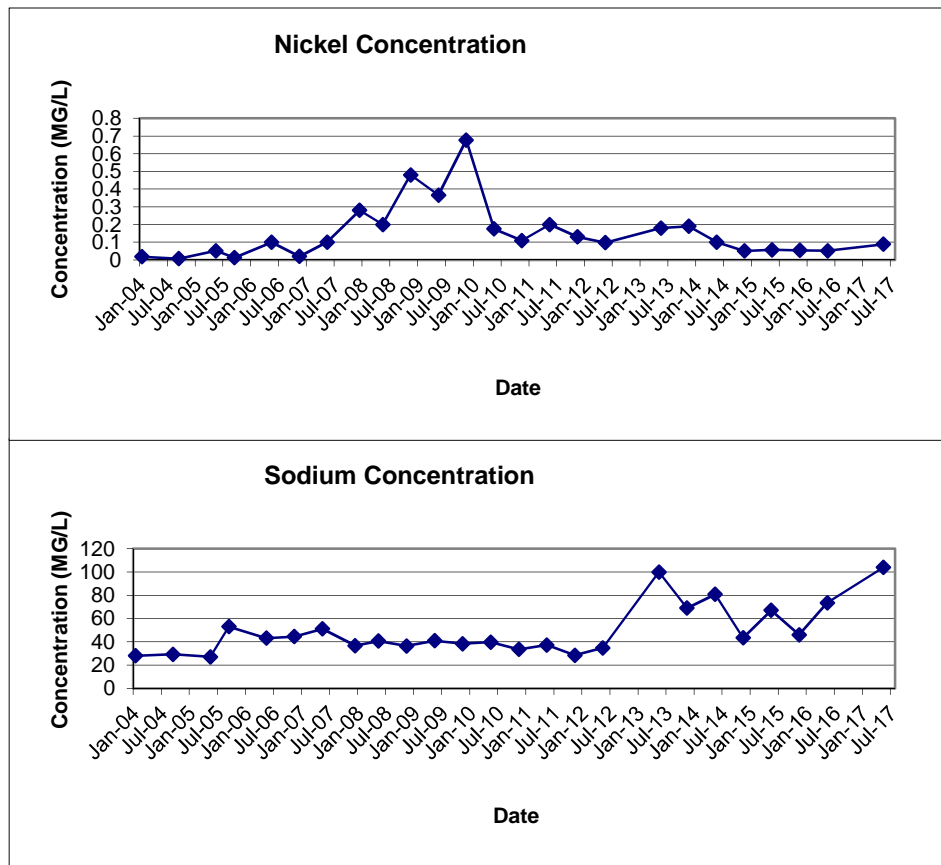


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



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

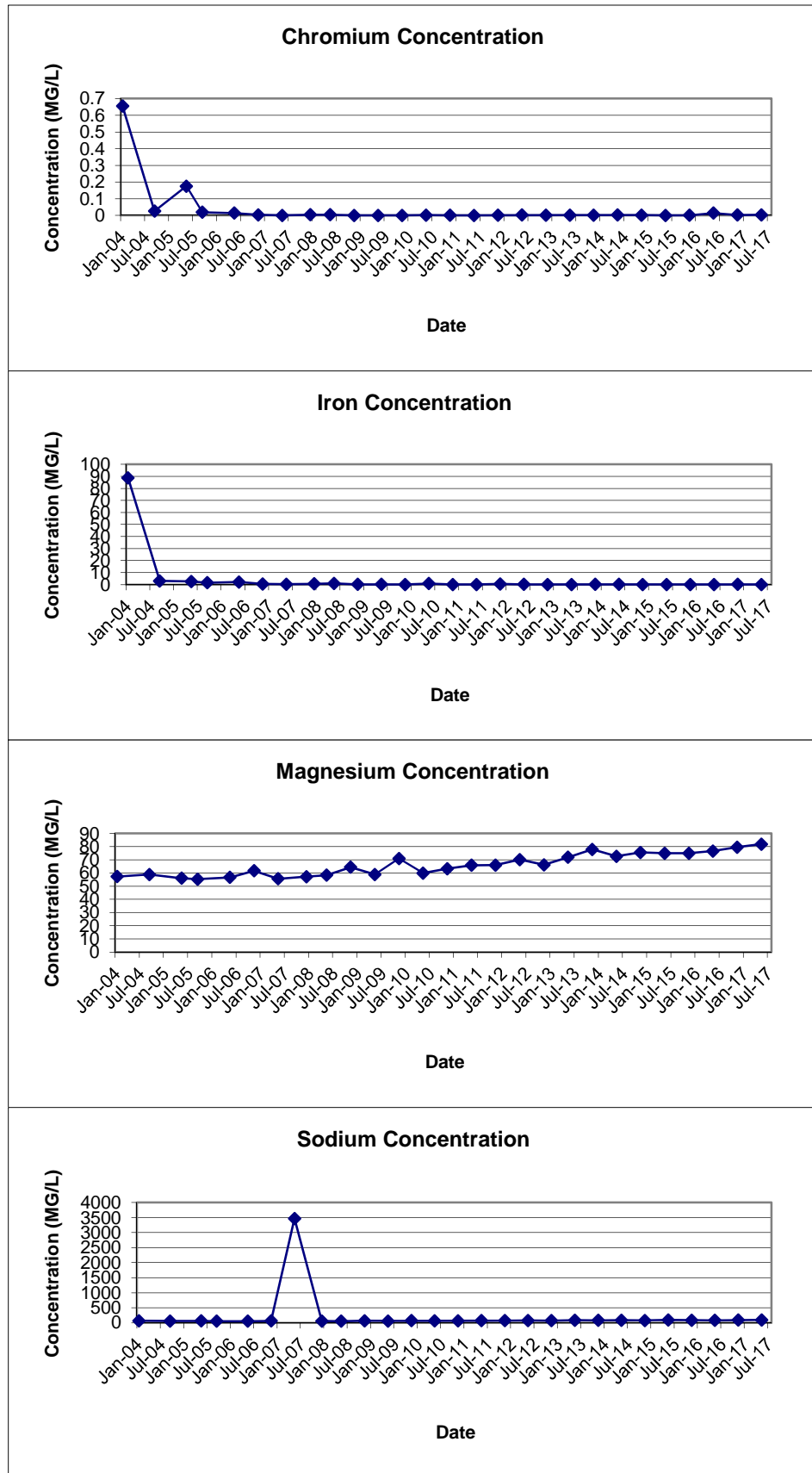


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04S

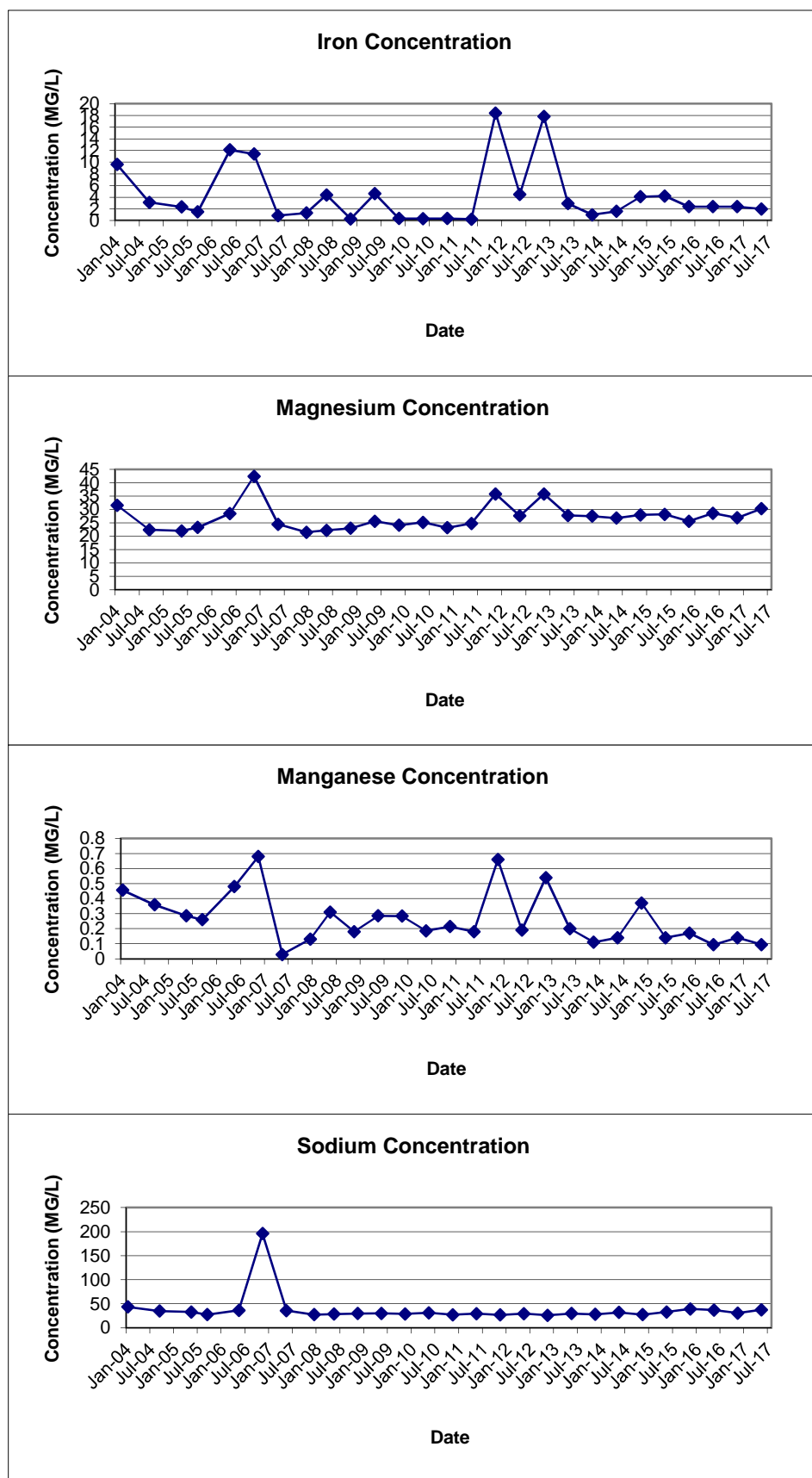


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

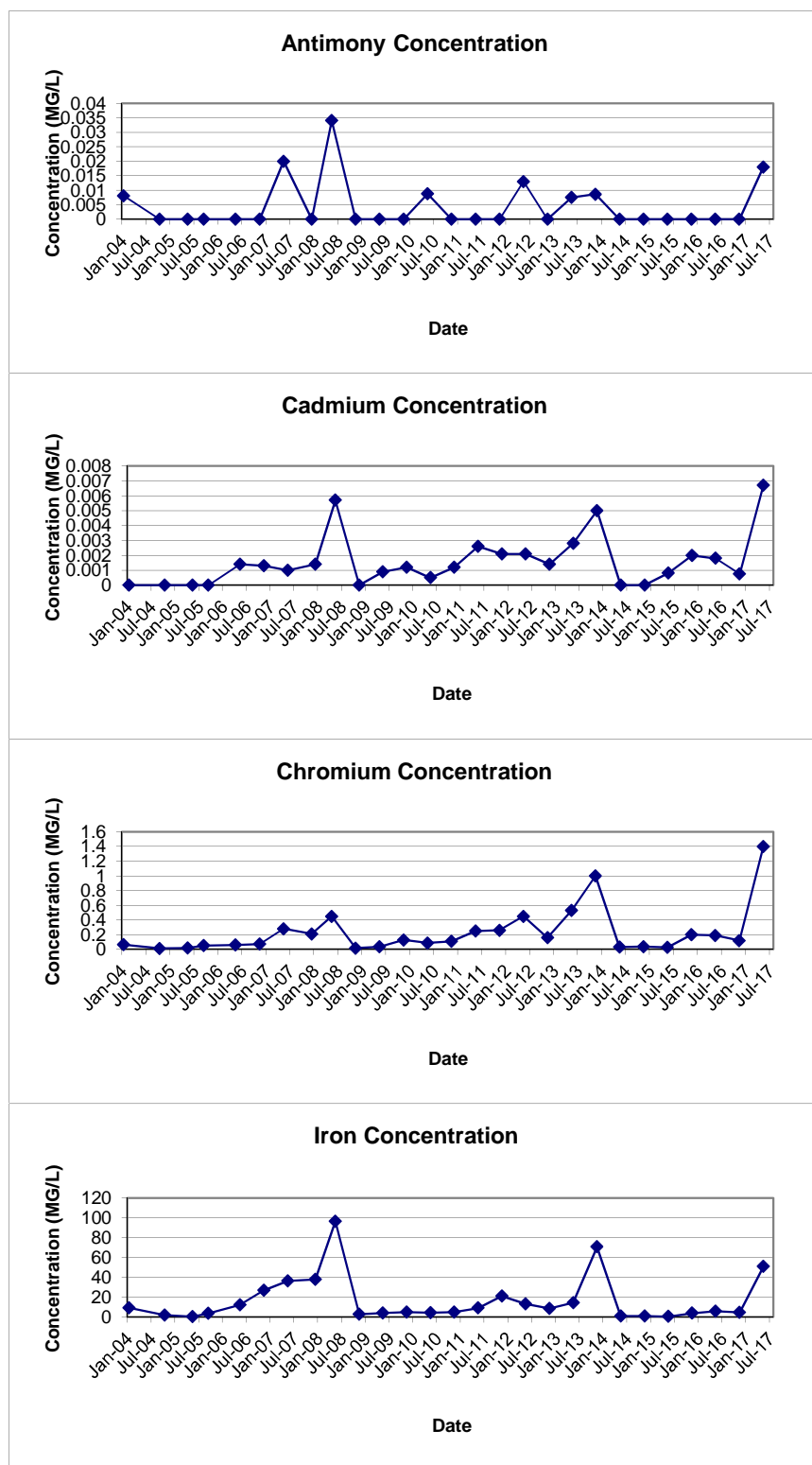


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

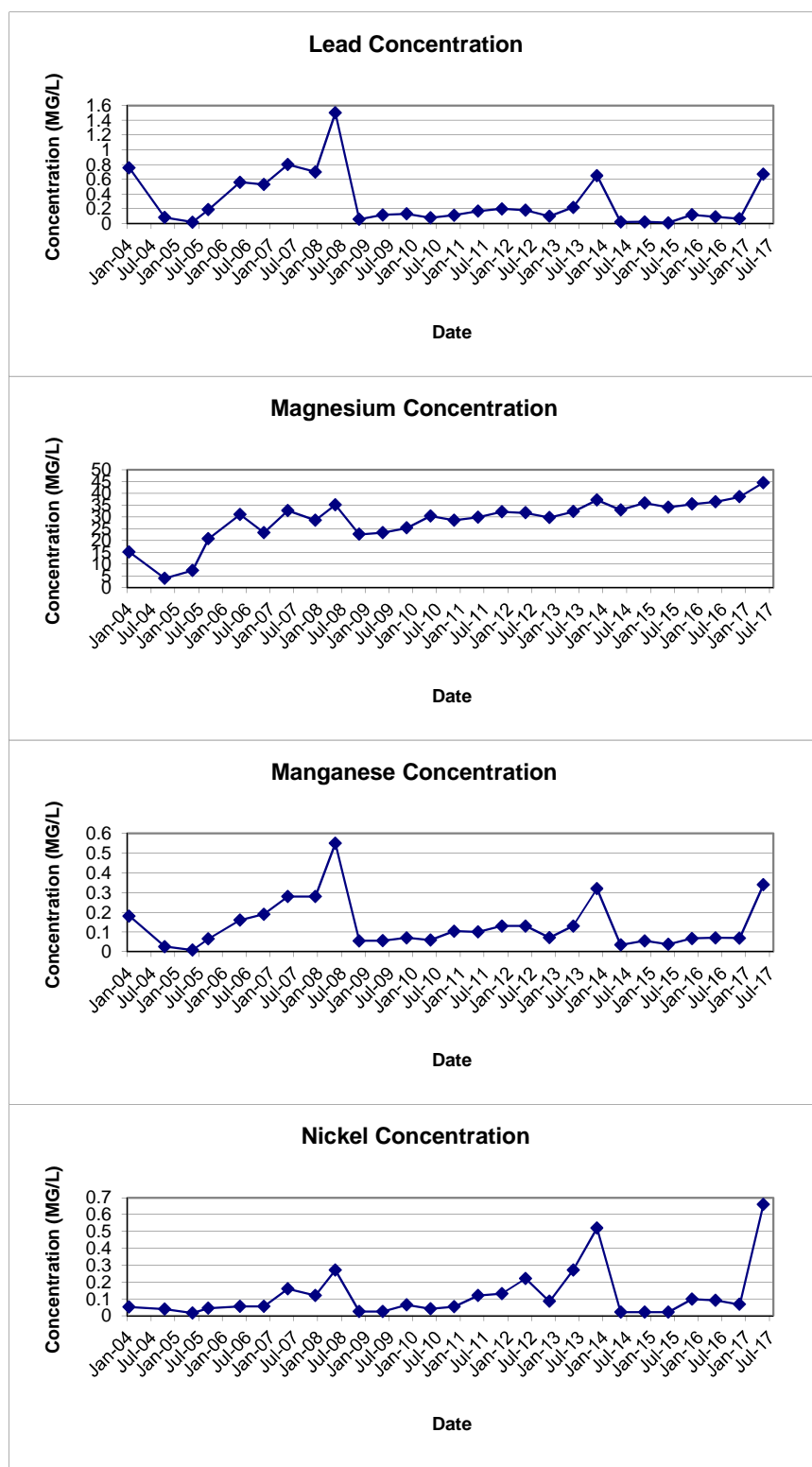


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

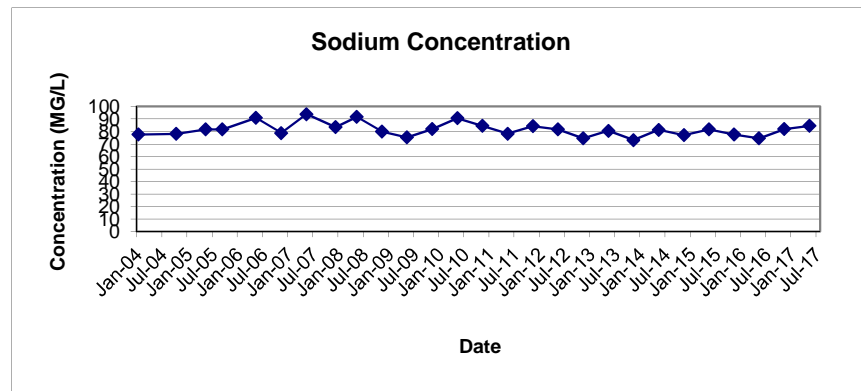


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07S

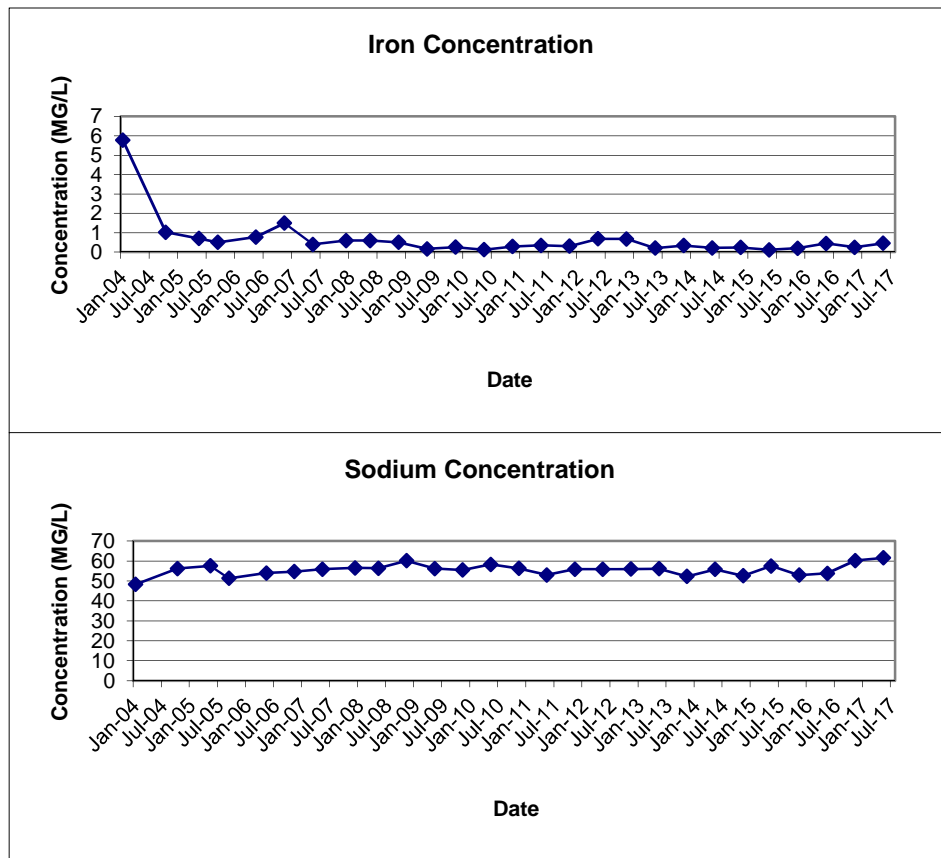


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08D

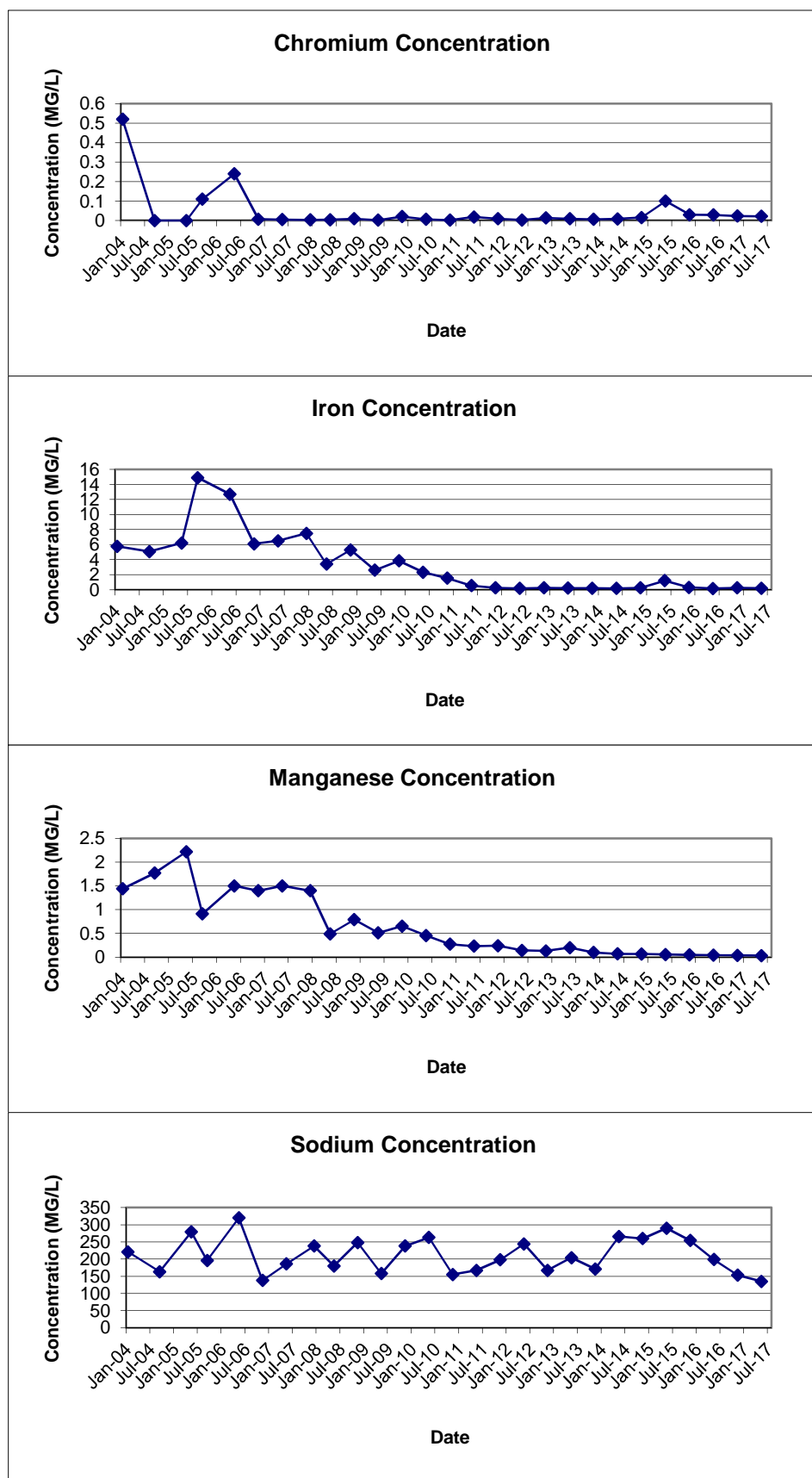


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08SR

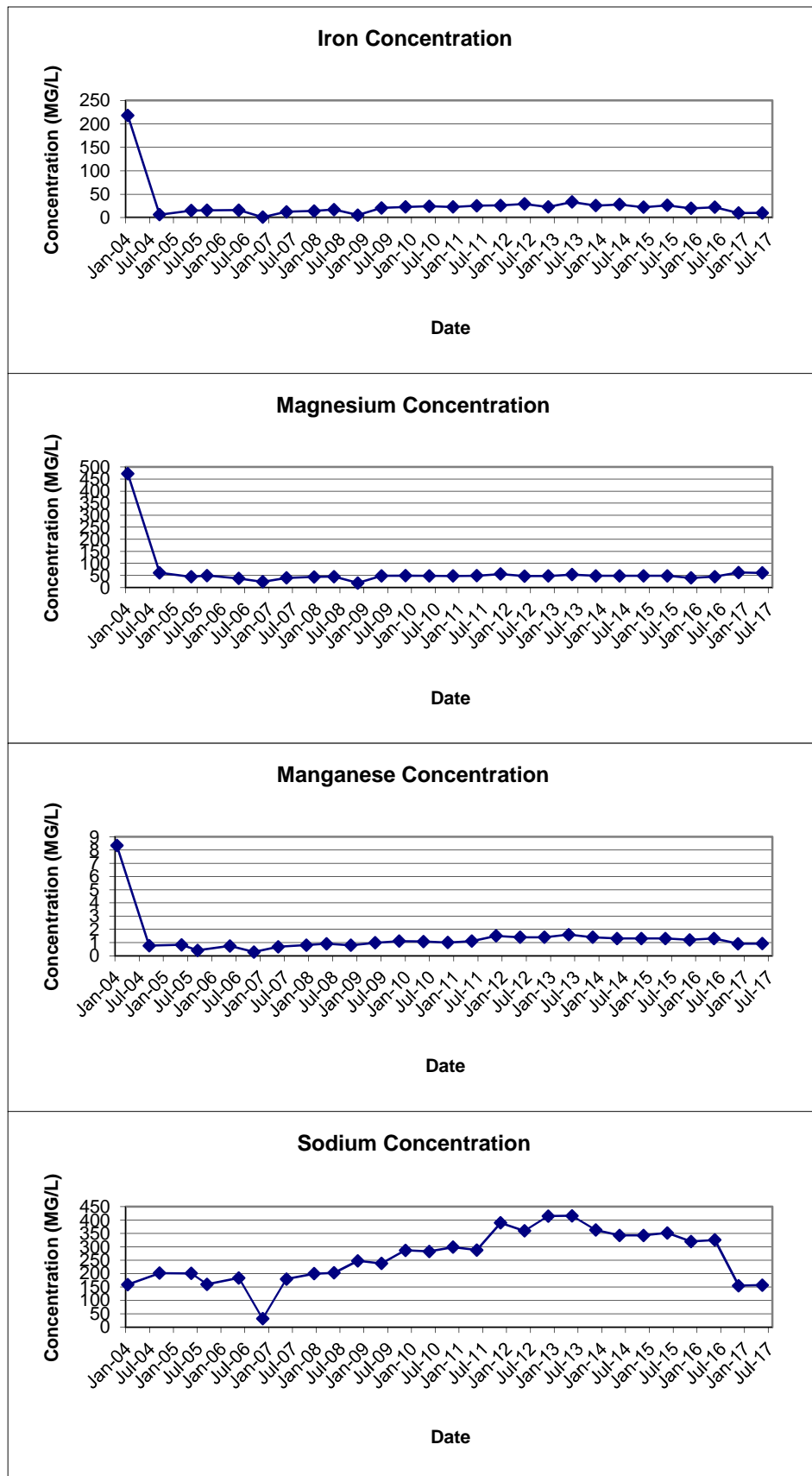


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

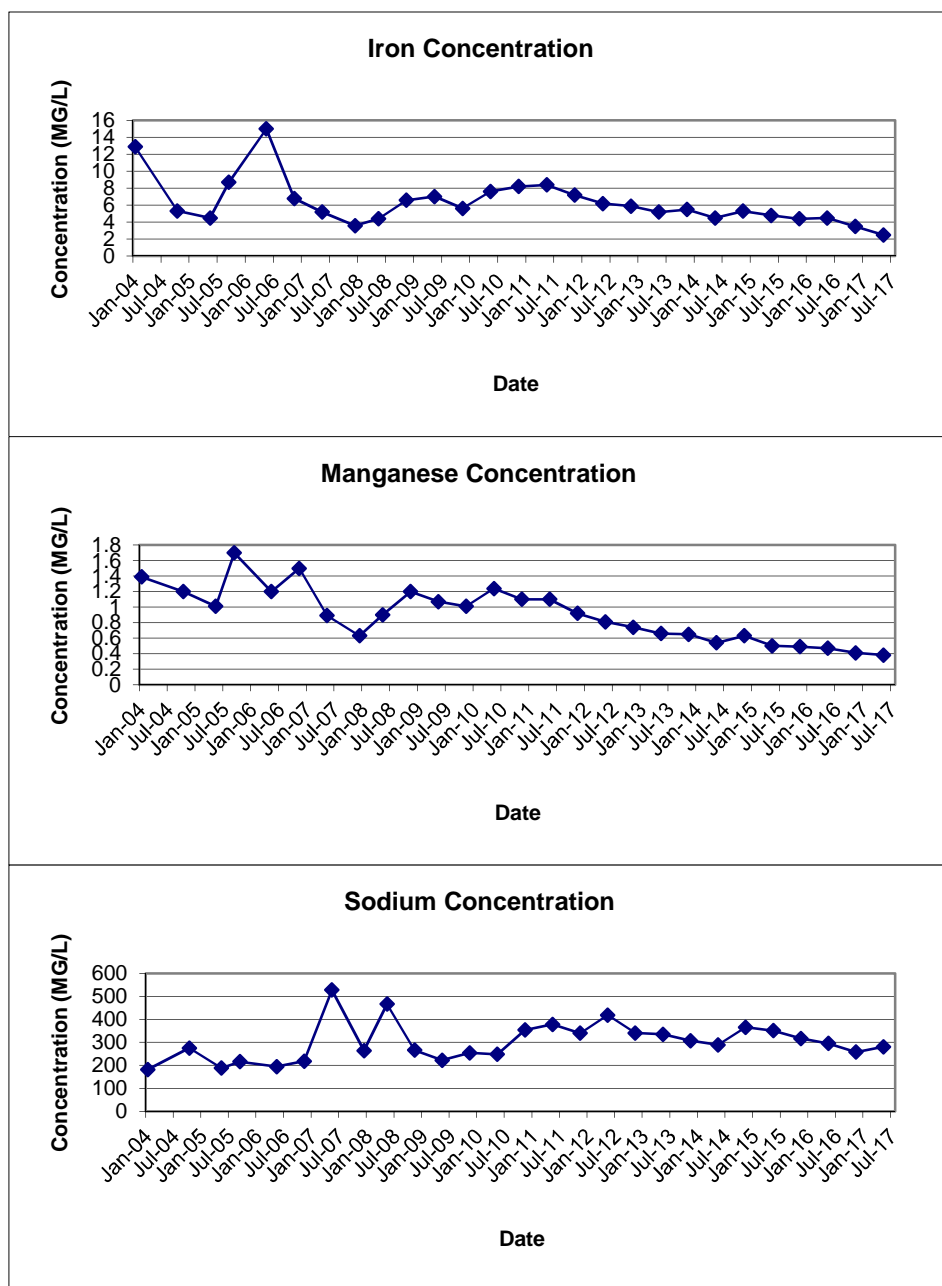


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

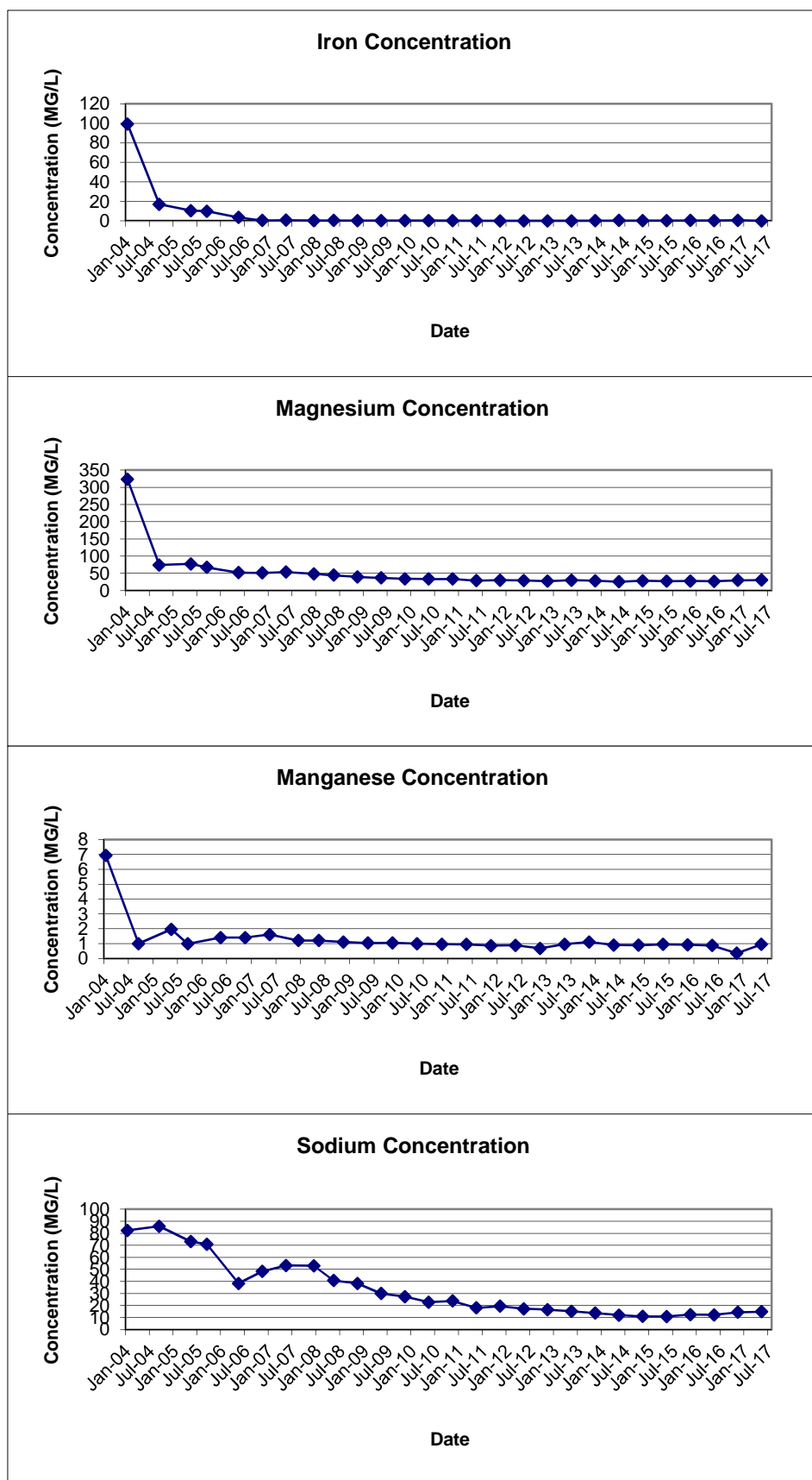


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

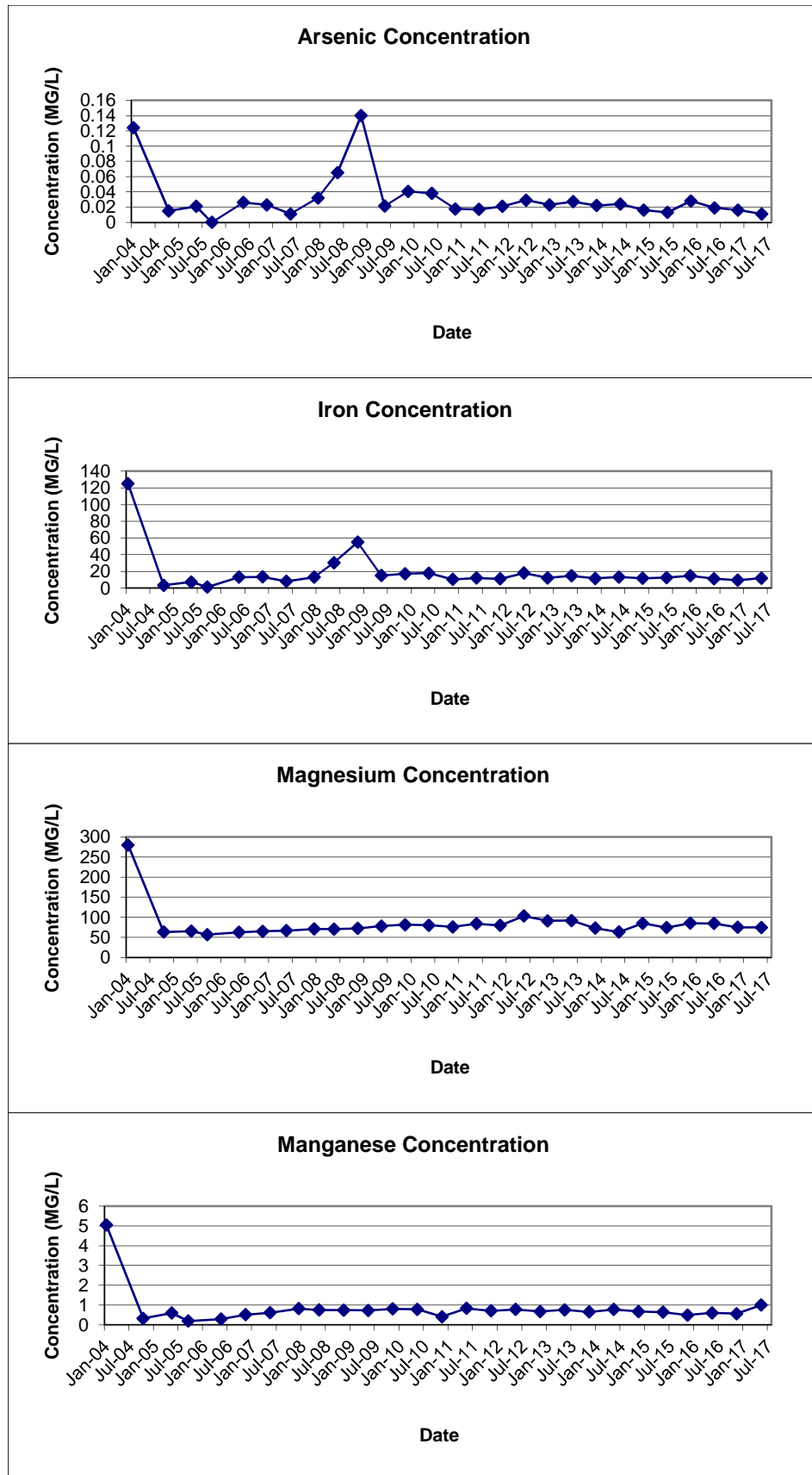


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

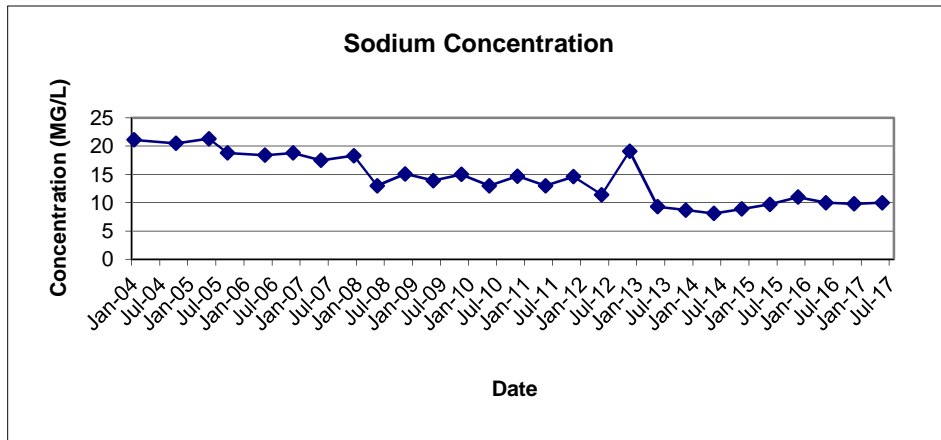


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

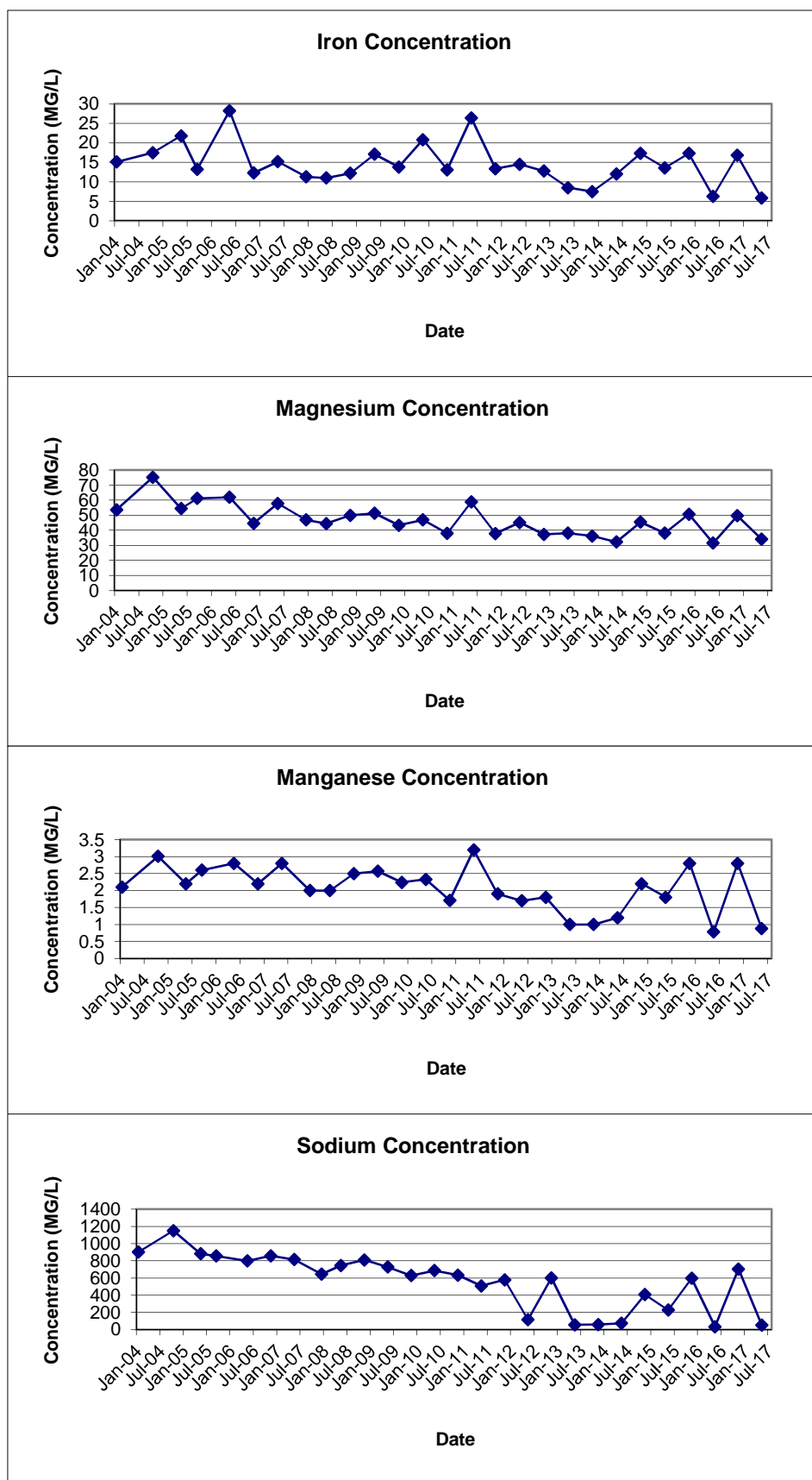


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

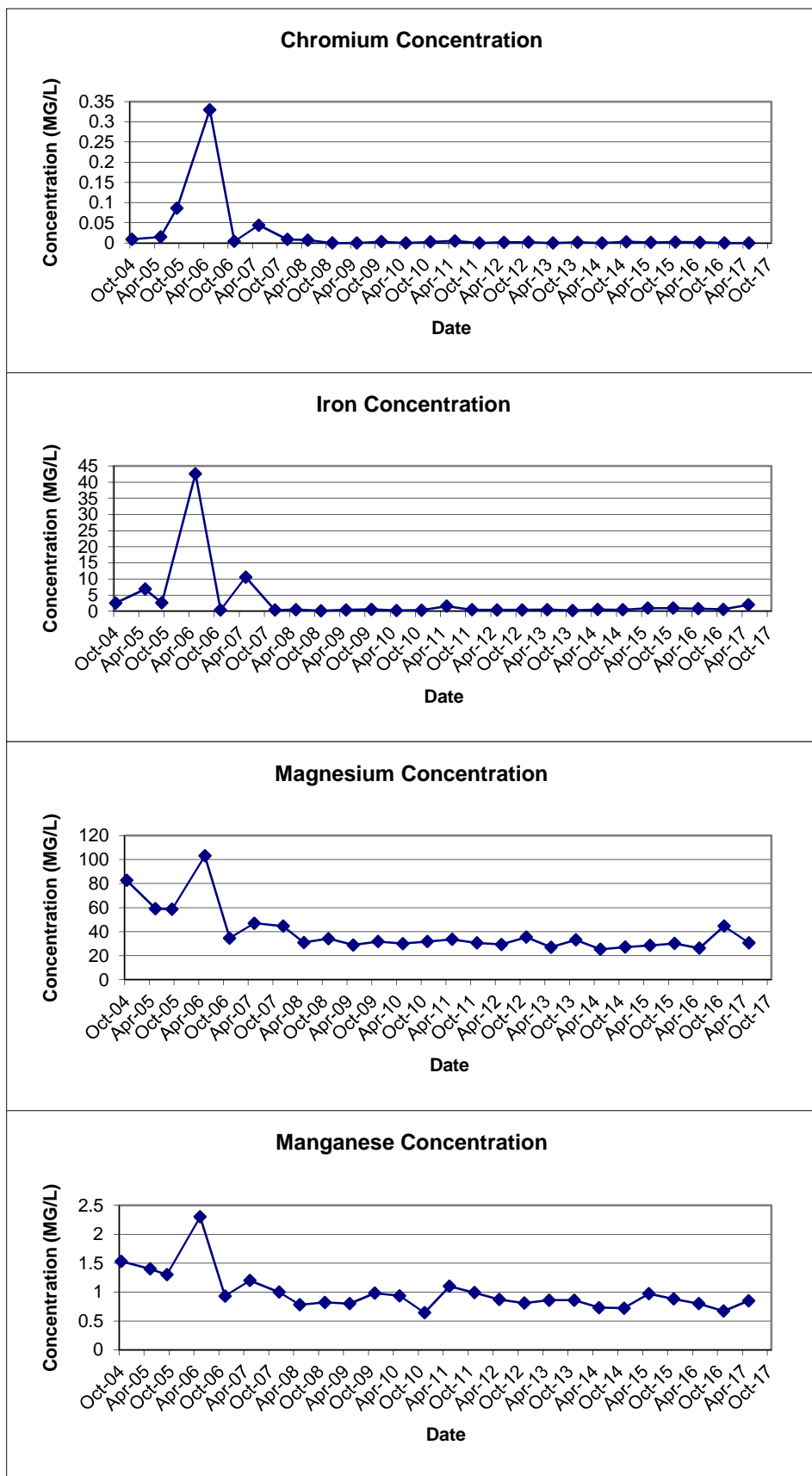


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

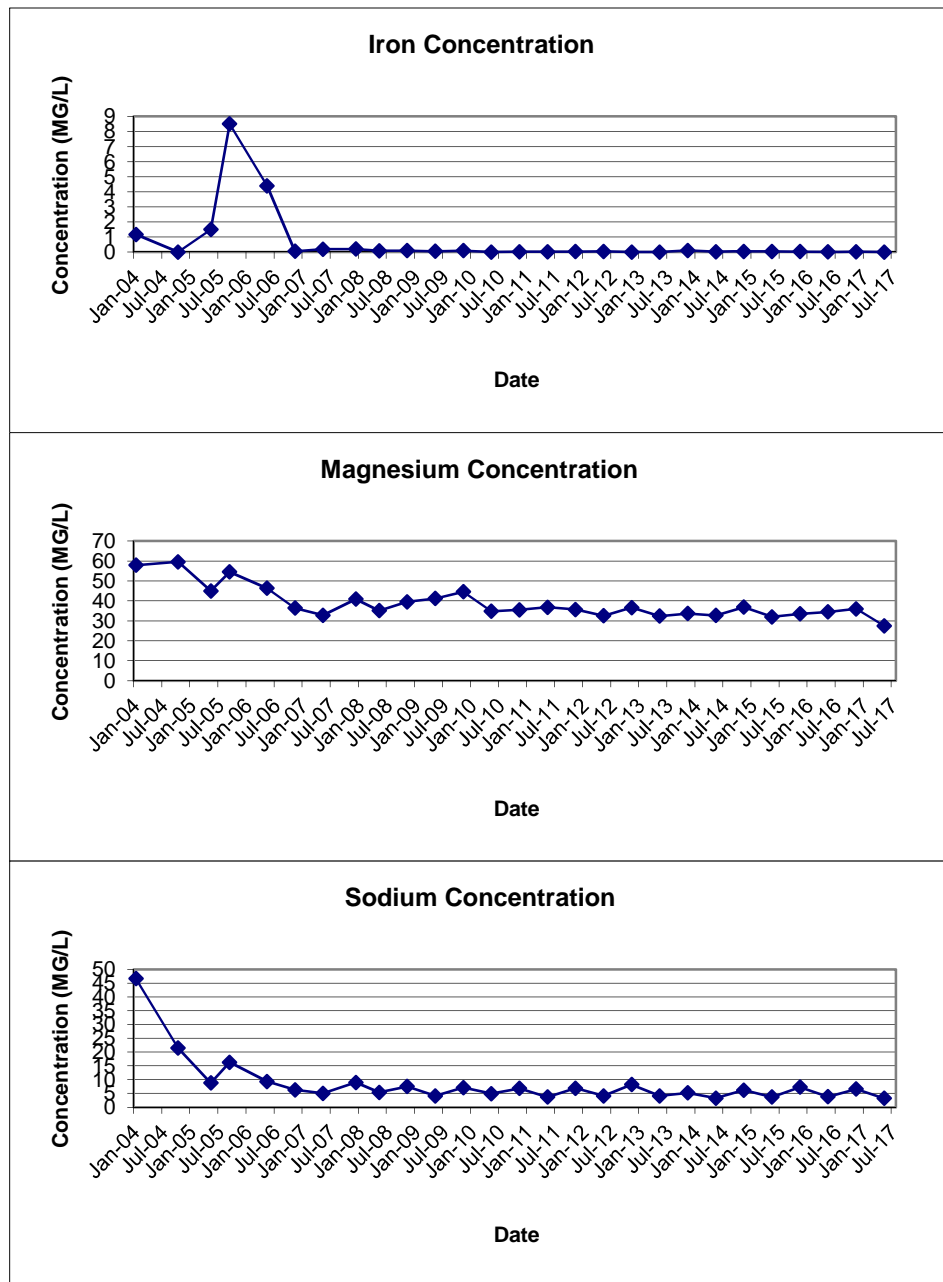


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

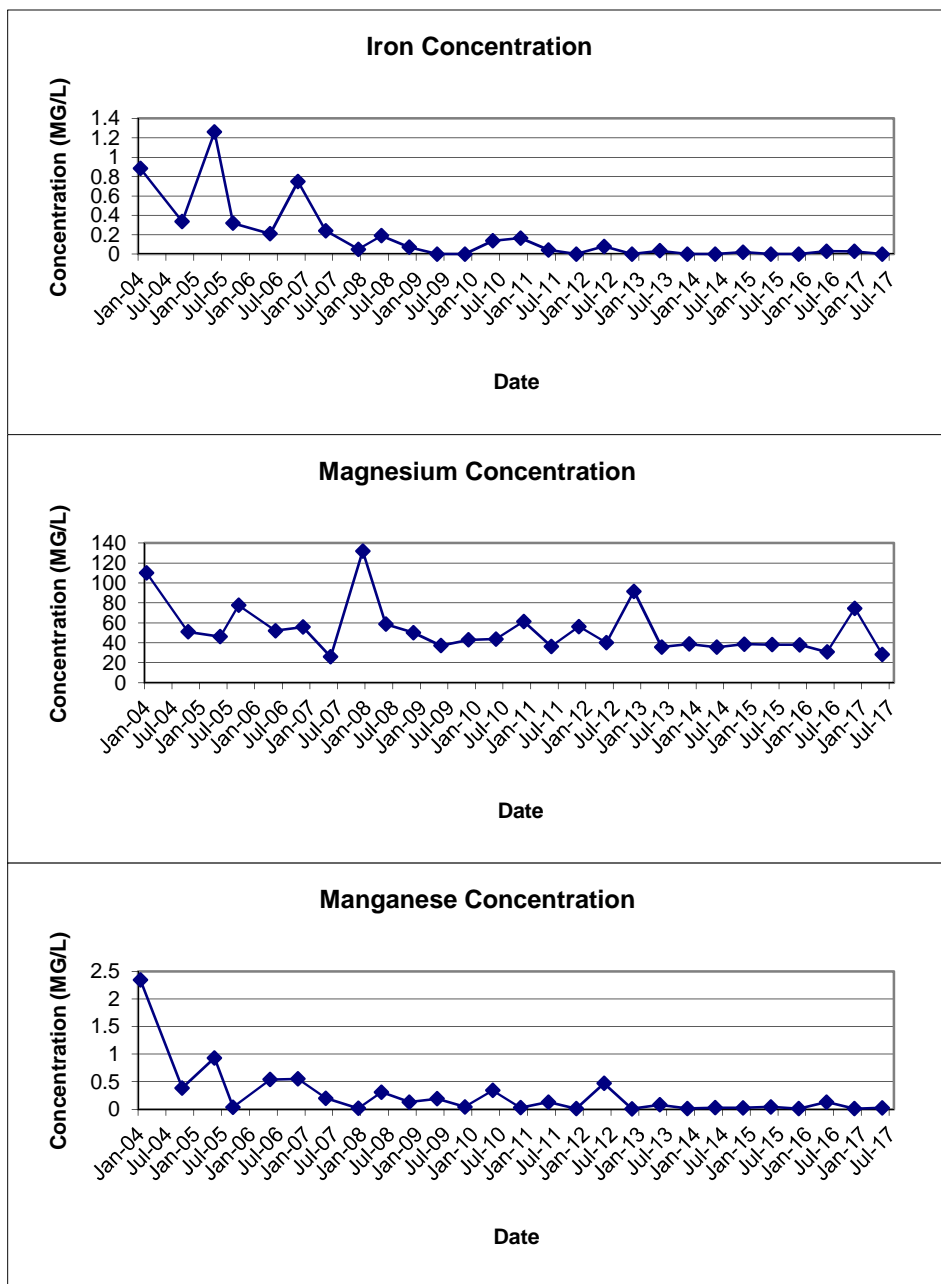


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

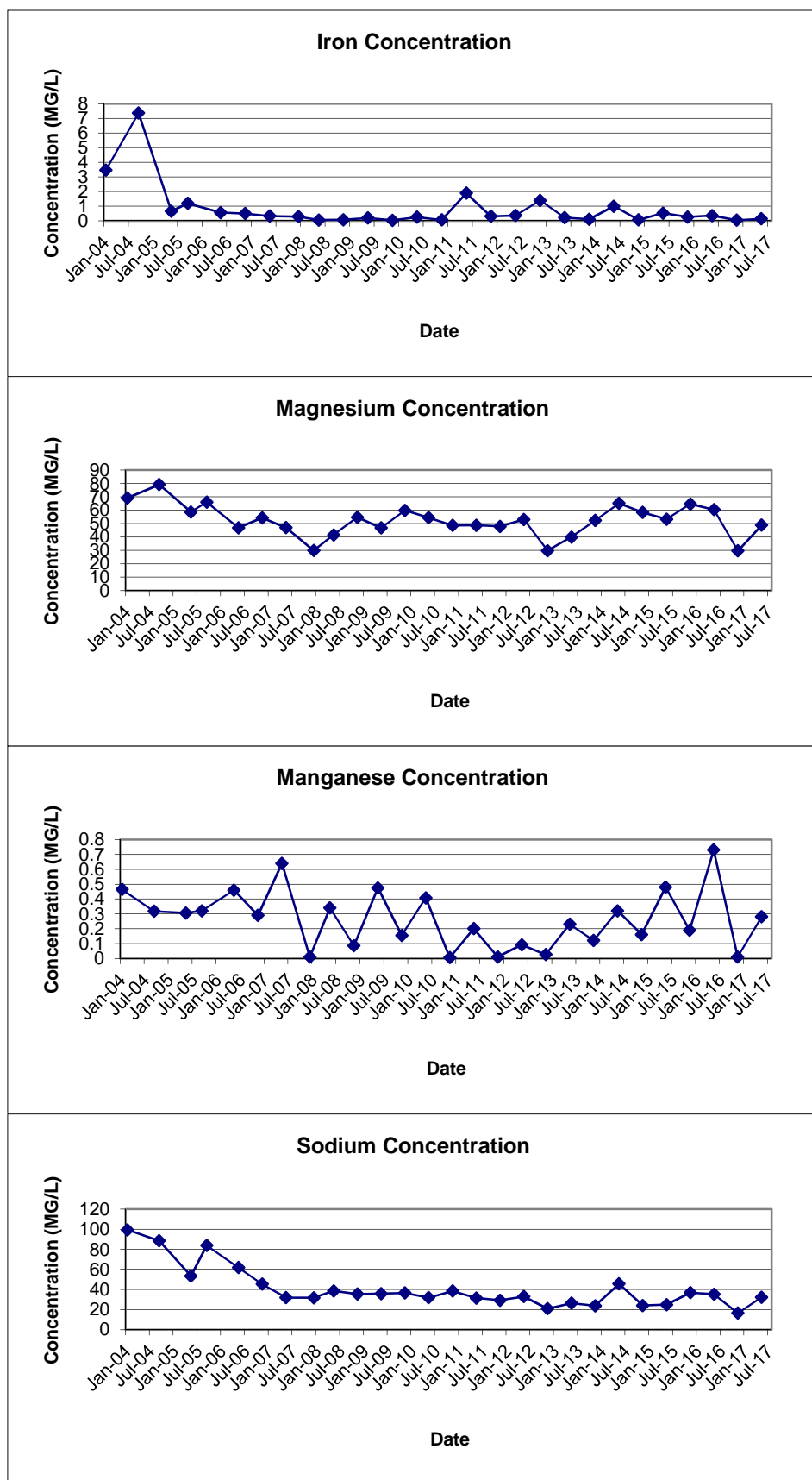
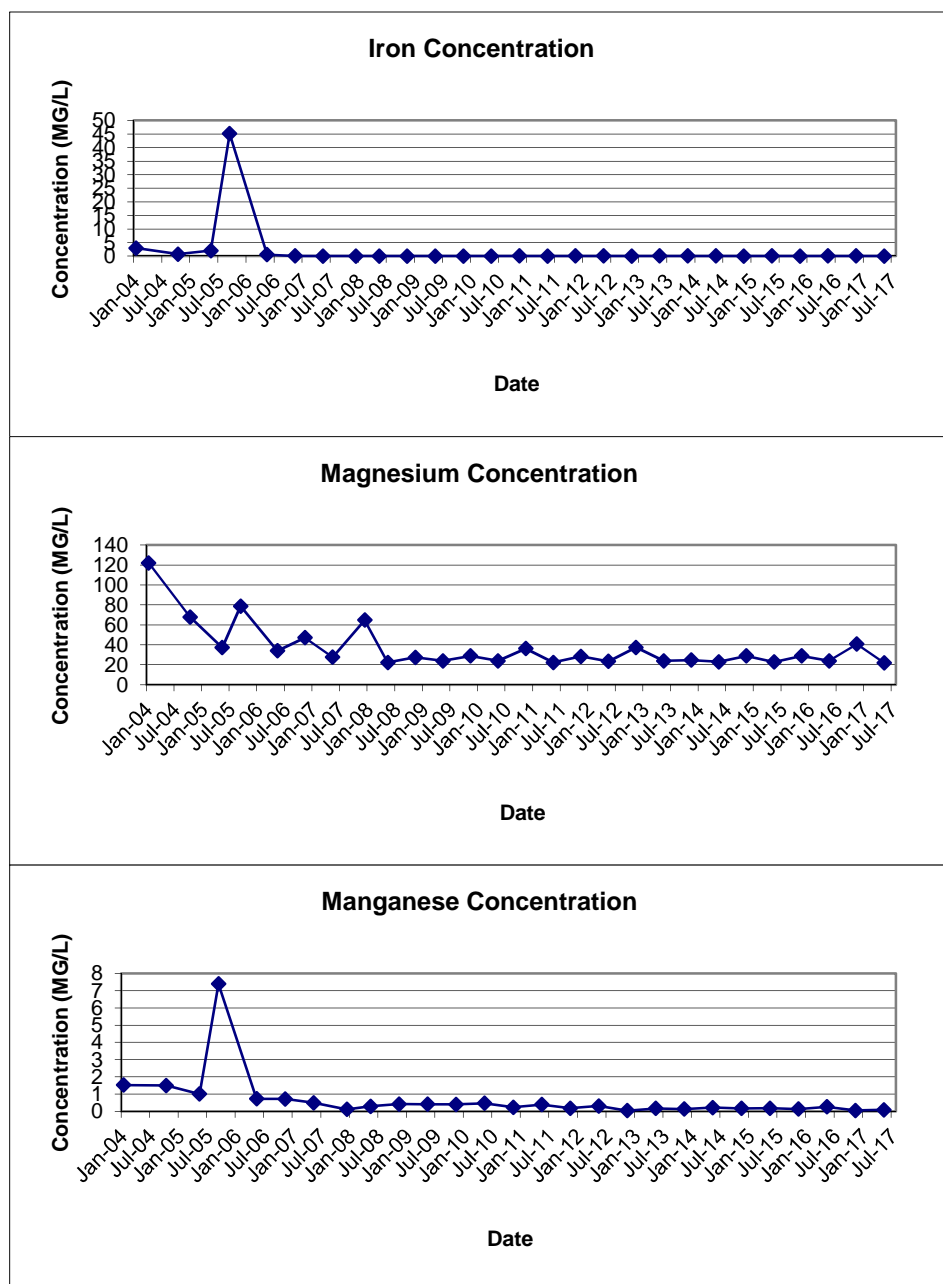


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



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

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS**A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS**

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

Sample Point	Parameter	Discharge Limitations ⁽¹⁾	Sampling Requirements	
		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:

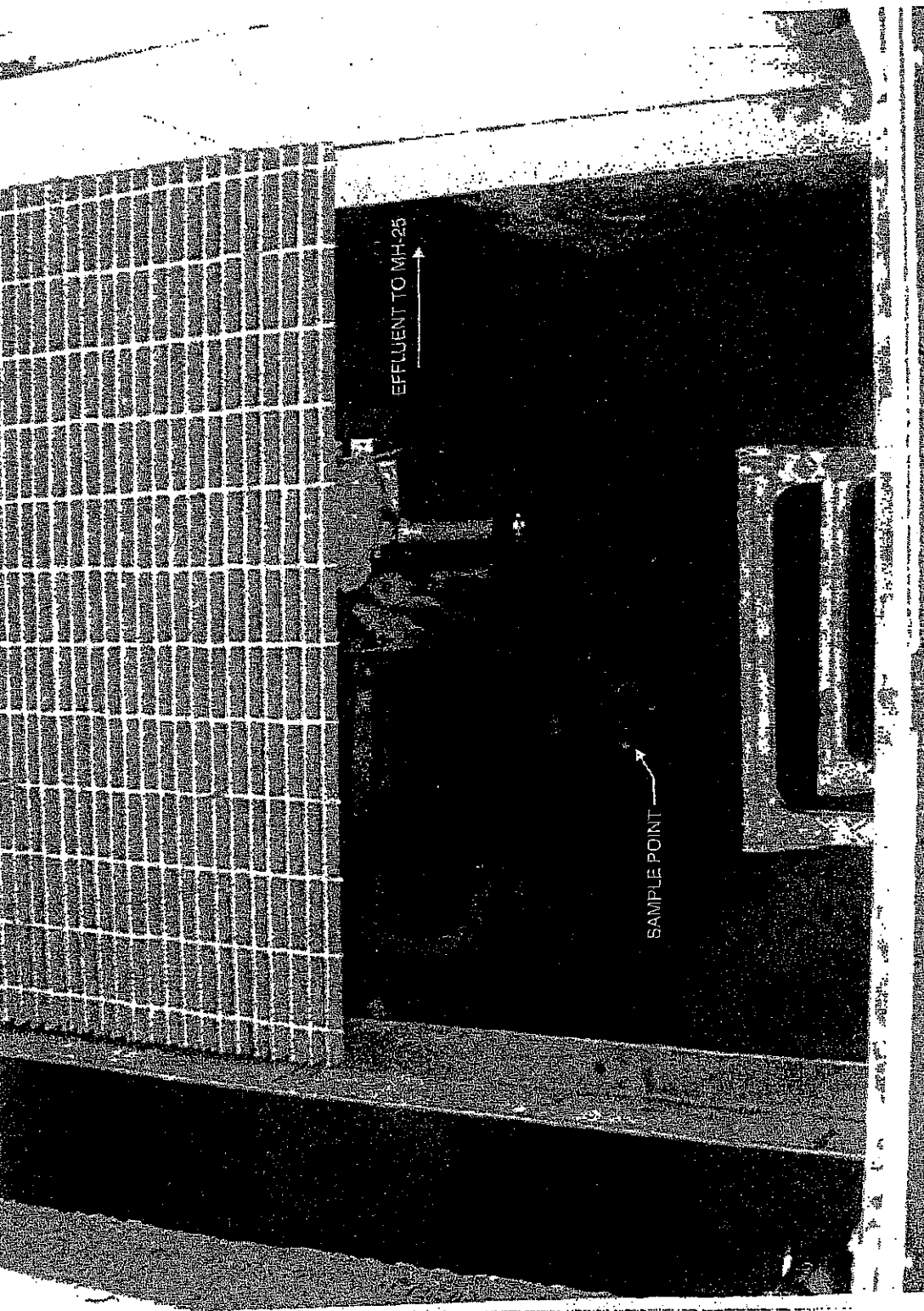
Sample Point	Parameter	Reporting Requirements	
		Initial Report	Subsequent Reports
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	June 30, 2016	Every March 31 st , June 30 th , September 30 th and December 31 st
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016	

* 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.



PFOHL BROTHERS LANDFILL
EFFLUENT SAMPLE POINT

FIGURE 1

URS

**TOWN OF CHEEKTOWAGA/BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT**

PART II GENERAL CONDITIONS

A. MONITORING AND REPORTING

1. Local Limits

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

2. Definitions

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

3. Discharge Sampling Analysis

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

4. Recording of Results

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

5. Additional Monitoring by Permittee

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

6. Reporting

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

**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 submit 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: 3/22/17 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 29° F, Clear

Sampling Device: NA

Time of Installation: 14:15 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Wells WW-01, -04, -05, and -06 were running at the time of sample set-up.
PLC display volumes: WW-01 (1,810,526 gals), WW-02 (0 gals), WW-03 (152 gals),
WW-04 (874,805 gals), WW-05 (2,540,526 gals), WW-06 (2,779,964 gals) & MH-25 (8,003,418 gals).

Date: 3/23/17 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 39° F, Clear

Time of Collection: 14:15

Field Measurements:

14:15/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 8.50

Temperature: 11.1°C

Identification: EFF-032317

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: Wells WW-04 and WW-05 were running at the time of sample collection.
PLC display volumes: WW-01 (1,810,526 gals), WW-02 (0 gals), WW-03 (152 gals),
WW-04 (874,805 gals), WW-05 (2,572,935 gals), WW-06 (2,874,247 gals) & MH-25 (8,130,203 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
MARCH 2017**

Sample ID	EFF-032317			
Matrix	Effluent Water			
Date Sampled	3/23/2017			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.14	0.15	2.34	No
Total Cadmuim	0.0005	0.00053	1.17	No
Total Chromium	< ⁽¹⁾ 0.0010	< 0.0011	1.17	No
Total Copper	0.011	0.012	3.74	No
Total Lead	0.0033	0.0035	1.17	No
Total Nickel	< 0.0013	< 0.0014	3.27	No
Total Zinc	0.081	0.086	5.84	No
Total Suspended Solids	6.0	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	8.5	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		126,785	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
- * Mercury and organics analysis performed once per permit duration

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

SAMPLING FIELD SHEET



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: 6/22/17 Crew: R. Murphy, K. McGovern, S. Moeller

Weather: 65° F, Clear

Sampling Device: NA

Time of Installation: 8:35 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-05 was running at the time of sample set-up.
PLC display volumes: WW-01 (2,392,522 gals), WW-02 (0 gals), WW-03 (152 gals),
WW-04 (1,187,691 gals), WW-05 (4,012,481 gals), WW-06 (4,213,003 gals) & MH-25 (11,790,163 gals).

Date: 6/23/17 Crew: R. Murphy, K. McGovern, S. Moeller

Weather: 77° F, Cloudy

Time of Collection: 8:35

Field Measurements:

8:35/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 7.10

Temperature: 21.0°C

Identification: EFF-062317

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (2,392,522 gals), WW-02 (0 gals), WW-03 (152 gals),
WW-04 (1,187,691 gals), WW-05 (4,025,173 gals), WW-06 (4,213,003 gals) & MH-25 (11,802,631 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2017**

Sample ID	EFF-062317			
Matrix	Effluent Water			
Date Sampled	6/23/2017			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.25	0.03	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.00005	1.17	No
Total Chromium	< 0.0010	< 0.0001	1.17	No
Total Copper	0.0058	0.001	3.74	No
Total Lead	< 0.0030	< 0.0003	1.17	No
Total Nickel	0.0054	0.0006	3.27	No
Total Zinc	0.031	0.003	5.84	No
Total Suspended Solids	6.8	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	7.1	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		12,468	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
 * Mercury and organics analysis performed once per permit duration

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

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date(s) of Inspection: May 24, 2017

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	2.58	14.94	
GW-01D	OK	OK	OK	Bulged	1.72	39.65	
GW-03S	OK	OK	OK	OK	2.88	13.22	
GW-03D	OK	OK	OK	OK	2.02	35.70	
GW-04S	OK	OK	OK	OK	4.45	16.23	
GW-04D	OK	OK	OK	OK	11.68	45.57	
GW-07S	OK	OK	OK	OK	4.88	35.33	
GW-07D	OK	OK	OK	Damaged	44.65	60.83	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, T. Urban

Supervisor: J. Sundquist

Date(s) of Inspection: May 24, 2017

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	5.42	13.02	
GW-08D	OK	OK	OK	OK	5.42	36.54	
GW-26D	OK	OK	OK	OK	5.76	40.70	
GW-28S	OK	OK	OK	OK	9.30	15.52	
GW-29S	OK	OK	OK	OK	8.16	20.04	
GW-30S	OK	OK	OK	OK	6.54	17.97	
GW-31S	OK	OK	OK	OK	2.77	9.57	
GW-32S	OK	OK	OK	OK	2.41	9.93	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, T. Urban

Supervisor: J. Sundquist

Date(s) of Inspection: May 24, 2017

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-33S	OK	OK	OK	OK	3.03	8.21	
GW-34S	OK	OK	OK	OK	2.82	10.01	
GW-35S	OK	OK	OK	OK	2.78	7.46	

Additional Comments:

DATA APPLICABILITY REPORT

SEMI-ANNUAL GROUNDWATER MONITORING

PFOHL BROTHERS LANDFILL SITE

Analyses Performed by:

TESTAMERICA LABORATORIES, INC.

10 HAZELWOOD DRIVE

AMHERST, NY 14228

Prepared for:

TOWN OF CHEEKTOWAGA

CHEEKTOWAGA, NY 14225

Prepared by:

URS CORPORATION

257 WEST GENESEE STREET, SUITE 400

BUFFALO, NY 14202-2657

JULY 2017

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TABLES

(Following Text)

Table 1	Validated Groundwater Sample Results
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APPENDICES

Appendix A – Validated Sample Reporting Forms

Appendix B – Support Documentation

I. INTRODUCTION

This Data Applicability Report (DAR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B-Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, May 2010. This DAR discusses the usability of the analytical data for groundwater samples collected during the May 2017 semi-annual monitoring program at the Pfohl Brothers Landfill Site, located in Cheektowaga, NY.

II. ANALYTICAL METHODOLOGIES AND DATA VALIDATION PROCEDURES

The data being evaluated are from the May 24-26, 2017 sampling of nineteen (19) groundwater samples, one (1) field duplicate, and one (1) matrix spike (MS)/matrix spike duplicate (MSD) pair. The analytical laboratory that performed the analyses was TestAmerica Laboratories, Inc. located in Amherst, NY. The samples were analyzed for the following project-specific parameters: Volatile Organic Compounds (VOCs) following United States Environmental Protection Agency (USEPA) Method 8260C, Semivolatile Organic Compounds (SVOCs) by USEPA Method 8270D, and metals by USEPA Method 6010C/7470A.

A limited data validation was performed in accordance with the following USEPA guidelines:

- *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2016-002, September 2016.
- *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2016-001, September 2016.

The limited data validation included a review of completeness of all required deliverables; holding times; quality control (QC) results (blanks, matrix spike recoveries, duplicate analyses, and laboratory control sample recoveries) to determine if the data are within the protocol-required QC limits and specifications; a determination that all samples were analyzed using established and agreed upon analytical protocols; and a review of laboratory data qualifiers.

Definitions of USEPA data qualifiers are presented at the end of this text. The validated analytical results are presented on Table 1 (groundwater). Copies of the validated laboratory results (i.e., sample reporting forms) are presented in Appendix A. Documentation supporting the qualification of data is presented in Appendix B. Only analytical deviations affecting data usability are discussed in this report.

III. DATA DELIVERABLE COMPLETENESS

In accordance with the project requirements, limited deliverable data packages were provided by the laboratory, which only consisted of analytical summaries, QC reporting forms and case narratives.

IV. SAMPLE RECEIPT/PRESERVATION/HOLDING TIMES

All samples were received by the laboratory intact, properly preserved and under proper chain-of-custody (COC). All samples were analyzed within the required holding times.

Due to the low recharge rates of monitoring wells GW-07D and GW-07S, the VOC aliquots were collected on 5/24/17, while the SVOC/metals aliquots were collected on 5/25/17. All aliquots of sample GW-04S were collected on 5/24/17, however the VOCs were collected at 14:30 pm while the SVOCs/metals were collected at 16:15 pm, due to a low recharge rate.

V. NON-CONFORMANCES

The metals method blanks exhibited contamination for zinc (Zn) at a concentration less than the reporting limit (RL). The laboratory qualified the detected Zn results 'B' in the associated samples. However, for those samples where the sample results were greater than ten times the method blank results, and also greater than the RL, the 'B' qualifiers were removed during the limited data validation. The Zn results for associated samples GW-01S, GW-07S, and GW-28S were qualified 'U' at the RL since their concentrations were less than the RL.

VI. SAMPLE RESULTS AND REPORTING

All RLs were reported in accordance with method requirements and were adjusted for sample size and dilution factors. Results for compounds/analytes detected below the RL are qualified 'J'.

A field duplicate was collected at groundwater location GW-08D. The field duplicate results exhibited good field and analytical precision.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified 'U' (non-detect) during the limited data review are considered conditionally usable. All other sample results are usable as reported. URS does not recommend the recollection of any samples at this time.

Prepared By: Ann Marie Kropovitch, Chemist

Date:

7/12/17

Reviewed by: Peter R. Fairbanks, Senior Chemist

Date:

7/12/17

DEFINITIONS OF USEPA DATA QUALIFIERS

- U – The analyte was analyzed for, but was not detected above the level of the sample reporting limit.
- J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ – The metal result is an estimated quantity, but the result may be biased high.
- J- – The metal result is an estimated quantity, but the result may be biased low.
- UJ – The analyte was analyzed for, but not detected. The reporting limit is approximate and may be inaccurate or imprecise.
- R – The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Sample ID		GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/26/17	05/26/17	05/24/17	05/24/17	05/24/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U	10 U	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	2.1 J	11 U	11 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	3.1 J	11 U	11 U
bis(2-Ethylhexyl)phthalate	UG/L	5.1 U	5.0 U	5.0 U	5.3 U	5.4 U
Phenol	UG/L	5.1 U	5.0 U	5.0 U	5.3 U	5.4 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.084	0.15	0.099	0.12	0.093
Cadmium	MG/L	0.0010 U	0.0014	0.0010 U	0.00094 J	0.0010 U
Chromium	MG/L	0.0051	0.0034 J	0.0040 U	0.0067	0.0037 J
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.0023 J	0.010 U
Iron	MG/L	2.4	9.0	1.5	1.1	0.12
Lead	MG/L	0.0038 J	0.0050 U	0.0032 J	0.0035 J	0.0050 U
Magnesium	MG/L	36.8	14.9	19.6	86.9	81.9
Manganese	MG/L	0.023	1.2	0.35	0.86	0.023
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.0016 J	0.0025 J	0.0061 J	0.088	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Sample ID		GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/26/17	05/26/17	05/24/17	05/24/17	05/24/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	106	171	204	104	94.2
Zinc	MG/L	0.013	0.010 U	0.013	0.17	0.047

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Sample ID		GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/24/17	05/24/17	05/25/17	05/24/17	05/25/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	NA	1.0 U	NA
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	NA	2.0 U	NA
Acetone	UG/L	10 U	10 U	NA	4.7 J	NA
Benzene	UG/L	1.0 U	1.0 U	NA	1.0 U	NA
Vinyl chloride	UG/L	1.0 U	1.0 U	NA	1.0 U	NA
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	NA	10 U	NA	11 U
1,4-Dichlorobenzene	UG/L	10 U	NA	10 U	NA	11 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	NA	5.0 U	NA	5.4 U
Phenol	UG/L	5.0 U	NA	5.0 U	NA	5.4 U
Metals						
Antimony	MG/L	0.020 U	NA	0.018 J	NA	0.020 U
Arsenic	MG/L	0.010 U	NA	0.010 U	NA	0.010 U
Barium	MG/L	0.11	NA	0.15	NA	0.34
Cadmium	MG/L	0.0010 U	NA	0.0067	NA	0.00052 J
Chromium	MG/L	0.0078	NA	1.4	NA	0.0076
Copper	MG/L	0.0043 J	NA	0.16	NA	0.010 U
Iron	MG/L	2.0	NA	50.8	NA	0.46
Lead	MG/L	0.0053	NA	0.67	NA	0.0050 U
Magnesium	MG/L	30.3	NA	44.4	NA	42.4
Manganese	MG/L	0.094	NA	0.34	NA	0.11
Mercury	MG/L	0.00020 U	NA	0.00020 U	NA	0.00020 U
Nickel	MG/L	0.0071 J	NA	0.66	NA	0.012

Flags assigned during chemistry validation are shown

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Sample ID		GW-04S	GW-07D	GW-07D	GW-07S	GW-07S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/24/17	05/24/17	05/25/17	05/24/17	05/25/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	NA	0.0030 U	NA	0.0030 U
Sodium	MG/L	37.5	NA	84.6	NA	61.6
Zinc	MG/L	0.0089 J	NA	0.43	NA	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-08D	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID		FD-052517	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/25/17	05/25/17	05/25/17	05/25/17	05/25/17
Parameter	Units	Field Duplicate (1-1)				
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U	1.1 J	2.0 U
Acetone	UG/L	10 U	3.3 J	10 U	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	11 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	11 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	5.6 U	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U	5.6 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.048	0.049	0.12	0.12	0.092
Cadmium	MG/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	0.022	0.021	0.0040 U	0.0040 U	0.0040 U
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Iron	MG/L	0.20	0.19	10.2	2.5	0.077
Lead	MG/L	0.0050 U	0.0050 U	0.025 U	0.0050 U	0.0050 U
Magnesium	MG/L	11.7	11.9	60.6	17.7	30.4
Manganese	MG/L	0.031	0.031	0.92	0.38	0.96
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.0055 J	0.0059 J	0.0030 J	0.0020 J	0.0020 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-08D	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID		FD-052517	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/25/17	05/25/17	05/25/17	05/25/17	05/25/17
Parameter	Units	Field Duplicate (1-1)				
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	133	135	157	281	14.9
Zinc	MG/L	0.011	0.017	0.010 U	0.010 U	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/25/17	05/26/17	05/26/17	05/26/17	05/25/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U	10 U	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	11 U	10 U	11 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	11 U	10 U	11 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.4 U	5.1 U	5.4 U	5.0 U	5.0 U
Phenol	UG/L	5.4 U	5.1 U	5.4 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.011	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.19	0.12	0.065	0.053	0.031
Cadmium	MG/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	0.0040 U	0.0040 U	0.0040 U	0.0040 U	0.0040 U
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Iron	MG/L	11.9	5.9	2.0	0.050 U	0.050 U
Lead	MG/L	0.0035 J	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	74.5	34.2	30.7	27.5	28.1
Manganese	MG/L	1.0	0.88	0.85	0.32	0.026
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.010 U	0.010 U	0.0036 J	0.0015 J	0.0018 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/25/17	05/26/17	05/26/17	05/26/17	05/25/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	10	52.9	4.2	3.2	2.8
Zinc	MG/L	0.051	0.010 U	0.010 U	0.010 U	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-34S	GW-35S
Sample ID		GW-34S	GW-35S
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		05/26/17	05/25/17
Parameter	Units		
Volatile Organic Compounds			
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U
Semivolatile Organic Compounds			
1,3-Dichlorobenzene	UG/L	10 U	9.8 U
1,4-Dichlorobenzene	UG/L	10 U	9.8 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	4.9 U
Phenol	UG/L	5.0 U	4.9 U
Metals			
Antimony	MG/L	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U
Barium	MG/L	0.10	0.085
Cadmium	MG/L	0.0010 U	0.0010 U
Chromium	MG/L	0.0016 J	0.0040 U
Copper	MG/L	0.010 U	0.010 U
Iron	MG/L	0.15	0.024 J
Lead	MG/L	0.0050 U	0.0050 U
Magnesium	MG/L	48.8	21.8
Manganese	MG/L	0.28	0.077
Mercury	MG/L	0.00020 U	0.00020 U
Nickel	MG/L	0.011	0.0017 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-34S	GW-35S
Sample ID		GW-34S	GW-35S
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		05/26/17	05/25/17
Parameter	Units		
Metals			
Silver	MG/L	0.0030 U	0.0030 U
Sodium	MG/L	32.3	2.4
Zinc	MG/L	0.010 U	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/21/17

CHECKED BY: PRF 7/12/17

Detection Limits shown are PQL

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-01D

Date Collected: 05/26/17 10:30

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-13

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 13:44	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/03/17 13:44	1
Acetone	ND		10	3.0	ug/L			06/03/17 13:44	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 13:44	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 13:44	1

Surrogate

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		77 - 120		06/03/17 13:44	1
Toluene-d8 (Surr)	98		80 - 120		06/03/17 13:44	1
4-Bromofluorobenzene (Surr)	98		73 - 120		06/03/17 13:44	1
Dibromofluoromethane (Surr)	97		75 - 123		06/03/17 13:44	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.49	ug/L		05/31/17 07:12	06/04/17 08:17	1
1,4-Dichlorobenzene	ND		10	0.47	ug/L		05/31/17 07:12	06/04/17 08:17	1
Bis(2-ethylhexyl) phthalate	ND		5.1	2.2	ug/L		05/31/17 07:12	06/04/17 08:17	1
Phenol	ND		5.1	0.40	ug/L		05/31/17 07:12	06/04/17 08:17	1

Surrogate

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		41 - 120	05/31/17 07:12	06/04/17 08:17	1
2-Fluorobiphenyl	81		48 - 120	05/31/17 07:12	06/04/17 08:17	1
2-Fluorophenol	72		35 - 120	05/31/17 07:12	06/04/17 08:17	1
Nitrobenzene-d5	92		46 - 120	05/31/17 07:12	06/04/17 08:17	1
Phenol-d5	55		22 - 120	05/31/17 07:12	06/04/17 08:17	1
p-Terphenyl-d14	93		59 - 136	05/31/17 07:12	06/04/17 08:17	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:47	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:47	1
Barium	0.084		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:47	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:47	1
Chromium	0.0051		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:47	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:47	1
Iron	2.4		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:47	1
Lead	0.0038	J	0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:47	1
Magnesium	36.8		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:47	1
Manganese	0.023		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:47	1
Nickel	0.0016	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:47	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:47	1
Sodium	106		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:47	1
Zinc	0.013	B	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:47	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:43	1

Handwritten signature and date: 6/1/17

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-01S

Date Collected: 05/26/17 09:20

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-12

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 13:17	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			06/03/17 13:17	1
Acetone	ND		10	3.0	ug/L			06/03/17 13:17	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 13:17	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 13:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		77 - 120		06/03/17 13:17	1
Toluene-d8 (Surr)	94		80 - 120		06/03/17 13:17	1
4-Bromofluorobenzene (Surr)	98		73 - 120		06/03/17 13:17	1
Dibromofluoromethane (Surr)	96		75 - 123		06/03/17 13:17	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 07:48	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 07:48	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 07:48	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 07:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		41 - 120	05/31/17 07:12	06/04/17 07:48	1
2-Fluorobiphenyl	79		48 - 120	05/31/17 07:12	06/04/17 07:48	1
2-Fluorophenol	67		35 - 120	05/31/17 07:12	06/04/17 07:48	1
Nitrobenzene-d5	84		46 - 120	05/31/17 07:12	06/04/17 07:48	1
Phenol-d5	52		22 - 120	05/31/17 07:12	06/04/17 07:48	1
p-Terphenyl-d14	76		59 - 136	05/31/17 07:12	06/04/17 07:48	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:44	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:44	1
Barium	0.15		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:44	1
Cadmium	0.0014		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:44	1
Chromium	0.0034	J	0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:44	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:44	1
Iron	9.0		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:44	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:44	1
Magnesium	14.9		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:44	1
Manganese	1.2		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:44	1
Nickel	0.0025	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:44	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:44	1
Sodium	171		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:44	1
Zinc	0.0028	J-B	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:44	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:41	1

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-03D

Lab Sample ID: 480-118501-4

Date Collected: 05/24/17 13:50

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 03:58	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/01/17 03:58	1
Acetone	ND		10	3.0	ug/L			06/01/17 03:58	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 03:58	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 03:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		77 - 120		06/01/17 03:58	1
Toluene-d8 (Surr)	98		80 - 120		06/01/17 03:58	1
4-Bromofluorobenzene (Surr)	96		73 - 120		06/01/17 03:58	1
Dibromofluoromethane (Surr)	105		75 - 123		06/01/17 03:58	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	2.1	J	10	0.48	ug/L		05/25/17 07:28	05/26/17 12:48	1
1,4-Dichlorobenzene	3.1	J	10	0.46	ug/L		05/25/17 07:28	05/26/17 12:48	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/25/17 07:28	05/26/17 12:48	1
Phenol	ND		5.0	0.39	ug/L		05/25/17 07:28	05/26/17 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		41 - 120	05/25/17 07:28	05/26/17 12:48	1
2-Fluorobiphenyl	75		48 - 120	05/25/17 07:28	05/26/17 12:48	1
2-Fluorophenol	60		35 - 120	05/25/17 07:28	05/26/17 12:48	1
Nitrobenzene-d5	78		46 - 120	05/25/17 07:28	05/26/17 12:48	1
Phenol-d5	45		22 - 120	05/25/17 07:28	05/26/17 12:48	1
p-Terphenyl-d14	82		59 - 136	05/25/17 07:28	05/26/17 12:48	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/25/17 09:50	05/31/17 07:07	1
Arsenic	ND		0.010	0.0056	mg/L		05/25/17 09:50	05/31/17 07:07	1
Barium	0.099		0.0020	0.00070	mg/L		05/25/17 09:50	05/31/17 07:07	1
Cadmium	ND		0.0010	0.00050	mg/L		05/25/17 09:50	05/31/17 07:07	1
Chromium	ND		0.0040	0.0010	mg/L		05/25/17 09:50	05/31/17 07:07	1
Copper	ND		0.010	0.0016	mg/L		05/25/17 09:50	05/31/17 07:07	1
Iron	1.5		0.050	0.019	mg/L		05/25/17 09:50	05/31/17 07:07	1
Lead	0.0032	J	0.0050	0.0030	mg/L		05/25/17 09:50	05/31/17 07:07	1
Magnesium	19.6		0.20	0.043	mg/L		05/25/17 09:50	05/31/17 07:07	1
Manganese	0.35		0.0030	0.00040	mg/L		05/25/17 09:50	05/31/17 07:07	1
Nickel	0.0061	J	0.010	0.0013	mg/L		05/25/17 09:50	05/31/17 07:07	1
Silver	ND		0.0030	0.0017	mg/L		05/25/17 09:50	05/31/17 07:07	1
Sodium	204		1.0	0.32	mg/L		05/25/17 09:50	05/31/17 07:07	1
Zinc	0.013		0.010	0.0015	mg/L		05/25/17 09:50	05/31/17 07:07	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/17 07:45	05/26/17 13:16	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-03S

Lab Sample ID: 480-118501-3

Date Collected: 05/24/17 12:35

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 03:30	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			06/01/17 03:30	1
Acetone	ND		10	3.0	ug/L			06/01/17 03:30	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 03:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		06/01/17 03:30	1
Toluene-d8 (Surr)	96		80 - 120		06/01/17 03:30	1
4-Bromofluorobenzene (Surr)	96		73 - 120		06/01/17 03:30	1
Dibromofluoromethane (Surr)	98		75 - 123		06/01/17 03:30	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.51	ug/L		05/25/17 07:28	05/26/17 12:19	1
1,4-Dichlorobenzene	ND		11	0.49	ug/L		05/25/17 07:28	05/26/17 12:19	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.3	ug/L		05/25/17 07:28	05/26/17 12:19	1
Phenol	ND		5.3	0.41	ug/L		05/25/17 07:28	05/26/17 12:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		41 - 120	05/25/17 07:28	05/26/17 12:19	1
2-Fluorobiphenyl	78		48 - 120	05/25/17 07:28	05/26/17 12:19	1
2-Fluorophenol	62		35 - 120	05/25/17 07:28	05/26/17 12:19	1
Nitrobenzene-d5	80		46 - 120	05/25/17 07:28	05/26/17 12:19	1
Phenol-d5	47		22 - 120	05/25/17 07:28	05/26/17 12:19	1
p-Terphenyl-d14	77		59 - 136	05/25/17 07:28	05/26/17 12:19	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/25/17 09:50	05/31/17 07:04	1
Arsenic	ND		0.010	0.0056	mg/L		05/25/17 09:50	05/31/17 07:04	1
Barium	0.12		0.0020	0.00070	mg/L		05/25/17 09:50	05/31/17 07:04	1
Cadmium	0.00094	J	0.0010	0.00050	mg/L		05/25/17 09:50	05/31/17 07:04	1
Chromium	0.0067		0.0040	0.0010	mg/L		05/25/17 09:50	05/31/17 07:04	1
Copper	0.0023	J	0.010	0.0016	mg/L		05/25/17 09:50	05/31/17 07:04	1
Iron	1.1		0.050	0.019	mg/L		05/25/17 09:50	05/31/17 07:04	1
Lead	0.0035	J	0.0050	0.0030	mg/L		05/25/17 09:50	05/31/17 07:04	1
Magnesium	86.9		0.20	0.043	mg/L		05/25/17 09:50	05/31/17 07:04	1
Manganese	0.86		0.0030	0.00040	mg/L		05/25/17 09:50	05/31/17 07:04	1
Nickel	0.088		0.010	0.0013	mg/L		05/25/17 09:50	05/31/17 07:04	1
Silver	ND		0.0030	0.0017	mg/L		05/25/17 09:50	05/31/17 07:04	1
Sodium	104		1.0	0.32	mg/L		05/25/17 09:50	05/31/17 07:04	1
Zinc	0.17		0.010	0.0015	mg/L		05/25/17 09:50	05/31/17 07:04	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/17 07:45	05/26/17 13:10	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-04D

Lab Sample ID: 480-118501-7

Date Collected: 05/24/17 16:00

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 04:53	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/01/17 04:53	1
Acetone	ND		10	3.0	ug/L			06/01/17 04:53	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 04:53	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 04:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		77 - 120		06/01/17 04:53	1
Toluene-d8 (Surr)	96		80 - 120		06/01/17 04:53	1
4-Bromofluorobenzene (Surr)	97		73 - 120		06/01/17 04:53	1
Dibromofluoromethane (Surr)	104		75 - 123		06/01/17 04:53	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.52	ug/L		05/25/17 07:28	05/26/17 13:48	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		05/25/17 07:28	05/26/17 13:48	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		05/25/17 07:28	05/26/17 13:48	1
Phenol	ND		5.4	0.42	ug/L		05/25/17 07:28	05/26/17 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		41 - 120	05/25/17 07:28	05/26/17 13:48	1
2-Fluorobiphenyl	76		48 - 120	05/25/17 07:28	05/26/17 13:48	1
2-Fluorophenol	62		35 - 120	05/25/17 07:28	05/26/17 13:48	1
Nitrobenzene-d5	78		46 - 120	05/25/17 07:28	05/26/17 13:48	1
Phenol-d5	46		22 - 120	05/25/17 07:28	05/26/17 13:48	1
p-Terphenyl-d14	81		59 - 136	05/25/17 07:28	05/26/17 13:48	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/25/17 09:50	05/31/17 07:28	1
Arsenic	ND		0.010	0.0056	mg/L		05/25/17 09:50	05/31/17 07:28	1
Barium	0.093		0.0020	0.00070	mg/L		05/25/17 09:50	05/31/17 07:28	1
Cadmium	ND		0.0010	0.00050	mg/L		05/25/17 09:50	05/31/17 07:28	1
Chromium	0.0037	J	0.0040	0.0010	mg/L		05/25/17 09:50	05/31/17 07:28	1
Copper	ND		0.010	0.0016	mg/L		05/25/17 09:50	05/31/17 07:28	1
Iron	0.12		0.050	0.019	mg/L		05/25/17 09:50	05/31/17 07:28	1
Lead	ND		0.0050	0.0030	mg/L		05/25/17 09:50	05/31/17 07:28	1
Magnesium	81.9		0.20	0.043	mg/L		05/25/17 09:50	05/31/17 07:28	1
Manganese	0.023		0.0030	0.00040	mg/L		05/25/17 09:50	05/31/17 07:28	1
Nickel	ND		0.010	0.0013	mg/L		05/25/17 09:50	05/31/17 07:28	1
Silver	ND		0.0030	0.0017	mg/L		05/25/17 09:50	05/31/17 07:28	1
Sodium	94.2		1.0	0.32	mg/L		05/25/17 09:50	05/31/17 07:28	1
Zinc	0.047		0.010	0.0015	mg/L		05/25/17 09:50	05/31/17 07:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/17 07:45	05/26/17 13:25	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-04S

Lab Sample ID: 480-118501-5

Date Collected: 05/24/17 14:30

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 04:25	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/01/17 04:25	1
Acetone	ND		10	3.0	ug/L			06/01/17 04:25	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 04:25	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 04:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		06/01/17 04:25	1
Toluene-d8 (Surr)	94		80 - 120		06/01/17 04:25	1
4-Bromofluorobenzene (Surr)	95		73 - 120		06/01/17 04:25	1
Dibromofluoromethane (Surr)	97		75 - 123		06/01/17 04:25	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-04S

Lab Sample ID: 480-118501-6

Date Collected: 05/24/17 16:15

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/25/17 07:28	05/26/17 13:18	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/25/17 07:28	05/26/17 13:18	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/25/17 07:28	05/26/17 13:18	1
Phenol	ND		5.0	0.39	ug/L		05/25/17 07:28	05/26/17 13:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		41 - 120	05/25/17 07:28	05/26/17 13:18	1
2-Fluorobiphenyl	83		48 - 120	05/25/17 07:28	05/26/17 13:18	1
2-Fluorophenol	67		35 - 120	05/25/17 07:28	05/26/17 13:18	1
Nitrobenzene-d5	86		46 - 120	05/25/17 07:28	05/26/17 13:18	1
Phenol-d5	48		22 - 120	05/25/17 07:28	05/26/17 13:18	1
p-Terphenyl-d14	88		59 - 136	05/25/17 07:28	05/26/17 13:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/25/17 09:50	05/31/17 07:25	1
Arsenic	ND		0.010	0.0056	mg/L		05/25/17 09:50	05/31/17 07:25	1
Barium	0.11		0.0020	0.00070	mg/L		05/25/17 09:50	05/31/17 07:25	1
Cadmium	ND		0.0010	0.00050	mg/L		05/25/17 09:50	05/31/17 07:25	1
Chromium	0.0078		0.0040	0.0010	mg/L		05/25/17 09:50	05/31/17 07:25	1
Copper	0.0043	J	0.010	0.0016	mg/L		05/25/17 09:50	05/31/17 07:25	1
Iron	2.0		0.050	0.019	mg/L		05/25/17 09:50	05/31/17 07:25	1
Lead	0.0053		0.0050	0.0030	mg/L		05/25/17 09:50	05/31/17 07:25	1
Magnesium	30.3		0.20	0.043	mg/L		05/25/17 09:50	05/31/17 07:25	1
Manganese	0.094		0.0030	0.00040	mg/L		05/25/17 09:50	05/31/17 07:25	1
Nickel	0.0071	J	0.010	0.0013	mg/L		05/25/17 09:50	05/31/17 07:25	1
Silver	ND		0.0030	0.0017	mg/L		05/25/17 09:50	05/31/17 07:25	1
Sodium	37.5		1.0	0.32	mg/L		05/25/17 09:50	05/31/17 07:25	1
Zinc	0.0089	J	0.010	0.0015	mg/L		05/25/17 09:50	05/31/17 07:25	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/17 07:45	05/26/17 13:24	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-07D

Lab Sample ID: 480-118501-1

Date Collected: 05/24/17 10:15

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 02:36	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/01/17 02:36	1
Acetone	ND		10	3.0	ug/L			06/01/17 02:36	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 02:36	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 02:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	108		77 - 120		06/01/17 02:36	1
Toluene-d8 (Surr)	106		80 - 120		06/01/17 02:36	1
4-Bromofluorobenzene (Surr)	106		73 - 120		06/01/17 02:36	1
Dibromofluoromethane (Surr)	108		75 - 123		06/01/17 02:36	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-07D

Date Collected: 05/25/17 08:10

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-1

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 00:41	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 00:41	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 00:41	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 00:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	98		41 - 120	05/31/17 07:12	06/04/17 00:41	1
2-Fluorobiphenyl	84		48 - 120	05/31/17 07:12	06/04/17 00:41	1
2-Fluorophenol	77		35 - 120	05/31/17 07:12	06/04/17 00:41	1
Nitrobenzene-d5	99		46 - 120	05/31/17 07:12	06/04/17 00:41	1
Phenol-d5	61		22 - 120	05/31/17 07:12	06/04/17 00:41	1
p-Terphenyl-d14	89		59 - 136	05/31/17 07:12	06/04/17 00:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.018	J	0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 20:30	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 20:30	1
Barium	0.15		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 20:30	1
Cadmium	0.0067		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 20:30	1
Chromium	1.4		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 20:30	1
Copper	0.16		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 20:30	1
Iron	50.8		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 20:30	1
Lead	0.67		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 20:30	1
Magnesium	44.4		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 20:30	1
Manganese	0.34		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 20:30	1
Nickel	0.66		0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 20:30	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 20:30	1
Sodium	84.6		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 20:30	1
Zinc	0.43	B	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 20:30	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:12	1

Check 4/1/17

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Client Sample ID: GW-07S

Lab Sample ID: 480-118501-2

Date Collected: 05/24/17 10:20

Matrix: Water

Date Received: 05/24/17 17:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/17 03:03	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/01/17 03:03	1
Acetone	4.7	J	10	3.0	ug/L			06/01/17 03:03	1
Benzene	ND		1.0	0.41	ug/L			06/01/17 03:03	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/17 03:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		06/01/17 03:03	1
Toluene-d8 (Surr)	96		80 - 120		06/01/17 03:03	1
4-Bromofluorobenzene (Surr)	97		73 - 120		06/01/17 03:03	1
Dibromofluoromethane (Surr)	99		75 - 123		06/01/17 03:03	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-07S

Date Collected: 05/25/17 08:20

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-2

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.52	ug/L		05/31/17 07:12	06/04/17 01:10	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		05/31/17 07:12	06/04/17 01:10	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		05/31/17 07:12	06/04/17 01:10	1
Phenol	ND		5.4	0.42	ug/L		05/31/17 07:12	06/04/17 01:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	97		41 - 120	05/31/17 07:12	06/04/17 01:10	1
2-Fluorobiphenyl	92		48 - 120	05/31/17 07:12	06/04/17 01:10	1
2-Fluorophenol	80		35 - 120	05/31/17 07:12	06/04/17 01:10	1
Nitrobenzene-d5	104		46 - 120	05/31/17 07:12	06/04/17 01:10	1
Phenol-d5	61		22 - 120	05/31/17 07:12	06/04/17 01:10	1
p-Terphenyl-d14	104		59 - 136	05/31/17 07:12	06/04/17 01:10	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 20:33	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 20:33	1
Barium	0.34		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 20:33	1
Cadmium	0.00052	J	0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 20:33	1
Chromium	0.0076		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 20:33	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 20:33	1
Iron	0.46		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 20:33	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 20:33	1
Magnesium	42.4		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 20:33	1
Manganese	0.11		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 20:33	1
Nickel	0.012		0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 20:33	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 20:33	1
Sodium	61.6		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 20:33	1
Zinc	0.0046	JB	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 20:33	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:14	1

*Out of
6/2/17*

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-08D

Date Collected: 05/25/17 10:35

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 17:15	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/02/17 17:15	1
Acetone	3.3	J	10	3.0	ug/L			06/02/17 17:15	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 17:15	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		06/02/17 17:15	1
Toluene-d8 (Surr)	93		80 - 120		06/02/17 17:15	1
4-Bromofluorobenzene (Surr)	93		73 - 120		06/02/17 17:15	1
Dibromofluoromethane (Surr)	97		75 - 123		06/02/17 17:15	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 02:07	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 02:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 02:07	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 02:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		41 - 120	05/31/17 07:12	06/04/17 02:07	1
2-Fluorobiphenyl	81		48 - 120	05/31/17 07:12	06/04/17 02:07	1
2-Fluorophenol	67		35 - 120	05/31/17 07:12	06/04/17 02:07	1
Nitrobenzene-d5	91		46 - 120	05/31/17 07:12	06/04/17 02:07	1
Phenol-d5	52		22 - 120	05/31/17 07:12	06/04/17 02:07	1
p-Terphenyl-d14	99		59 - 136	05/31/17 07:12	06/04/17 02:07	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 20:40	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 20:40	1
Barium	0.049		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 20:40	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 20:40	1
Chromium	0.021		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 20:40	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 20:40	1
Iron	0.19		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 20:40	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 20:40	1
Magnesium	11.9		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 20:40	1
Manganese	0.031		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 20:40	1
Nickel	0.0059	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 20:40	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 20:40	1
Sodium	135		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 20:40	1
Zinc	0.017	B	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 20:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:24	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: FD-052517

Lab Sample ID: 480-118652-5

Date Collected: 05/25/17 00:00

Matrix: Water

Date Received: 05/26/17 14:14

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 17:39	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/02/17 17:39	1
Acetone	ND		10	3.0	ug/L			06/02/17 17:39	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 17:39	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 17:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		06/02/17 17:39	1
Toluene-d8 (Surr)	87		80 - 120		06/02/17 17:39	1
4-Bromofluorobenzene (Surr)	85		73 - 120		06/02/17 17:39	1
Dibromofluoromethane (Surr)	90		75 - 123		06/02/17 17:39	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 04:29	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 04:29	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 04:29	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 04:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	100		41 - 120	05/31/17 07:12	06/04/17 04:29	1
2-Fluorobiphenyl	80		48 - 120	05/31/17 07:12	06/04/17 04:29	1
2-Fluorophenol	64		35 - 120	05/31/17 07:12	06/04/17 04:29	1
Nitrobenzene-d5	95		46 - 120	05/31/17 07:12	06/04/17 04:29	1
Phenol-d5	48		22 - 120	05/31/17 07:12	06/04/17 04:29	1
p-Terphenyl-d14	90		59 - 136	05/31/17 07:12	06/04/17 04:29	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:08	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:08	1
Barium	0.048		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:08	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:08	1
Chromium	0.022		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:08	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:08	1
Iron	0.20		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:08	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:08	1
Magnesium	11.7		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:08	1
Manganese	0.031		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:08	1
Nickel	0.0055	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:08	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:08	1
Sodium	133		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:08	1
Zinc	0.011		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:08	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:25	1

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-08SR

Date Collected: 05/25/17 11:40

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 04:03	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/03/17 04:03	1
Acetone	ND		10	3.0	ug/L			06/03/17 04:03	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 04:03	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 04:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		77 - 120		06/03/17 04:03	1
Toluene-d8 (Surr)	85		80 - 120		06/03/17 04:03	1
4-Bromofluorobenzene (Surr)	86		73 - 120		06/03/17 04:03	1
Dibromofluoromethane (Surr)	90		75 - 123		06/03/17 04:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.53	ug/L		05/31/17 07:12	06/04/17 04:58	1
1,4-Dichlorobenzene	ND		11	0.51	ug/L		05/31/17 07:12	06/04/17 04:58	1
Bis(2-ethylhexyl) phthalate	ND		5.6	2.4	ug/L		05/31/17 07:12	06/04/17 04:58	1
Phenol	ND		5.6	0.43	ug/L		05/31/17 07:12	06/04/17 04:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		41 - 120	05/31/17 07:12	06/04/17 04:58	1
2-Fluorobiphenyl	82		48 - 120	05/31/17 07:12	06/04/17 04:58	1
2-Fluorophenol	81		35 - 120	05/31/17 07:12	06/04/17 04:58	1
Nitrobenzene-d5	90		46 - 120	05/31/17 07:12	06/04/17 04:58	1
Phenol-d5	65		22 - 120	05/31/17 07:12	06/04/17 04:58	1
p-Terphenyl-d14	74		59 - 136	05/31/17 07:12	06/04/17 04:58	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0088	mg/L		05/30/17 09:35	06/09/17 21:12	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:12	1
Barium	0.12		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:12	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:12	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:12	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:12	1
Iron	10.2		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:12	1
Lead	ND		0.025	0.015	mg/L		05/30/17 09:35	06/12/17 13:48	5
Magnesium	60.6		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:12	1
Manganese	0.92		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:12	1
Nickel	0.0030	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:12	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:12	1
Sodium	157		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:12	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:12	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:30	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-26D

Date Collected: 05/25/17 15:35

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-10

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 19:36	1
1,2-Dichloroethene, Total	1.1	J	2.0	0.81	ug/L			06/02/17 19:36	1
Acetone	ND		10	3.0	ug/L			06/02/17 19:36	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 19:36	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		06/02/17 19:36	1
Toluene-d8 (Surr)	90		80 - 120		06/02/17 19:36	1
4-Bromofluorobenzene (Surr)	90		73 - 120		06/02/17 19:36	1
Dibromofluoromethane (Surr)	93		75 - 123		06/02/17 19:36	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 06:51	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 06:51	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 06:51	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 06:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	94		41 - 120	05/31/17 07:12	06/04/17 06:51	1
2-Fluorobiphenyl	92		48 - 120	05/31/17 07:12	06/04/17 06:51	1
2-Fluorophenol	70		35 - 120	05/31/17 07:12	06/04/17 06:51	1
Nitrobenzene-d5	97		46 - 120	05/31/17 07:12	06/04/17 06:51	1
Phenol-d5	54		22 - 120	05/31/17 07:12	06/04/17 06:51	1
p-Terphenyl-d14	75		59 - 136	05/31/17 07:12	06/04/17 06:51	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:37	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:37	1
Barium	0.12		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:37	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:37	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:37	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:37	1
Iron	2.5		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:37	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:37	1
Magnesium	17.7		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:37	1
Manganese	0.38		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:37	1
Nickel	0.0020	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:37	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:37	1
Sodium	281		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:37	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:37	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-28S

Date Collected: 05/25/17 09:10

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 03:39	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			06/03/17 03:39	1
Acetone	ND		10	3.0	ug/L			06/03/17 03:39	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 03:39	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 03:39	1

Surrogate

	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		06/03/17 03:39	1
Toluene-d8 (Surr)	89		80 - 120		06/03/17 03:39	1
4-Bromofluorobenzene (Surr)	87		73 - 120		06/03/17 03:39	1
Dibromofluoromethane (Surr)	92		75 - 123		06/03/17 03:39	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 01:38	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 01:38	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 01:38	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 01:38	1

Surrogate

	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		41 - 120	05/31/17 07:12	06/04/17 01:38	1
2-Fluorobiphenyl	85		48 - 120	05/31/17 07:12	06/04/17 01:38	1
2-Fluorophenol	72		35 - 120	05/31/17 07:12	06/04/17 01:38	1
Nitrobenzene-d5	95		46 - 120	05/31/17 07:12	06/04/17 01:38	1
Phenol-d5	54		22 - 120	05/31/17 07:12	06/04/17 01:38	1
p-Terphenyl-d14	87		59 - 136	05/31/17 07:12	06/04/17 01:38	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 20:37	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 20:37	1
Barium	0.092		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 20:37	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 20:37	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 20:37	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 20:37	1
Iron	0.077		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 20:37	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 20:37	1
Magnesium	30.4		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 20:37	1
Manganese	0.96		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 20:37	1
Nickel	0.0020	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 20:37	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 20:37	1
Sodium	14.9		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 20:37	1
Zinc	0.0034 JB ND		0.010	0.0015 0.0034	mg/L		05/30/17 09:35	06/09/17 20:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:16	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-29S

Date Collected: 05/25/17 13:35

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-8

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 18:49	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/02/17 18:49	1
Acetone	ND		10	3.0	ug/L			06/02/17 18:49	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 18:49	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 18:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		06/02/17 18:49	1
Toluene-d8 (Surr)	93		80 - 120		06/02/17 18:49	1
4-Bromofluorobenzene (Surr)	94		73 - 120		06/02/17 18:49	1
Dibromofluoromethane (Surr)	100		75 - 123		06/02/17 18:49	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.52	ug/L		05/31/17 07:12	06/04/17 05:54	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		05/31/17 07:12	06/04/17 05:54	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		05/31/17 07:12	06/04/17 05:54	1
Phenol	ND		5.4	0.42	ug/L		05/31/17 07:12	06/04/17 05:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	101		41 - 120	05/31/17 07:12	06/04/17 05:54	1
2-Fluorobiphenyl	87		48 - 120	05/31/17 07:12	06/04/17 05:54	1
2-Fluorophenol	81		35 - 120	05/31/17 07:12	06/04/17 05:54	1
Nitrobenzene-d5	95		46 - 120	05/31/17 07:12	06/04/17 05:54	1
Phenol-d5	63		22 - 120	05/31/17 07:12	06/04/17 05:54	1
p-Terphenyl-d14	85		59 - 136	05/31/17 07:12	06/04/17 05:54	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:19	1
Arsenic	0.011		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:19	1
Barium	0.19		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:19	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:19	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:19	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:19	1
Iron	11.9		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:19	1
Lead	0.0035	J	0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:19	1
Magnesium	74.5		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:19	1
Manganese	1.0		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:19	1
Nickel	ND		0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:19	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:19	1
Sodium	10		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:19	1
Zinc	0.051		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:34	1

Handwritten signature and date: 6/1/17

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-30S

Date Collected: 05/26/17 11:30

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-14

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 11:56	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			06/03/17 11:56	1
Acetone	ND		10	3.0	ug/L			06/03/17 11:56	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 11:56	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 11:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		77 - 120		06/03/17 11:56	1
Toluene-d8 (Surr)	97		80 - 120		06/03/17 11:56	1
4-Bromofluorobenzene (Surr)	106		73 - 120		06/03/17 11:56	1
Dibromofluoromethane (Surr)	105		75 - 123		06/03/17 11:56	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.49	ug/L		05/31/17 07:12	06/04/17 08:45	1
1,4-Dichlorobenzene	ND		10	0.47	ug/L		05/31/17 07:12	06/04/17 08:45	1
Bis(2-ethylhexyl) phthalate	ND		5.1	2.2	ug/L		05/31/17 07:12	06/04/17 08:45	1
Phenol	ND		5.1	0.40	ug/L		05/31/17 07:12	06/04/17 08:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	97		41 - 120	05/31/17 07:12	06/04/17 08:45	1
2-Fluorobiphenyl	85		48 - 120	05/31/17 07:12	06/04/17 08:45	1
2-Fluorophenol	74		35 - 120	05/31/17 07:12	06/04/17 08:45	1
Nitrobenzene-d5	94		46 - 120	05/31/17 07:12	06/04/17 08:45	1
Phenol-d5	56		22 - 120	05/31/17 07:12	06/04/17 08:45	1
p-Terphenyl-d14	80		59 - 136	05/31/17 07:12	06/04/17 08:45	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:51	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:51	1
Barium	0.12		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:51	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:51	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:51	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:51	1
Iron	5.9		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:51	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:51	1
Magnesium	34.2		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:51	1
Manganese	0.88		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:51	1
Nickel	ND		0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:51	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:51	1
Sodium	52.9		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:51	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:46	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-31S

Date Collected: 05/26/17 12:15

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-15

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 12:58	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			06/03/17 12:58	1
Acetone	ND		10	3.0	ug/L			06/03/17 12:58	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 12:58	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 12:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		77 - 120		06/03/17 12:58	1
Toluene-d8 (Surr)	98		80 - 120		06/03/17 12:58	1
4-Bromofluorobenzene (Surr)	104		73 - 120		06/03/17 12:58	1
Dibromofluoromethane (Surr)	101		75 - 123		06/03/17 12:58	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		11	0.52	ug/L		05/31/17 07:12	06/04/17 09:13	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		05/31/17 07:12	06/04/17 09:13	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		05/31/17 07:12	06/04/17 09:13	1
Phenol	ND		5.4	0.42	ug/L		05/31/17 07:12	06/04/17 09:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		41 - 120	05/31/17 07:12	06/04/17 09:13	1
2-Fluorobiphenyl	86		48 - 120	05/31/17 07:12	06/04/17 09:13	1
2-Fluorophenol	68		35 - 120	05/31/17 07:12	06/04/17 09:13	1
Nitrobenzene-d5	86		46 - 120	05/31/17 07:12	06/04/17 09:13	1
Phenol-d5	51		22 - 120	05/31/17 07:12	06/04/17 09:13	1
p-Terphenyl-d14	90		59 - 136	05/31/17 07:12	06/04/17 09:13	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:54	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:54	1
Barium	0.065		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:54	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:54	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:54	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:54	1
Iron	2.0		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:54	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:54	1
Magnesium	30.7		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:54	1
Manganese	0.85		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:54	1
Nickel	0.0036	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:54	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:54	1
Sodium	4.2		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:54	1
Zinc	0.0046	J B	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:47	1

0.0040
6/1/17

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-32S

Date Collected: 05/26/17 13:00

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-16

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 13:21	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/03/17 13:21	1
Acetone	ND		10	3.0	ug/L			06/03/17 13:21	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 13:21	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 13:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		77 - 120		06/03/17 13:21	1
Toluene-d8 (Surr)	96		80 - 120		06/03/17 13:21	1
4-Bromofluorobenzene (Surr)	106		73 - 120		06/03/17 13:21	1
Dibromofluoromethane (Surr)	106		75 - 123		06/03/17 13:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 09:42	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 09:42	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 09:42	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 09:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		41 - 120	05/31/17 07:12	06/04/17 09:42	1
2-Fluorobiphenyl	85		48 - 120	05/31/17 07:12	06/04/17 09:42	1
2-Fluorophenol	65		35 - 120	05/31/17 07:12	06/04/17 09:42	1
Nitrobenzene-d5	90		46 - 120	05/31/17 07:12	06/04/17 09:42	1
Phenol-d5	49		22 - 120	05/31/17 07:12	06/04/17 09:42	1
p-Terphenyl-d14	83		59 - 136	05/31/17 07:12	06/04/17 09:42	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:58	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:58	1
Barium	0.053		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:58	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:58	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:58	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:58	1
Iron	ND		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:58	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:58	1
Magnesium	27.5		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:58	1
Manganese	0.32		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:58	1
Nickel	0.0015	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:58	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:58	1
Sodium	3.2		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:58	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:52	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-33S

Date Collected: 05/25/17 12:35

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-7

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 18:26	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/02/17 18:26	1
Acetone	ND		10	3.0	ug/L			06/02/17 18:26	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 18:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		06/02/17 18:26	1
Toluene-d8 (Surr)	92		80 - 120		06/02/17 18:26	1
4-Bromofluorobenzene (Surr)	91		73 - 120		06/02/17 18:26	1
Dibromofluoromethane (Surr)	96		75 - 123		06/02/17 18:26	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 05:26	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 05:26	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 05:26	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 05:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		41 - 120	05/31/17 07:12	06/04/17 05:26	1
2-Fluorobiphenyl	82		48 - 120	05/31/17 07:12	06/04/17 05:26	1
2-Fluorophenol	68		35 - 120	05/31/17 07:12	06/04/17 05:26	1
Nitrobenzene-d5	94		46 - 120	05/31/17 07:12	06/04/17 05:26	1
Phenol-d5	51		22 - 120	05/31/17 07:12	06/04/17 05:26	1
p-Terphenyl-d14	85		59 - 136	05/31/17 07:12	06/04/17 05:26	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:15	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:15	1
Barium	0.031		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:15	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:15	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:15	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:15	1
Iron	ND		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:15	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:15	1
Magnesium	28.1		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:15	1
Manganese	0.026		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:15	1
Nickel	0.0018	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:15	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:15	1
Sodium	2.8		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:15	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:15	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:32	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-34S

Lab Sample ID: 480-118652-11

Date Collected: 05/26/17 08:23

Matrix: Water

Date Received: 05/26/17 14:14

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/17 12:50	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/03/17 12:50	1
Acetone	ND		10	3.0	ug/L			06/03/17 12:50	1
Benzene	ND		1.0	0.41	ug/L			06/03/17 12:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/17 12:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		77 - 120		06/03/17 12:50	1
Toluene-d8 (Surr)	98		80 - 120		06/03/17 12:50	1
4-Bromofluorobenzene (Surr)	98		73 - 120		06/03/17 12:50	1
Dibromofluoromethane (Surr)	98		75 - 123		06/03/17 12:50	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/31/17 07:12	06/04/17 07:20	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/31/17 07:12	06/04/17 07:20	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/17 07:12	06/04/17 07:20	1
Phenol	ND		5.0	0.39	ug/L		05/31/17 07:12	06/04/17 07:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		41 - 120	05/31/17 07:12	06/04/17 07:20	1
2-Fluorobiphenyl	86		48 - 120	05/31/17 07:12	06/04/17 07:20	1
2-Fluorophenol	65		35 - 120	05/31/17 07:12	06/04/17 07:20	1
Nitrobenzene-d5	82		46 - 120	05/31/17 07:12	06/04/17 07:20	1
Phenol-d5	49		22 - 120	05/31/17 07:12	06/04/17 07:20	1
p-Terphenyl-d14	80		59 - 136	05/31/17 07:12	06/04/17 07:20	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:40	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:40	1
Barium	0.10		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:40	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:40	1
Chromium	0.0016	J	0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:40	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:40	1
Iron	0.15		0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:40	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:40	1
Magnesium	48.8		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:40	1
Manganese	0.28		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:40	1
Nickel	0.011		0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:40	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:40	1
Sodium	32.3		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:40	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:39	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Client Sample ID: GW-35S

Date Collected: 05/25/17 14:25

Date Received: 05/26/17 14:14

Lab Sample ID: 480-118652-9

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/02/17 19:12	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			06/02/17 19:12	1
Acetone	ND		10	3.0	ug/L			06/02/17 19:12	1
Benzene	ND		1.0	0.41	ug/L			06/02/17 19:12	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/02/17 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		06/02/17 19:12	1
Toluene-d8 (Surr)	92		80 - 120		06/02/17 19:12	1
4-Bromofluorobenzene (Surr)	90		73 - 120		06/02/17 19:12	1
Dibromofluoromethane (Surr)	95		75 - 123		06/02/17 19:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		9.8	0.47	ug/L		05/31/17 07:12	06/04/17 06:23	1
1,4-Dichlorobenzene	ND		9.8	0.45	ug/L		05/31/17 07:12	06/04/17 06:23	1
Bis(2-ethylhexyl) phthalate	ND		4.9	2.2	ug/L		05/31/17 07:12	06/04/17 06:23	1
Phenol	ND		4.9	0.38	ug/L		05/31/17 07:12	06/04/17 06:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		41 - 120	05/31/17 07:12	06/04/17 06:23	1
2-Fluorobiphenyl	88		48 - 120	05/31/17 07:12	06/04/17 06:23	1
2-Fluorophenol	69		35 - 120	05/31/17 07:12	06/04/17 06:23	1
Nitrobenzene-d5	97		46 - 120	05/31/17 07:12	06/04/17 06:23	1
Phenol-d5	51		22 - 120	05/31/17 07:12	06/04/17 06:23	1
p-Terphenyl-d14	81		59 - 136	05/31/17 07:12	06/04/17 06:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/30/17 09:35	06/09/17 21:22	1
Arsenic	ND		0.010	0.0056	mg/L		05/30/17 09:35	06/09/17 21:22	1
Barium	0.085		0.0020	0.00070	mg/L		05/30/17 09:35	06/09/17 21:22	1
Cadmium	ND		0.0010	0.00050	mg/L		05/30/17 09:35	06/09/17 21:22	1
Chromium	ND		0.0040	0.0010	mg/L		05/30/17 09:35	06/09/17 21:22	1
Copper	ND		0.010	0.0016	mg/L		05/30/17 09:35	06/09/17 21:22	1
Iron	0.024	J	0.050	0.019	mg/L		05/30/17 09:35	06/09/17 21:22	1
Lead	ND		0.0050	0.0030	mg/L		05/30/17 09:35	06/09/17 21:22	1
Magnesium	21.8		0.20	0.043	mg/L		05/30/17 09:35	06/09/17 21:22	1
Manganese	0.077		0.0030	0.00040	mg/L		05/30/17 09:35	06/09/17 21:22	1
Nickel	0.0017	J	0.010	0.0013	mg/L		05/30/17 09:35	06/09/17 21:22	1
Silver	ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 21:22	1
Sodium	2.4		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 21:22	1
Zinc	ND		0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 21:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/30/17 10:20	05/30/17 16:35	1

TestAmerica Buffalo

APPENDIX B

SUPPORT DOCUMENTATION

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

TestAmerica

Client Information		Sampler: <u>FOB in report / Tom URBAN</u>		Lab PM: Deyo, Melissa L.		Carrier Tracking No(s):		SOC No 480-97828-13273.1												
Client Contact Ann Marie Kropovitch		Phone <u>716-423-1176</u>		E-Mail melissa.deyo@testamericainc.com				Page Page 1 of 2												
Company AECOM, Inc.				Analysis Requested																
Address 257 West Genesee Street Suite 400		Due Date Requested:		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Perform MS/MSD (Yes or No)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010C, 7470A</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8270D - Semi-volatile Compounds by GC/MS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8260C - Volatile Organic Compounds (GC/MS)</div> </div>																
City Buffalo		TAT Requested (days): <u>STANDARD</u>																		
State, Zip NY, 14202-2657																				
Phone 716-923-1137(Tel)		PO # 60411174 Task11175616.00000																		
Email ann.marie.kropovitch@aecom.com		WO # ann.marie.kropovitch@aecom.com																		
Project Name Pfohl Brothers Landfill GW Monitoring		Project # 48002609		<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Preservation Codes:</p> <p>A - HCL M - Hexane</p> <p>B - NaOH N - None</p> <p>C - Zn Acet</p> <p>D - Nitric</p> <p>E - NaHS</p> <p>F - MeOH</p> <p>G - Amdt</p> <p>H - Ascor</p> <p>I - Ice</p> <p>J - DI WH</p> <p>K - EDT</p> <p>L - EDA</p> <p>Other:</p> </div> <div style="margin-left: 10px;">hydrate</div> </div> <p>480-118501 COC</p>																
Site		SSOWS																		
Sample Identification	Sample Date	Sample Time	Sample Type (Comp., Grab)	Matrix (Water, Solid, Other)	Total Number of containers															
Preservation Code:					X	X	D	N	A											
GW-07D	5/24/17	1015	G	Water																3
GW-07S	5/24/17	1020	G	Water																3
GW-03S	5/24/17	1235	G	Water				1	2	3										6
GW-03D	5/24/17	1350	G	Water				1	2	3										6
GW-03P-MIS	5/24/17	1350	G	Water				1	2	3										6
GW-03D-MSD	5/24/17	1350	G	Water				1	2	3										6
GW-04S	5/24/17	1430	G	Water						3										3
GW-04S	5/24/17	1615	G	Water				1	2											3
GW-04D	5/24/17	1600	G	Water				1	2	3										6
				-Water-																
				-Water-																
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)															
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:															
Empty Kit Relinquished by			Date:	Time:	Method of Shipment															
Relinquished by <u>[Signature]</u>			Date/Time 5/24/17 1700	Company AECOM	Received by <u>[Signature]</u>			Date/Time 5-24-17 1700	Company TAB											
Relinquished by			Date/Time	Company	Received by			Date/Time	Company											
Relinquished by			Date/Time	Company	Received by			Date/Time	Company											
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks. <u>S.O.#1</u>																

Case Narrative

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118501-1

Job ID: 480-118501-1

Laboratory: TestAmerica Buffalo

4

Narrative

Job Narrative 480-118501-1

Receipt

The samples were received on 5/24/2017 5:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

TestAmerica

[illegible]

TestAmerica

Page 47 of 48

Case Narrative

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Job ID: 480-118652-1

Laboratory: TestAmerica Buffalo

4

Narrative

Job Narrative 480-118652-1

Receipt

The samples were received on 5/26/2017 2:14 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.7° C and 3.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method(s) 6010C: The following sample was diluted due to the presence of Total Sulfur which interferes with Lead: GW-08SR (480-118652-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 480-359711.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

QC Sample Results

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-118652-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-359659/1-A
Matrix: Water
Analysis Batch: 361590

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359659

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver			ND		0.0030	0.0017	mg/L		05/30/17 09:35	06/09/17 20:23	1
Sodium			ND		1.0	0.32	mg/L		05/30/17 09:35	06/09/17 20:23	1
Zinc			0.00195	J	0.010	0.0015	mg/L		05/30/17 09:35	06/09/17 20:23	1

Lab Sample ID: LCS 480-359659/2-A
Matrix: Water
Analysis Batch: 361590

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359659

Analyte	Spike	LCS	LCS	Result	Qualifier	Unit	D	%Rec	Limits
	Added	Result	Qualifier						
Antimony	0.200	0.214				mg/L		107	80 - 120
Arsenic	0.200	0.205				mg/L		102	80 - 120
Barium	0.200	0.215				mg/L		108	80 - 120
Cadmium	0.200	0.210				mg/L		105	80 - 120
Chromium	0.200	0.211				mg/L		105	80 - 120
Copper	0.200	0.207				mg/L		103	80 - 120
Iron	10.0	10.61				mg/L		106	80 - 120
Lead	0.200	0.210				mg/L		105	80 - 120
Magnesium	10.0	10.67				mg/L		107	80 - 120
Manganese	0.200	0.214				mg/L		107	80 - 120
Nickel	0.200	0.202				mg/L		101	80 - 120
Silver	0.0500	0.0499				mg/L		100	80 - 120
Sodium	10.0	10.26				mg/L		102	80 - 120
Zinc	0.200	0.215				mg/L		107	80 - 120

Lab Sample ID: 480-118652-4 MS
Matrix: Water
Analysis Batch: 361590

Client Sample ID: GW-08D
Prep Type: Total/NA
Prep Batch: 359659

Analyte	Sample	Sample	Spike	MS	MS	Result	Qualifier	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier						
Antimony	ND		0.200	0.217				mg/L		108	75 - 125
Arsenic	ND		0.200	0.210				mg/L		105	75 - 125
Barium	0.049		0.200	0.253				mg/L		102	75 - 125
Cadmium	ND		0.200	0.213				mg/L		106	75 - 125
Chromium	0.021		0.200	0.229				mg/L		104	75 - 125
Copper	ND		0.200	0.210				mg/L		105	75 - 125
Iron	0.19		10.0	10.57				mg/L		104	75 - 125
Lead	ND		0.200	0.216				mg/L		108	75 - 125
Magnesium	11.9		10.0	21.99				mg/L		101	75 - 125
Manganese	0.031		0.200	0.240				mg/L		104	75 - 125
Nickel	0.0059	J	0.200	0.211				mg/L		102	75 - 125
Silver	ND		0.0500	0.0514				mg/L		103	75 - 125
Sodium	135		10.0	143.0	4			mg/L		79	75 - 125
Zinc	0.017	B	0.200	0.231				mg/L		107	75 - 125

TestAmerica Buffalo

ATTACHMENT B

July 2017 – December 2017

Semi Annual Report

And

Data Applicability Report

**SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JULY 2017 TO DECEMBER 2017
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**

**JUNE
2018**



June 29, 2018

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

**Re: Semi-Annual Report July 2017 – December 2017
 Pfohl Brothers Landfill, Town of Cheektowaga, New York**

Dear Mr. Szymanski:

Enclosed is one copy of the July 2017 – December 2017 Semi-Annual Report for the Pfohl Brothers Landfill in Cheektowaga, New York. A copy has also been sent to Ms. Pamela Tames, P.E. of the United States Environmental Protection Agency.

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

Sincerely,

URS CORPORATION

A handwritten signature in black ink, appearing to read "Jon Sundquist".

Jon Sundquist, Ph.D.
Project Manager

Enclosures

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

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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 July 2017 through December 2017 include the following actions:

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet are attached in Appendix A.
- Total cumulative effluent flow rates and volumes were summarized on a monthly basis starting in February 2003. The monthly totals for the period of July 2017 through December 2017, 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.
- Contractor mowed entire cap and trimmed along perimeter chain link fence.
- Inspected and maintained perimeter security fencing.
- Notified trespassers of “No Trespassing”.
- Removed trees and stumps on southwest side of landfill, south of Aero Drive.
- WW-4: replaced old alloy fittings at pump with schedule 80 PVC, cleaned and treated upper level for corrosion.

- Man gate at northwest corner repaired and secured with additional security measure.
- Control panel air filter replaced.
- WW-1: replaced discharge flex hose and stainless steel cable clamps.
- WW-5: Check valve cleared of debris.
- Inspected wet wells for excessive corrosion to critical equipment.

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 November 20 and 22, 2017. 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 September 26, 2017. 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, with one exception. The SVOC 1,4-dichlorobenzene was detected at a concentration of 3.8 micrograms per liter (ug/L) slightly exceeding its quality standard of 3.0 ug/L in monitoring well GW-03D.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. In addition, chromium 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 and GW-30S). The sodium concentration was also elevated in GW-08SR. The higher sodium concentrations in the

bedrock wells may be attributed to the local bedrock composition and the elevated concentration in the shallow wells may be the result of seasonal road de-icing activities.

Trend Analysis

A trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards was performed and is presented in Figures E-1 through E-19 of Appendix E. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters exceeding groundwater standards have occurred over the 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 in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-7 for GW-07D 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-2016-002, September 2016; and *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2016-001, September 2016. 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 December 2017 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (September 2017 and December 2017) 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 September 2017 and December 2017, 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 November 2017 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 May 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
NOVEMBER 2017

Location ID			GW-01D	GW-01S	GW-03D	GW-03D	GW-03S
Sample ID			GW-01D	GW-01S	FD-112017	GW-03D	GW-03S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/20/17	11/20/17	11/20/17	11/20/17	11/20/17
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			2.6 J	2.4 J	
1,4-Dichlorobenzene	UG/L	3			3.8 J	3.4 J	
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.079	0.20	0.070	0.069	0.11
Cadmium	MG/L	0.005		0.00062 J			0.0010
Chromium	MG/L	0.05	0.0055				0.021
Copper	MG/L	0.2					0.0028 J
Iron	MG/L	0.3	0.28	7.2 J	1.0 J	1.0 J	0.50
Lead	MG/L	0.025					
Magnesium	MG/L	35	33.9	24.0	14.5	14.3	105
Manganese	MG/L	0.3	0.019	1.3 J	0.24 J	0.24 J	0.087
Nickel	MG/L	0.1			0.0038 J	0.0038 J	0.045
Sodium	MG/L	20	99.1	140	144	142	79.9
Zinc	MG/L	2	0.017		0.0065 J	0.0067 J	0.015

* - 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 aromatics.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2017

Location ID			GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Sample ID			GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/21/17	11/21/17	11/20/17	11/21/17	11/20/17
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5				NA	
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			NA		NA
1,4-Dichlorobenzene	UG/L	3			NA		NA
bis(2-Ethylhexyl)phthalate	UG/L	5			NA	3.7 J	NA
Metals							
Arsenic	MG/L	0.025			NA		NA
Barium	MG/L	1	0.092	0.12	NA	0.078	NA
Cadmium	MG/L	0.005		0.00059 J	NA	0.0011	NA
Chromium	MG/L	0.05	0.0029 J	0.0063	NA	0.14	NA
Copper	MG/L	0.2		0.0031 J	NA	0.016	NA
Iron	MG/L	0.3	0.38	2.5	NA	4.5 J	NA
Lead	MG/L	0.025		0.0037 J	NA	0.072	NA
Magnesium	MG/L	35	77.5	26.9	NA	37.2	NA
Manganese	MG/L	0.3	0.024	0.10	NA	0.068 J	NA
Nickel	MG/L	0.1		0.0064 J	NA	0.070	NA
Sodium	MG/L	20	89.3	30.2	NA	78.4	NA
Zinc	MG/L	2	0.043	0.0089 J	NA	0.047	NA

* - 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 arachnids.

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2017

Location ID			GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID			GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/21/17	11/21/17	11/21/17	11/21/17	11/21/17
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5	NA			0.90 J	
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.35	0.072	0.12	0.11	0.089
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0016 J	0.0066			
Copper	MG/L	0.2		0.0026 J			
Iron	MG/L	0.3	0.18	0.097	7.0 J	2.9	0.12
Lead	MG/L	0.025					
Magnesium	MG/L	35	40.4	14.8	57.2	16.8	27.4
Manganese	MG/L	0.3	0.082	0.034	0.78	0.37	1.0
Nickel	MG/L	0.1	0.016	0.0029 J			0.0014 J
Sodium	MG/L	20	59.3	184	136	246	15.7
Zinc	MG/L	2	0.0028 J	0.032		0.0083 J	0.0024 J

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2017

Location ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID			GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/22/17	11/22/17	11/22/17	11/22/17	11/22/17
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					
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Arsenic	MG/L	0.025	0.012				
Barium	MG/L	1	0.18	0.28	0.080	0.051	0.057
Cadmium	MG/L	0.005			0.00051 J		0.00050 J
Chromium	MG/L	0.05					0.0010 J
Copper	MG/L	0.2					
Iron	MG/L	0.3	10.2	13.4	1.1		0.027 J
Lead	MG/L	0.025					
Magnesium	MG/L	35	69.6	37.9	26.5	24.4	33.3
Manganese	MG/L	0.3	0.48	2.1	0.83	0.21	0.019
Nickel	MG/L	0.1			0.0027 J		
Sodium	MG/L	20	10.0	446	3.9	4.4	3.1
Zinc	MG/L	2	0.0021 J		0.0040 J		0.0015 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.

Flags assigned during chemistry validation are shown.



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Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2017

Location ID			GW-34S	GW-35S
Sample ID			GW-34S	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			11/21/17	11/21/17
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		
bis(2-Ethylhexyl)phthalate	UG/L	5		
Metals				
Arsenic	MG/L	0.025		
Barium	MG/L	1	0.11	0.089
Cadmium	MG/L	0.005	0.00058 J	
Chromium	MG/L	0.05	0.013	
Copper	MG/L	0.2		
Iron	MG/L	0.3	0.058	0.033 J
Lead	MG/L	0.025		
Magnesium	MG/L	35	47.7	22.9
Manganese	MG/L	0.3	0.014	0.071
Nickel	MG/L	0.1	0.0088 J	
Sodium	MG/L	20	26.1	2.6
Zinc	MG/L	2	0.0025 J	0.0024 J

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

Flags assigned during chemistry validation are shown.

 Concentration Exceeds

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

Only Detected Results Reported.

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

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

TABLE 3-2 (continued)

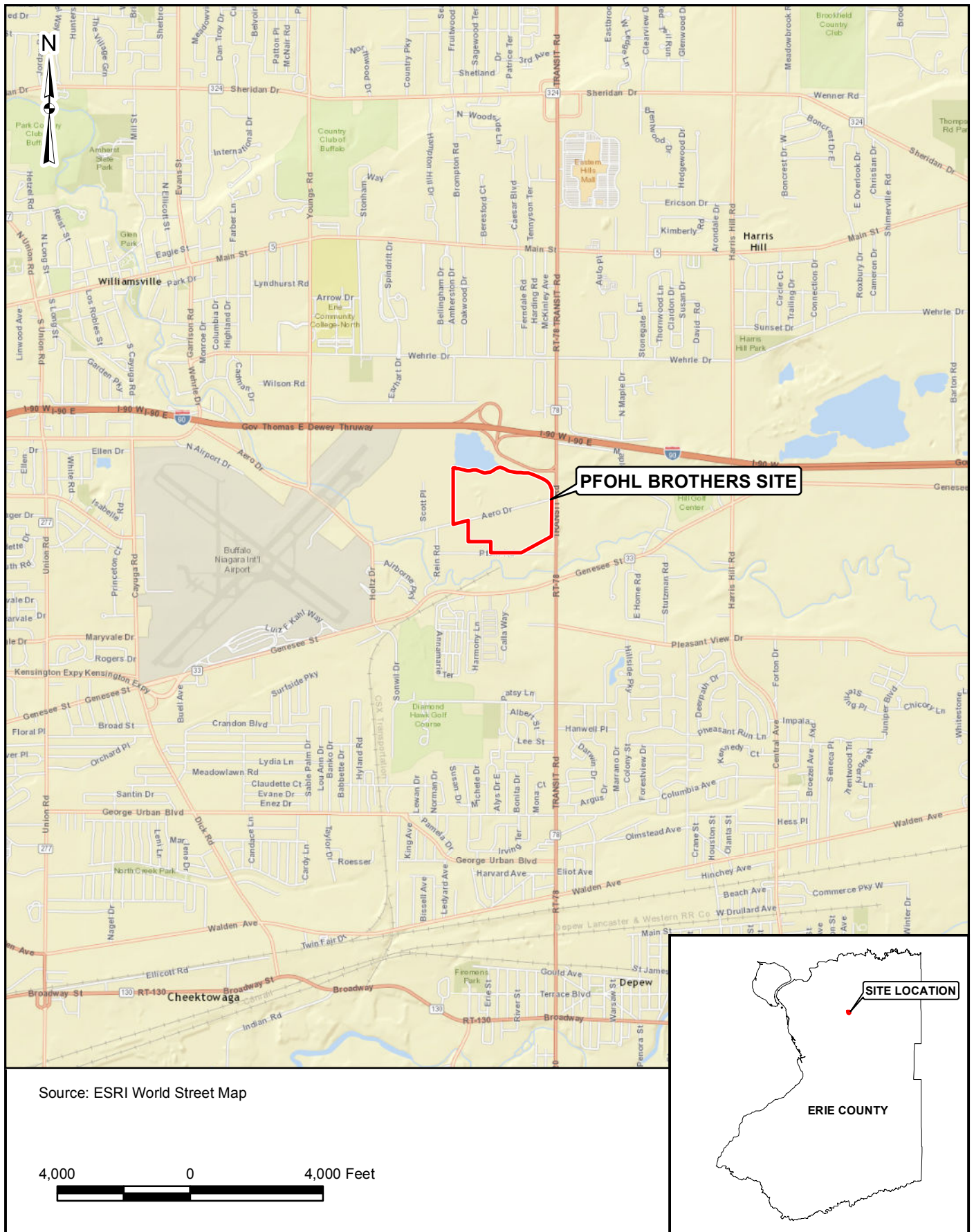
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

PARAMETERS (cont'd)

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

FIGURES



N:\1172700\000000\GIS\ArcView\pfohl.apr WELL LOCATIONS
12/15/2005



Legend

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

400 0 400 Feet

PFOHL BROTHERS LANDFILL
MONITORING LOCATIONS

URS

FIGURE 3-1

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date

7/15/17

Weather conditions

Cloudy

Time

1208

Read by:

JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	0	2791
WW-2	4.7	0	38	161
WW-1	3.2	31.2	524045	5861
WW-6	6.2	52.7	90746	14700
WW-4	7.2	0	0	7702
WW-5	7.4	29.7	89654	18706

Flow Totalizer at Meter chamber

233958

Heat Trace

Outside temp T =

74

Set point SP =

40

Current A =

0

Surge Suppressor events

416838

Motor Control Center

Volts

480

volts

Which WW was running?

Amps

2

amps

0123456

Filter

Checked

Changed

Comments and/or Current Conditions

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 8/19/17
Time 0949

Weather conditions Clear
Read by: JWA

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	<u>99.0</u>	<u>0</u>	<u>0</u>	<u>2791</u>
WW-2	<u>4.7</u>	<u>0</u>	<u>-1575</u>	<u>161</u>
WW-1	<u>4.0</u>	<u>0</u>	<u>56955</u>	<u>6862</u>
WW-6	<u>6.7</u>	<u>0</u>	<u>364820</u>	<u>14770</u>
WW-4	<u>7.0</u>	<u>0</u>	<u>22035</u>	<u>7719</u>
WW-5	<u>7.4</u>	<u>0</u>	<u>520867</u>	<u>18923</u>

Flow Totalizer at Meter chamber

Heat Trace

Outside temp T = 75
Current A = 0

Set point SP = 40

Surge Suppressor events

416883

Motor Control Center

Volts 480 volts
Amps 3 amps

Which WW was running?

1 2 3 4 5 6

Filter

Checked

Changed

Comments and/or Current Conditions

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date

12/3/17

Time

1044

Weather conditions

Clear

Read by:

JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	<u>99.0</u>	<u>0</u>	<u>902</u>	<u>2791</u>
WW-2	<u>4.6</u>	<u>0</u>	<u>-4677</u>	<u>162</u>
WW-1	<u>4.0</u>	<u>0</u>	<u>56903</u>	<u>5862</u>
WW-6	<u>6.6</u>	<u>60.8</u>	<u>2151426</u>	<u>15233</u>
WW-4	<u>6.9</u>	<u>0</u>	<u>-117209</u>	<u>7751</u>
WW-5	<u>6.7</u>	<u>39.9</u>	<u>1914287</u>	<u>19522</u>

Flow Totalizer at Meter chamber

4212297

Heat Trace

Outside temp T =

46

Current A =

0

Set point SP =

40

Surge Suppressor events

416938

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

WW-5

✓

Data

✓

APPENDIX B

MONTHLY FLOW SUMMARIES
JULY 2017 – DECEMBER 2017

Direct Discharge Flow Data

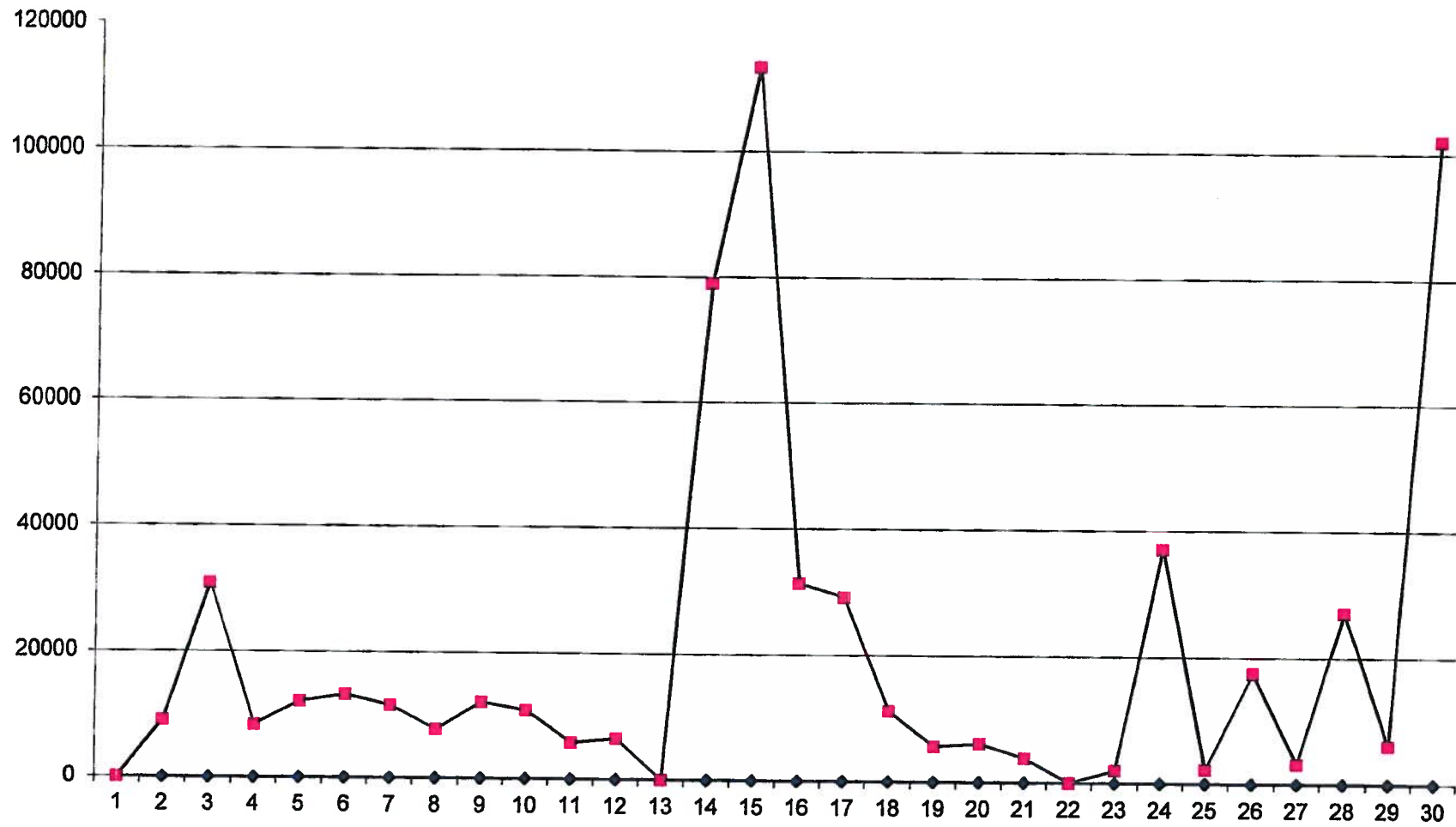
6/30/2017

12004621

6,198

Jul-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		12,004,621	0	
2		12,013,693	9,072	
3		12,044,598	30,905	12,075,503
4		8,398	8,398	Annual Reset
5		20,582	12,183	
6		33,877	13,295	
7		45,465	11,588	
8		53,290	7,824	
9		65,484	12,194	
10		76,400	10,915	
11		82,211	5,811	
12		88,745	6,534	09:14 inhibit
13		88,745	0	
14		167,781	79,035	09:04 enable
15		281,146	113,365	
16		312,507	31,360	
17		341,670	29,162	01:49inhibit 12:06 enable
18		352,916	11,246	
19		358,611	5,694	
20		364,713	6,102	12:52 inhibit 23:25 enable
21		368,593	3,879	
22		368,593	0	
23		370,607	2,014	
24		407,757	37,150	
25		409,972	2,214	
26		427,483	17,511	
27		430,684	3,201	
28		457,745	27,060	
29		463,914	6,168	
30		565,985	102,071	
31		619,870	53884	
		659,847	659,835	

July
2017



Direct Discharge Flow Data

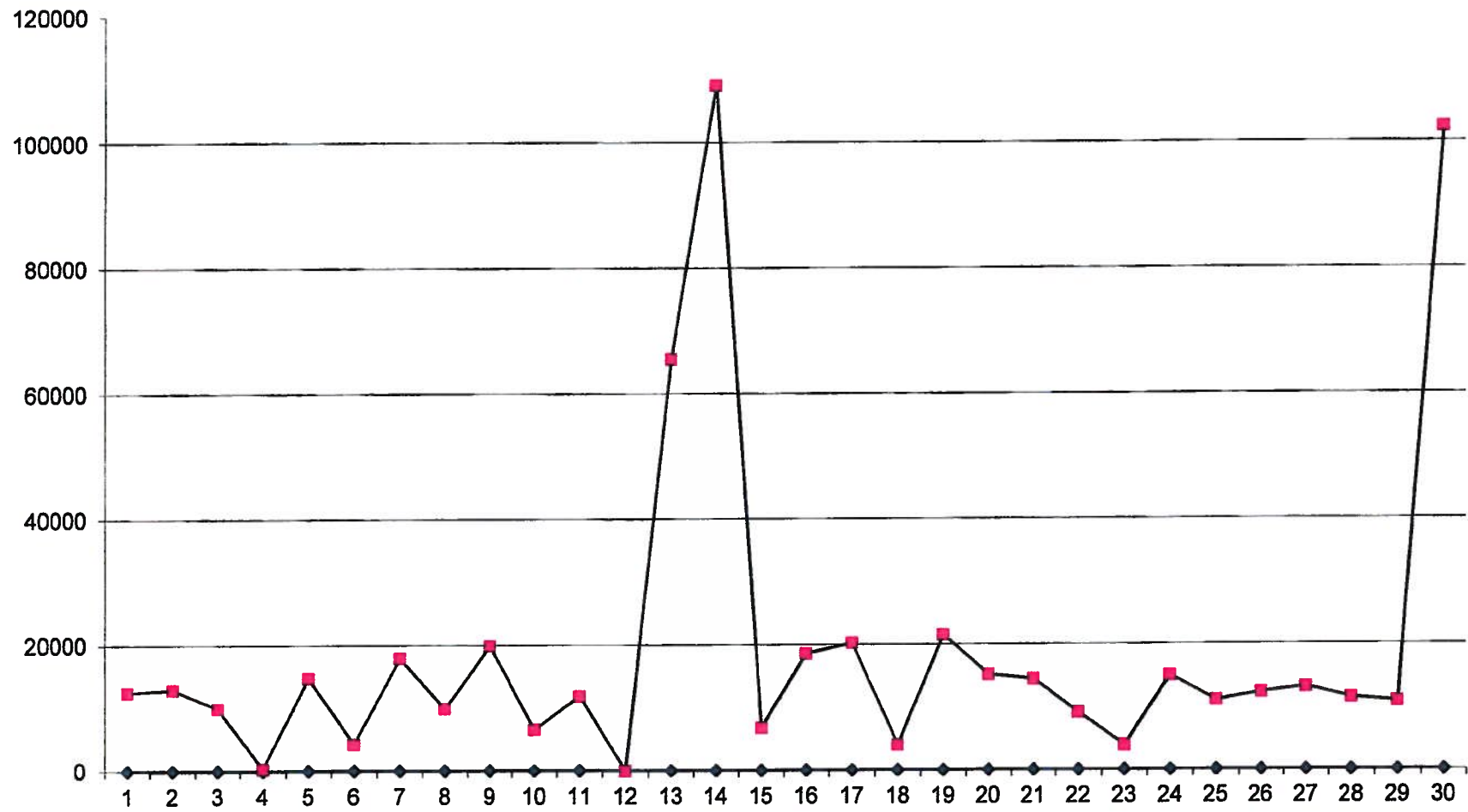
7/31/2017

619870

53,884

Aug-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		632,325	12,455	
2		645,237	12,912	
3		655,122	9,884	
4		655,383	260	00:07 inhibit 07:22enable 14:02inhibit
5		670,108	14,725	09:08 enable
6		674,315	4,207	
7		692,183	17,867	
8		702,029	9,846	
9		721,888	19,859	
10		728,384	6,495	
11		740,220	11,836	
12		740,220	0	20:31 inhibit
13		805,747	65,527	08:30 enable
14		914,822	109,075	
15		921,552	6,729	
16		940,096	18,544	
17		960,311	20,214	
18		964,326	4,014	
19		985,772	21,446	
20		1,000,924	15,152	
21		1,015,379	14,454	
22		1,024,447	9,068	19:27 inhibit
23		1,028,311	3,864	22:11 enable
24		1,043,288	14,976	
25		1,054,289	11,000	
26		1,066,574	12,285	
27		1,079,753	13,179	
28		1,091,174	11,420	
29		1,102,024	10,850	
30		1,204,289	102,265	
31		1,242,725	38436	
		622,855	622,844	

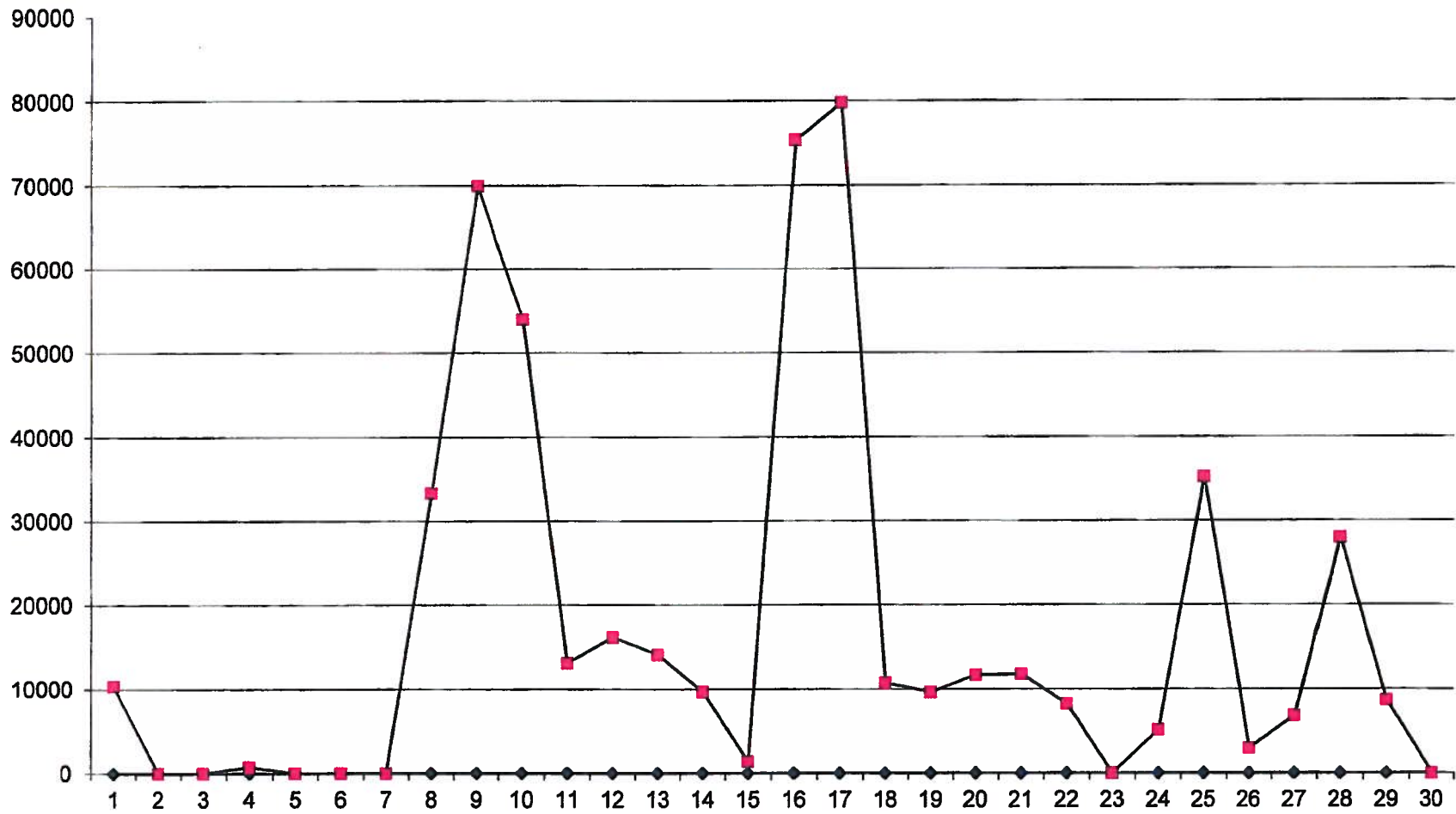
**August
2017**



Direct Discharge Flow Data

8/30/2017		1242725	38,436	
Sep-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		1,253,134	10,408	
2		1,253,134	0	
3		1,253,134	0	09:11 inhibit 23:29 enable
4		1,253,873	739	
5		1,253,873	0	00:06 inhibit 11:22 enable
6		1,253,873	0	
7		1,253,873	0	04:25 inhibit
8		1,287,227	33,353	15:37 enable
9		1,357,175	69,948	
10		1,411,190	54,015	
11		1,424,309	13,119	
12		1,440,493	16,184	
13		1,454,584	14,090	
14		1,464,279	9,694	
15		1,465,668	1,389	
16		1,541,013	75,344	
17		1,620,813	79,799	
18		1,631,553	10,740	
19		1,641,213	9,660	
20		1,652,904	11,690	
21		1,664,696	11,792	
22		1,672,941	8,245	
23		1,672,941	0	
24		1,678,101	5,159	
25		1,713,303	35,202	
26		1,716,279	2,975	
27		1,723,126	6,847	
28		1,751,148	28,022	
29		1,759,836	8,688	
30		1,759,836	0	
31				
		517,111	517,102	

September
2017

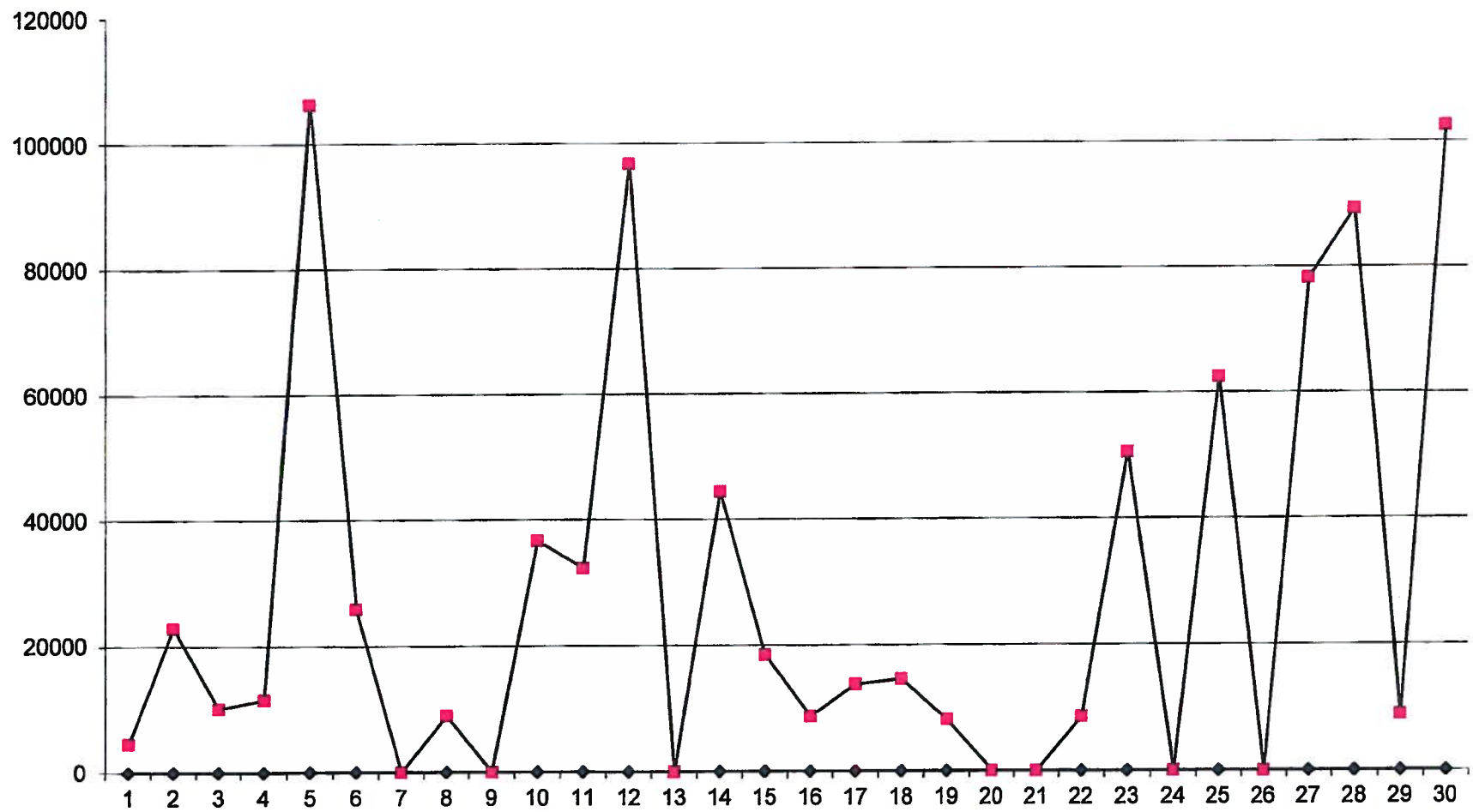


Direct Discharge Flow Data

9/30/2017

9/30/2017		1759836	0	
Oct-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		1,764,351	4,514	
2		1,787,194	22,843	
3		1,797,286	10,092	
4		1,808,776	11,490	
5		1,915,002	106,226	
6		1,940,874	25,871	
7		1,940,874	0	
8		1,949,818	8,944	23:31 inhibit
9		1,949,818	0	
10		1,986,510	36,691	05:15 enable
11		2,018,807	32,297	
12		2,115,540	96,732	
13		2,115,540	0	
14		2,159,978	44,437	
15		2,178,436	18,458	
16		2,187,129	8,692	
17		2,200,871	13,742	
18		2,215,436	14,565	
19		2,223,518	8,082	
20		2,223,518	0	
21		2,223,518	0	
22		2,232,063	8,544	
23		2,282,631	50,568	23:43 inhibit
24		2,282,631	0	
25		2,645,104	62,472	04:51 enable 15:33 inhibit
26		2,345,104	0	
27		2,423,302	78,197	11:39 enable
28		2,512,491	89,189	20:38 inhibit
29		2,521,278	8,787	22:33 enable
30		2,623,734	102,455	17:50 inhibit
31		2,623,734	0	
		863,898	863,888	

October
2017



Direct Discharge Flow Data

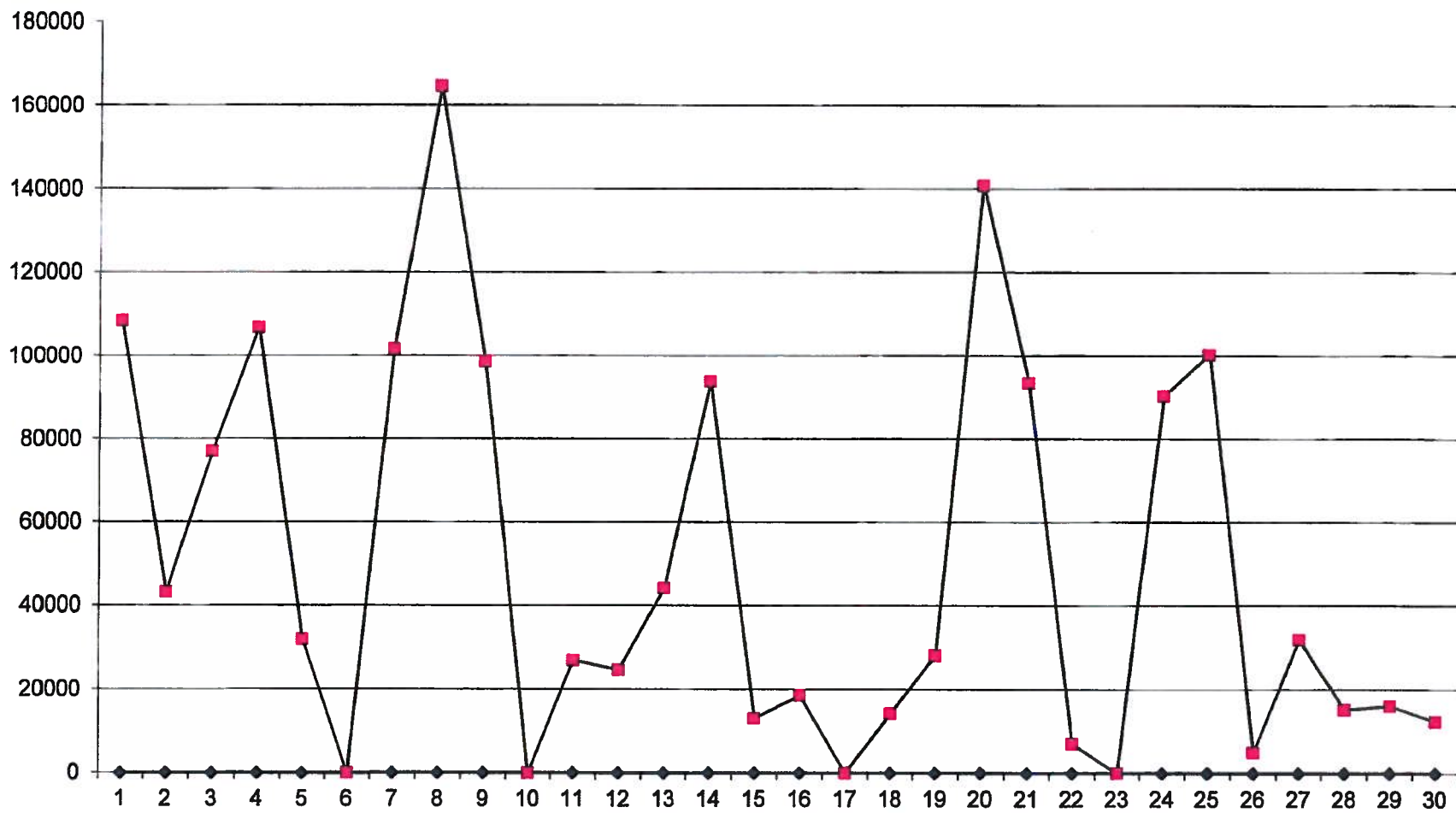
10/31/2017

2623734

0

Nov-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		2,732,240	108,506	04:50 enable
2		2,775,449	43,209	01:01 inhibit 14:19 enable
3		2,852,515	77,065	01:45 inhibit 12:01 enable
4		2,959,322	106,806	
5		2,991,238	31,916	05:43 inhibit
6		2,991,238	0	
7		3,092,897	101,659	09:40 enable
8		3,257,495	164,597	
9		3,356,159	98,664	
10		3,356,159	0	
11		3,383,086	26,927	
12		3,407,730	24,643	
13		3,451,898	44,168	
14		3,545,694	93,796	
15		3,558,763	13,069	
16		3,577,326	18,562	
17		3,577,326	0	
18		3,591,483	14,157	18:36 inhibit
19		3,619,620	28,136	19:20 enable
20		3,760,459	140,838	
21		3,853,943	93,484	
22		3,860,984	7,040	01:47 inhibit
23		3,860,984	0	
24		3,951,300	90,316	09:28 enable
25		4,051,564	100,264	
26		4,056,457	4,893	
27		4,088,307	31,849	
28		4,103,497	15,190	
29		4,119,605	16,107	
30		4,131,948	12,342	
31				
		1,508,214	1,508,203	

November
2017



Direct Discharge Flow Data

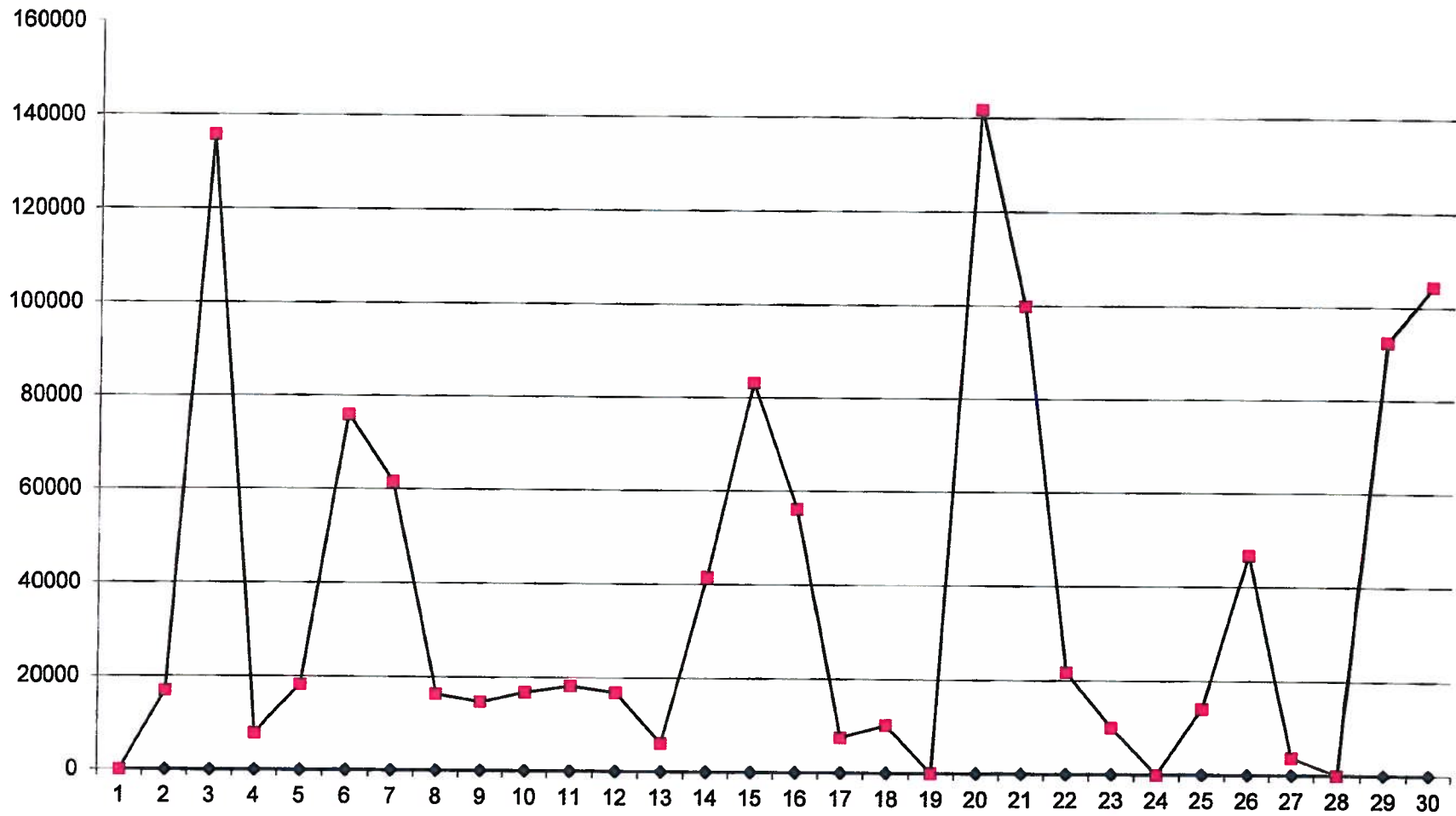
11/30/2017

4131948

12,342

Dec-17	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		4,131,948	0	
2		4,148,865	16,917	
3		4,284,580	135,714	
4		4,292,406	7,825	
5		4,310,717	18,311	06:37 inhibit 15:57 enable
6		4,386,650	75,933	
7		4,448,240	61,589	
8		4,464,563	16,323	
9		4,479,240	14,676	
10		4,496,035	16,795	
11		4,514,218	18,183	
12		4,531,041	16,823	
13		4,537,099	6,058	
14		4,578,654	41,554	
15		4,661,865	83,211	
16		4,718,069	56,204	
17		4,725,583	7,513	
18		4,735,711	10,128	16:02 inhibit
19		4,735,711	0	
20		4,877,418	141,707	00:00 enable
21		4,977,251	99,833	
22		4,998,974	21,722	
23		5,008,904	9,930	09:30 inhibit
24		5,008,904	0	
25		5,022,981	14,077	18:22 enable
26		5,069,779	46,798	
27		5,073,491	3,712	
28		5,073,491	0	
29		5,166,038	92,547	
30		5,270,433	104,395	
31		5,327,820	57387	
		1,195,872	1,195,865	

**December
2017**



APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2017

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								9/26/2017 1202	3.98	692.14	0.00	692.14	
MNW								11/20/2017 1137	1.98	694.14	0.00	694.14	
MNW								12/20/2017 1530	1.56	694.56	0.00	694.56	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								9/26/2017 1202	5.59	690.60	0.00	690.60	
MNW								11/20/2017 1136	3.20	692.99	0.00	692.99	
MNW								12/20/2017 1530	2.91	693.28	0.00	693.28	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								9/26/2017 1048	2.24	691.64	0.00	691.64	
MNW								11/20/2017 1412	1.55	692.33	0.00	692.33	
MNW								12/20/2017 1439	1.37	692.51	0.00	692.51	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								9/26/2017 1047	dry		0.00		Dry
MNW								11/20/2017 1412	3.05	690.75	0.00	690.75	
MNW								12/20/2017 1440	2.52	691.28	0.00	691.28	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								9/26/2017 1208	12.75	680.00	0.00	680.00	
MNW								11/20/2017 1439	12.22	680.53	0.00	680.53	
MNW								12/20/2017 1537	12.34	680.41	0.00	680.41	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								9/26/2017 1208	5.78	686.94	0.00	686.94	
MNW								11/20/2017 1438	3.77	688.95	0.00	688.95	
MNW								12/20/2017 1537	3.69	689.03	0.00	689.03	

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2017

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								9/26/2017 1142	50.20	649.74	0.00	649.74	
MNW								11/20/2017 0921	46.55	653.39	0.00	653.39	
MNW								12/20/2017 1525	57.93	642.01	0.00	642.01	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								9/26/2017 1142	7.33	692.18	0.00	692.18	
MNW								11/20/2017 0920	4.31	695.20	0.00	695.20	
MNW								12/20/2017 1524	4.42	695.09	NP		
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								9/26/2017 1103	6.28	691.51	0.00	691.51	
MNW								11/20/2017 0836	5.43	692.36	0.00	692.36	
MNW								12/20/2017 1450	5.28	692.51	0.00	692.51	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								9/26/2017 1102	5.95	691.55	0.00	691.55	
MNW								11/20/2017 0835	5.05	692.45	0.00	692.45	
MNW								12/20/2017 1449	5.05	692.45	0.00	692.45	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								9/26/2017 1133	7.10	691.40	0.00	691.40	
MNW								11/20/2017 0856	6.31	692.19	0.00	692.19	
MNW								12/20/2017 1516	6.15	692.35	0.00	692.35	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								9/26/2017 1108	10.66	690.29	0.00	690.29	
MNW								11/20/2017 0841	8.45	692.50	0.00	692.50	
MNW								12/20/2017 1454	8.44	692.51	0.00	692.51	

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
JULY - DECEMBER 2017

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								9/26/2017 1121	10.20	689.43	0.00	689.43	
MNW								11/20/2017 0909	6.02	693.61	0.00	693.61	
MNW								12/20/2017 1506	5.58	694.05	0.00	694.05	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								9/26/2017 1125	8.31	688.27	0.00	688.27	
MNW								11/20/2017 0906	6.57	690.01	0.00	690.01	
MNW								12/20/2017 1509	5.52	691.06	0.00	691.06	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								9/26/2017 1127	7.19	691.43	0.00	691.43	
MNW								11/20/2017 0902	2.47	696.15	0.00	696.15	
MNW								12/20/2017 1511	2.42	696.20	0.00	696.20	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								9/26/2017 1130	6.27	692.10	0.00	692.10	
MNW								11/20/2017 0859	2.21	696.16	0.00	696.16	
MNW								12/20/2017 1513	2.19	696.18	0.00	696.18	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								9/26/2017 1135	6.78	691.46	0.00	691.46	
MNW								11/20/2017 0853	3.39	694.85	0.00	694.85	
MNW								12/20/2017 1518	3.42	694.82	0.00	694.82	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								9/26/2017 1037	5.70	689.07	0.00	689.07	
MNW								11/20/2017 0820	2.45	692.32	0.00	692.32	
MNW								12/20/2017 1432	2.42	692.35	0.00	692.35	

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
JULY - DECEMBER 2017

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								9/26/2017 1133	6.31	691.08	0.00	691.08	
MNW								11/20/2017 0856	3.04	694.35	0.00	694.35	
MNW								12/20/2017 1516	3.19	694.20	0.00	694.20	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								9/26/2017 1041	10.11	688.51	0.00	688.51	
MH								11/20/2017 0823	9.76	688.86	0.00	688.86	
MH								12/20/2017 1436	9.93	688.69	0.00	688.69	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								9/26/2017 1057	10.97	688.43	0.00	688.43	
MH								11/20/2017 0829	10.64	688.76	0.00	688.76	
MH								12/20/2017 1444	10.78	688.62	0.00	688.62	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								9/26/2017 1059	9.19	687.63	0.00	687.63	
MH								11/20/2017 0831	8.85	687.97	0.00	687.97	
MH								12/20/2017 1446	8.98	687.84	0.00	687.84	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								9/26/2017 1105	14.48	688.53	0.00	688.53	
MH								11/20/2017 0839	14.50	688.51	0.00	688.51	
MH								12/20/2017 1452	14.46	688.55	0.00	688.55	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								9/26/2017 1120	14.52	684.50	0.00	684.50	
MH								11/20/2017 0908	14.50	684.52	0.00	684.52	
MH								12/20/2017 1505	14.53	684.49	0.00	684.49	

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

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2017

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 MH	1072133.714	1117748.238	698.57	NM	698.57	NA	1	9/26/2017 1125	14.55	684.02	0.00	684.02	
								11/20/2017 0905	14.50	684.07	0.00	684.07	
								12/20/2017 1509	14.52	684.05	0.00	684.05	
MH-17 MH	1071813.137	1117180.019	702.16	NM	702.16	NA	1	9/26/2017 1127	18.16	684.00	0.00	684.00	
								11/20/2017 0901	18.13	684.03	0.00	684.03	
								12/20/2017 1511	18.13	684.03	0.00	684.03	
MH-20 MH	1071756.395	1115997.024	706.20	NM	706.20	NA	1	9/26/2017 1133	19.73	686.47	0.00	686.47	
								11/20/2017 0850	19.73	686.47	0.00	686.47	
								12/20/2017 1515	19.72	686.48	0.00	686.48	
MH-22 MH	1072158.023	1115589.309	698.05	NM	698.05	NA	1	9/26/2017 1135	9.00	689.05	0.00	689.05	
								11/20/2017 0853	8.78	689.27	0.00	689.27	
								12/20/2017 1518	8.85	689.20	0.00	689.20	
MH-25 MH	1072483.928	1114820.313	698.17	NM	698.17	NA	1	9/26/2017 1033	9.70	688.47	0.00	688.47	
								11/20/2017 0815	9.15	689.02	0.00	689.02	
								12/20/2017 1429	9.35	688.82	0.00	688.82	
SG-01 SG	1073882.887	1114813.101	NM	NM	690.00	NA	1	9/26/2017 1041	dry		0.00		Dry @ -0.70
								11/20/2017 0827	-0.72	690.72	0.00	690.72	
								12/20/2017 1436	-0.76	690.76	0.00	690.76	

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
JULY - DECEMBER 2017

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								9/26/2017 1103	dry		0.00		Dry @ -3.05
SG								11/20/2017 0835	-3.30	693.30	0.00	693.30	
SG								12/20/2017 1449	-3.34	693.34	0.00	693.34	
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								9/26/2017 0950	-4.2	688.22	0.00	688.22	
MH								11/20/2017 0730	-4.6	688.62	0.00	688.62	
MH								12/20/2017 1350	-4.5	688.52	0.00	688.52	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								9/26/2017 0950	-4.7	688.88	0.00	688.88	
MH								11/20/2017 0730	-4.6	688.78	0.00	688.78	
MH								12/20/2017 1350	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								9/26/2017 1109	-4.53	688.33	0.00	688.33	
MH								11/20/2017 0842	-4.45	688.25	0.00	688.25	
MH								12/20/2017 1455	-4.75	688.55	0.00	688.55	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								9/26/2017 0950	-6.9	683.52	0.00	683.52	
MH								11/20/2017 0730	-6.9	683.52	0.00	683.52	
MH								12/20/2017 1350	-6.9	683.52	0.00	683.52	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								9/26/2017 0950	-6.6	682.74	0.00	682.74	
MH								11/20/2017 0730	-6.6	682.74	0.00	682.74	
MH								12/20/2017 1350	-6.0	682.14	0.00	682.14	

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
JULY - DECEMBER 2017

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								9/26/2017 0950	-7.0	688.89	0.00	688.89	
MH								11/20/2017 0730	-7.6	689.49	0.00	689.49	
MH								12/20/2017 1350	-7.4	689.29	0.00	689.29	

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

**TABLE 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)
9/26/2017	688.22	---	---	688.88	691.55	2.67	DRY	NA
11/20/2017	688.62	---	---	688.78	692.45	3.67	693.30	4.52
12/20/2017	688.52	---	---	688.88	692.45	3.57	693.34	4.46

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)
9/26/2017	688.33	690.29	1.96	683.52	---	---
11/20/2017	688.25	692.50	4.25	683.52	---	---
12/20/2017	688.55	692.51	3.96	683.52	---	---

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)
9/26/2017	682.74	692.10	9.36	688.89	689.07	0.18
11/20/2017	682.74	696.16	13.42	689.49	692.32	2.83
12/20/2017	682.14	696.18	14.04	689.29	692.35	3.06

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)
9/26/2017	688.51	DRY	NA	684.50	689.43	4.93
11/20/2017	688.86	690.72	1.86	684.52	693.61	9.09
12/20/2017	688.69	690.76	2.07	684.49	694.05	9.56

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)
9/26/2017	684.02	688.27	4.25	684.00	691.43	7.43
11/20/2017	684.07	690.01	5.94	684.03	696.15	12.12
12/20/2017	684.05	691.06	7.01	684.03	696.20	12.17

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)
9/26/2017	686.47	691.08	4.61	689.05	691.46	2.41
11/20/2017	686.47	694.35	7.88	689.27	694.85	5.58
12/20/2017	686.48	694.20	7.72	689.20	694.82	5.62

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: 11/20/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.20'	Depth to Well Bottom:	14.94'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	7.2	Estimated Purge Volume (liters):	7.1
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Sample ID:	GW-01S	Sample Time:	12:17	QA/QC:
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Sample Parameters: VOCs, SVOCs, and TAL Metals

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

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:47	6.58	9.61	0.994	3.39	261.0	3	315	3.20
11:52	6.98	9.97	0.970	2.59	52.6	-4	220	4.37
11:57	7.00	9.87	0.990	2.27	0.0	-52	220	4.27
12:02	7.00	9.81	0.999	2.26	0.0	-54	220	4.25
12:07	7.01	9.71	0.999	2.19	0.0	-58	220	4.25
12:12	7.00	9.79	0.997	2.14	0.0	-60	220	4.25
12:17	7.01	9.85	0.994	2.11	0.0	-62	220	4.25
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/20/2017 **Sampling Personnel:** Rob Murphy, Kevin McGovern **Company:** URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.98'	Depth to Well Bottom:	39.65'	Well Diameter:	4"
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	23.2	Estimated Purge Volume (liters):	59.6
Screen Length:	10.0'						

Sample ID:	GW-01D	Sample Time:	13:36	QA/QC:	MS/MSD
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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)
12:25	7.25	9.83	0.846	5.09	250.0	-83	840	1.98
12:30	7.47	10.00	0.834	4.84	0.0	-105	840	2.00
12:35	7.48	10.03	0.837	1.90	0.0	-107	840	2.00
12:40	7.48	10.10	0.836	1.87	0.0	-109	840	2.00
12:45	7.48	10.15	0.837	1.85	0.0	-111	840	2.00
12:50	7.49	10.18	0.836	1.83	0.0	-117	840	2.00
12:55	7.50	10.21	0.836	1.81	0.0	-114	840	2.00
13:00	7.50	10.24	0.836	1.80	0.0	-114	840	2.00
13:05	7.50	10.23	0.837	1.80	0.0	-115	840	2.00
13:10	7.47	10.22	0.838	1.79	0.0	-115	840	2.00
13:15	7.44	10.29	0.838	1.76	0.0	-129	840	2.00
13:20	7.43	10.28	0.839	1.74	0.0	-139	840	2.00
13:25	7.42	10.35	0.840	1.72	0.0	-149	840	2.00
13:30	7.42	10.37	0.841	1.71	0.0	-157	840	2.00
13:33	7.42	10.42	0.841	1.70	0.0	-164	840	2.00
13:36	7.42	10.41	0.841	1.70	0.0	-167	840	2.00
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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-03S

Date: 11/20/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.05'	Depth to Well Bottom:	13.22'	Well Diameter:	2"
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	6.3	Estimated Purge Volume (liters):	6.3
Screen Length:							

Sample ID: GW-03S Sample Time: 16:00 QA/QC: _____

Sample Parameters: _____
Other Information: _____

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-03D

Date: 11/20/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.55'	Depth to Well Bottom:	35.70'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	21.1	Estimated Purge Volume (liters):	54.0
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Sample ID: GW-03D Sample Time: 15:20 QA/QC: Duplicate (FD-112017)

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)
14:20	7.36	10.94	0.805	2.32	1.31	-87	900	1.55
14:25	7.36	10.94	0.803	2.14	1.28	-88	900	1.56
14:30	7.36	10.96	0.800	1.93	1.02	-89	900	1.56
14:35	7.36	10.94	0.801	1.83	1.53	-90	900	1.56
14:40	7.35	10.95	0.801	1.77	1.11	-92	900	1.56
14:45	7.36	10.96	0.801	1.73	1.02	-93	900	1.56
14:50	7.35	10.97	0.801	1.70	0.76	-92	900	1.56
14:55	7.35	10.98	0.800	1.67	0.70	-92	900	1.56
15:00	7.35	10.96	0.801	1.65	0.81	-93	900	1.56
15:05	7.35	10.98	0.800	1.63	0.74	-93	900	1.56
15:10	7.36	10.96	0.800	1.61	0.76	-94	900	1.56
15:15	7.36	10.95	0.800	1.60	0.70	-94	900	1.56
15:20	7.36	10.98	0.800	1.59	0.69	-94	900	1.56
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: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.80'	Depth to Well Bottom:	16.23'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	7.7		Estimated Purge Volume (liters):	11.4	

Sample ID: GW-4S Sample Time: 0745 (VOCs) & 0915 (VOCs & metals) QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well, sampled VOCs from PDB at 0745 on 11/21/17.

Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 0915.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
7:53	7.60	8.99	0.388	9.79	2.34	204	initial	
7:55	8.88	9.43	0.363	11.81	2.15	158	1 gal	
7:59	8.75	10.00	0.364	4.87	82.40	136	2 gal	
8:01	8.46	10.35	0.360	5.17	117.90	60	3 gal	dry
9:15	8.34	9.25	0.397	5.39	40.0	-191		12.75
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-04D
Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	12.08'	Depth to Well Bottom:	45.57'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	20.7		Estimated Purge Volume (liters):	10.4	

Sample ID: GW-4D Sample Time: 9:06 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: _____

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07S
PROJECT NO.:	60411174		
STAFF:	Rob Murphy, Kevin McGovern		
DATE(S):	11/20/17 & 11/21/17		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	<u>35.33</u>	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	<u>4.31</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	<u>31.02</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	<u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	<u>5.27</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	<u>15.8</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	<u>8.0</u>	8"	2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Initial	2	4	8		Sample				
pH	6.49	7.48	7.62	7.82		7.92				
SPEC. COND. (mS/cm)	0.520	0.496	0.501	0.499		0.541				
DO (mg/l)	18.25	12.93	14.82	12.18		11.02				
TEMPERATURE (°C)	10.29	9.81	9.61	8.13		8.99				
TURBIDITY (NTU)	0.0	0.0	0.0	0		7.1				
ORP (millivolts)	83	55	97	58		-108				
TIME	9:55	9:58	10:01	10:13		9:35				

COMMENTS: 0935 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 9/26/17
 0955- Begin hand bailing well.
 1013- Well dry after removing 8 gallons.
 11/21/2017 0930 - Return to well, depth to water = 4.26 feet.
 0935- Collect sample for SVOCs and Metals.

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07D
PROJECT NO.:	60411174		
STAFF:	Rob Murphy, Kevin McGovern		
DATE(S):	11/20/17 & 11/21/17		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	<u>60.83</u>	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	<u>46.55</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	<u>14.28</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	<u>0.66</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	<u>9.42</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	<u>28.3</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	<u>10.0</u>	8"	2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Init	3	6	9	10.0	Sample				
pH	7.54	6.72	7.55	7.87	7.96	7.96				
SPEC. COND. (mS/cm)	0.534	0.404	0.640	0.662	0.679	0.724				
DO (mg/l)	9.16	13.41	9.92	8.97	10.72	4.98				
TEMPERATURE (°C)	8.83	3.18	8.79	9.45	8.52	9.10				
TURBIDITY (NTU)	0.0	0.0	0.0	0.0	0.0	22.2				
ORP (millivolts)	58	40	-78	-125	-104	-104				
TIME	10:23	10:36	10:44	10:54	11:03	9:50				

COMMENTS: 0940 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 9/26/17
 1018 - Begin hand bailing well.
 1103 - Well dry after removing 10 gallons
 11/21/2017 0945 - return to well, depth to water = 59.74 feet.
 0950 - Collect sample for SVOCs and Metals.

Strong Sulfur Odor
 Turbidity readings suspect should be reading low. Turbidity approx. 50 NTU or less

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.09'	Depth to Well Bottom:	13.02'	Well Diameter:	2"
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	4.9	Estimated Purge Volume (liters):	11.2

Sample ID: GW-8SR Sample Time: 12:22 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: _____

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.58'	Depth to Well Bottom:	36.54'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	19.1	Estimated Purge Volume (liters):	54.6
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Sample ID: GW-8D Sample Time: 13:30 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)
12:30	6.89	11.24	1.39	4.95	56.60	-45	910	5.58
12:35	7.08	10.63	1.37	4.07	3.63	-41	910	5.58
12:40	7.08	10.64	1.37	3.45	2.20	-48	910	5.58
12:45	7.10	10.72	1.37	2.97	2.87	-36	910	5.58
12:50	7.10	10.76	1.36	2.58	1.46	-54	910	5.58
12:55	7.10	10.78	1.30	2.42	1.97	-76	910	5.58
13:00	7.13	10.82	1.03	2.15	0.39	-29	910	5.58
13:05	7.13	10.84	1.02	1.97	0.66	-9	910	5.58
13:10	7.13	10.87	1.02	1.83	0.57	6	910	5.58
13:15	7.13	10.86	1.02	1.70	0.41	16	910	5.58
13:20	7.13	10.85	1.02	1.67	0.26	20	910	5.58
13:25	7.13	10.86	1.01	1.57	0.36	28	910	5.58
13:30	7.13	10.85	1.02	1.55	0.27	30	910	5.58
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-26D

Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.48'	Depth to Well Bottom:	40.70'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	21.1		Estimated Purge Volume (liters):	52.8	

Sample ID: GW-26D Sample Time: 16:30 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)
15:30	7.03	11.19	1.11	9.74	8.56	-9	880	6.48
15:35	7.12	11.00	1.25	8.84	2.53	-47	880	6.48
15:40	7.14	10.89	1.25	7.66	0.78	-50	880	6.48
15:45	7.09	10.87	1.25	6.72	0.88	-57	880	6.48
15:50	7.10	10.85	1.25	5.90	0.40	-60	880	6.48
15:55	7.15	10.81	1.26	1.35	0.24	-64	880	6.48
16:00	7.13	10.79	1.26	1.33	0.33	-65	880	6.48
16:05	7.16	10.77	1.26	1.32	0.28	-68	880	6.48
16:10	7.15	10.75	1.26	1.32	0.30	-69	880	6.48
16:15	7.13	10.75	1.26	1.32	0.22	-68	880	6.48
16:20	7.18	10.74	1.26	1.31	0.27	-71	880	6.48
16:25	7.16	10.72	1.26	1.30	0.38	-72	880	6.48
16:30	7.15	10.71	1.26	1.30	0.32	-71	880	6.48
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: 11/21/2017 **Sampling Personnel:** Rob Murphy, Kevin McGovern **Company:** URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.25'	Depth to Well Bottom:	15.52'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	4.5	Estimated Purge Volume (liters):	5.1		

Sample ID: GW-28S Sample Time: 14:15 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: _____

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-29S

Date: 11/22/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.47'	Depth to Well Bottom:	20.04'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	8.4		Estimated Purge Volume (liters):	8.6	

Sample ID: GW-29S Sample Time: 8:37 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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: 11/22/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.70'	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):	9.5	

Sample ID: GW-30S Sample Time: 9:20 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange particulates at start

PURGE PARAMETERS

[illegible]

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: 11/22/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2		Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water: 2.50'	Depth to Well Bottom:	9.57'	Well Diameter:	2"
Casing Type:	Stainless Steel		Volume in 1 Well Casing (liters):	4.4	Estimated Purge Volume (liters):	4.8

Sample ID: GW-31S Sample Time: 10:03 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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: 11/22/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2		Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water: 2.21'	Depth to Well Bottom:	9.93'	Well Diameter:	2"
Casing Type:	Stainless Steel		Volume in 1 Well Casing (liters):	4.8	Estimated Purge Volume (liters):	6.1

Sample ID: GW-32S Sample Time: 10:48 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)
10:23	7.49	7.01	0.434	3.97	1.48	85	310	2.21
10:28	7.41	7.68	0.428	2.97	0.65	90	225	3.00
10:33	7.42	8.10	0.419	2.43	0.77	95	225	2.90
10:38	7.40	7.92	0.418	2.34	0.57	92	225	2.90
10:43	7.41	8.15	0.415	2.14	0.55	96	225	2.90
10:48	7.40	8.35	0.412	2.20	0.31	96	225	2.90
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 ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-33S

Date: 11/22/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.10'	Depth to Well Bottom:	8.21'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.2	Estimated Purge Volume (liters):	4.1
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Sample ID: GW-33S Sample Time: 11:40 QA/QC: _____

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-34S

Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.61'	Depth to Well Bottom:	10.01'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.6	Estimated Purge Volume (liters):	5.7
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Sample ID: GW-34S Sample Time: 10:58 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)
	10:28	7.15	8.60	0.808	6.17	2.54	21	225	2.61
	10:33	7.10	8.54	0.806	3.99	2.66	30	200	3.66
	10:38	7.08	8.49	0.800	3.72	2.36	41	180	3.94
	10:43	7.07	8.54	0.798	3.59	2.07	50	180	3.98
	10:48	7.05	8.60	0.798	3.42	1.77	59	180	3.98
	10:53	7.03	8.66	0.793	3.34	1.30	62	180	3.98
	10:58	7.02	8.69	0.780	3.26	1.42	66	180	3.98
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-35S

Date: 11/21/2017 Sampling Personnel: Rob Murphy, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.02'	Depth to Well Bottom:	7.46'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	2.7	Estimated Purge Volume (liters):	5.3
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Sample ID: GW-35S 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)
14:52	7.31	10.34	0.400	2.92	2.97	96	230	3.02
14:57	7.36	10.39	0.397	2.29	1.50	92	165	3.46
15:02	7.29	10.43	0.398	2.03	1.27	91	165	3.44
15:07	7.31	10.34	0.397	1.92	1.12	87	165	3.44
15:12	7.33	10.37	0.396	1.80	0.74	80	165	3.44
15:17	7.33	10.42	0.398	1.74	0.70	77	165	3.44
15:22	7.33	10.39	0.397	1.70	0.68	75	165	3.44
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 ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 20 & 21*, 2017

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	5.3	PDB	9:35	Groundwater	VOCs	Not Applicable
GW-07D	GW-07D	9.4	PDB	10:20	Groundwater	VOCs	Not Applicable
GW-01S	GW-01S	7.2	7.1	12:17	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-01D	GW-01D	23.2	59.6	13:36	Groundwater		Not Applicable
GW-01D-MS	GW-01D	23.2	59.6	13:36	Groundwater		Not Applicable
GW-01D-MSD	GW-01D	23.2	59.6	13:36	Groundwater		Not Applicable
GW-03D	GW-03D	21.1	54.0	15:20	Groundwater		Not Applicable

Additional Comments: GW-4S, GW-7D, and GW-7S were sampled for VOCs using passive diffusion bags (PDBs). GW-4S, GW-7D, and GW-7S were then purged dry, and remaining parameters were collected after recovery.
All other wells were purged using low flow methods until parameter stabilization.
* wells were sampled on November 21, 2017

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 20 & 21*, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
FD-112017	GW-03D	21.1	54.0	—	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-03S	GW-03S	6.3	6.3	16:00	Groundwater		Not Applicable
GW-04S*	GW-04S	7.7	PBD	7:45	Groundwater	VOCs	Not Applicable
GW-04D*	GW-04D	20.7	10.4	9:06	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-04S*	GW-04S	7.7	11.4	9:15	Groundwater	Metals/SVOCs	Not Applicable
GW-07S*	GW-07S	5.3	8.0	9:35	Groundwater		Not Applicable
GW-07D*	GW-07D	9.4	10.0	9:50	Groundwater		Not Applicable

Additional Comments: GW-7D, and GW-7S were sampled for SVOCs and Metals after recharging overnight.
GW-4S was sampled the same day for SVOCs and Metals after allowing recharge.
All other wells were purged using low flow methods until parameter stabilization.
* wells were sampled on November 21, 2017

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 20 and 21, 2017

<i>Sample I.D. Number</i>	<i>Well Number</i>	<i>Well Volume (liters)</i>	<i>Volume Purged (liters)</i>	<i>Sample Time</i>	<i>Sample Description</i>	<i>Analysis Required</i>	<i>Chain-of- Custody Number</i>
GW-34S*	GW-34S	4.6	5.7	10:58	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-08SR*	GW-08SR	4.9	11.2	12:22	Groundwater		Not Applicable
GW-08D*	GW-08D	19.1	54.6	13:30	Groundwater		Not Applicable
GW-28S*	GW-28S	4.5	5.1	14:15	Groundwater		Not Applicable
GW-35S*	GW-35S	2.7	5.3	15:22	Groundwater		Not Applicable
GW-26D*	GW-26D	21.1	52.8	16:30	Groundwater		Not Applicable
TB-112017-112117	—	—	—	—	Trip Blank	VOCs	Not Applicable

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

* wells were sampled on November 21, 2017

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 22, 2017

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-29S	GW-29S	8.4	8.6	8:37	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-30S	GW-30S	6.3	9.5	9:20	Groundwater		Not Applicable
GW-31S	GW-31S	4.4	4.8	10:03	Groundwater		Not Applicable
GW-32S	GW-32S	4.8	6.1	10:48	Groundwater		Not Applicable
GW-33S	GW-33S	3.2	4.1	11:40	Groundwater		Not Applicable
TB-112217	—	—	—	—	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

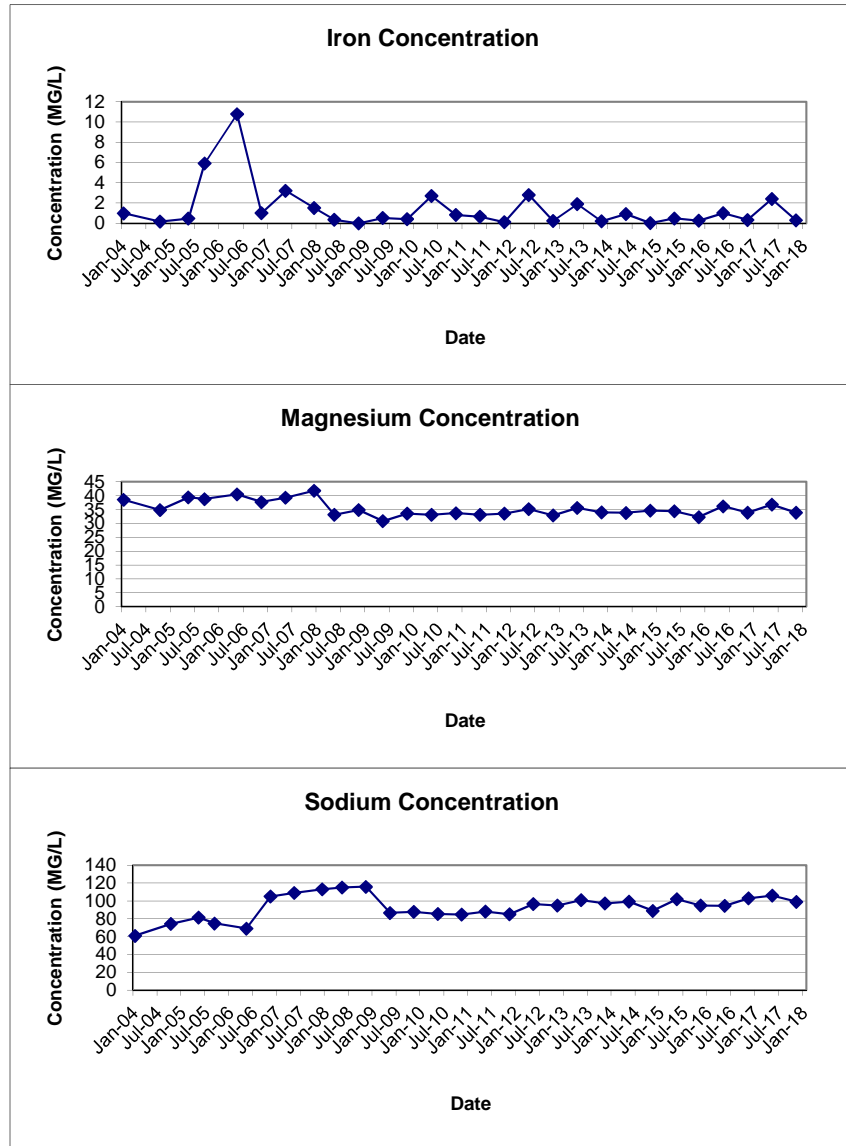


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01S

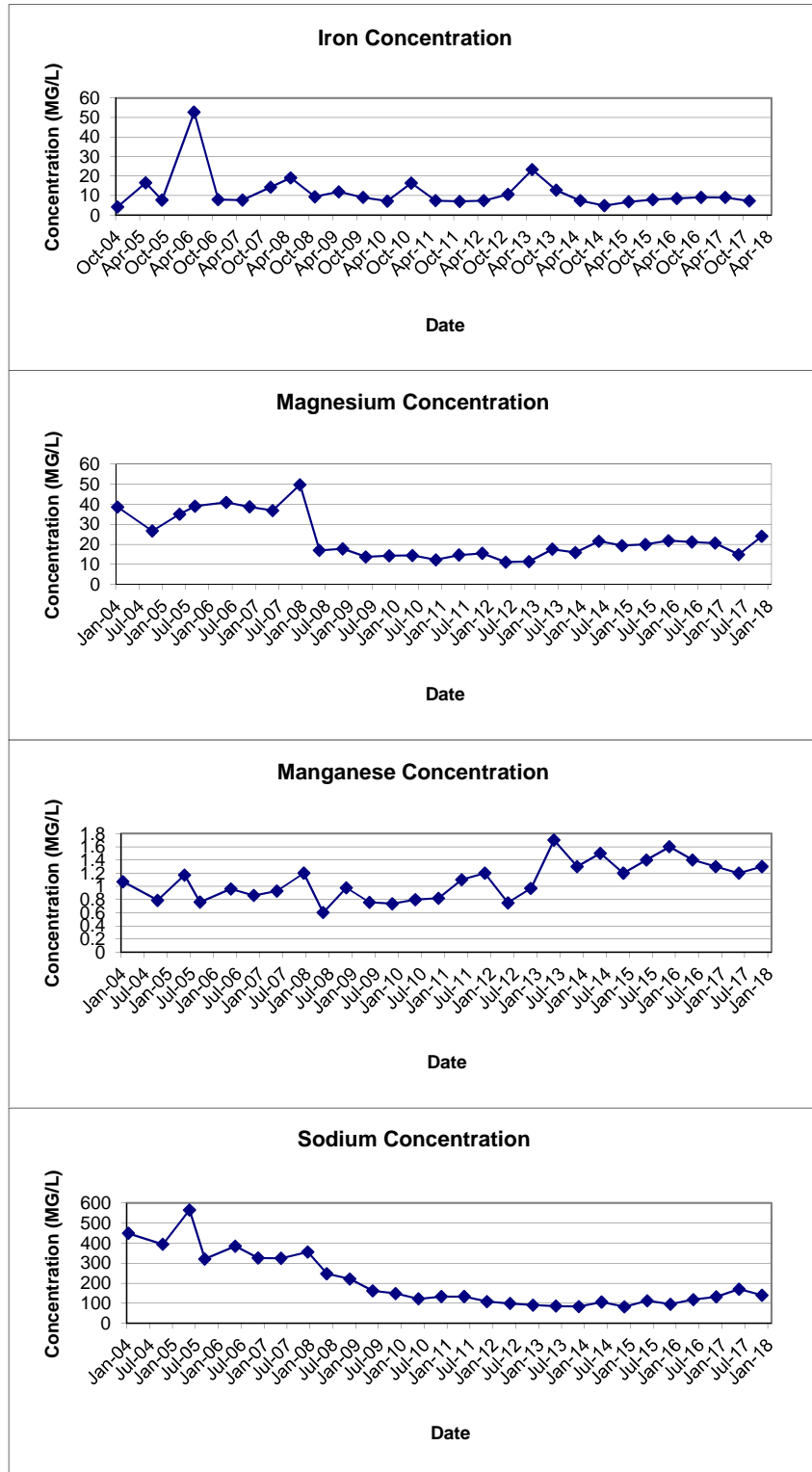


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03D

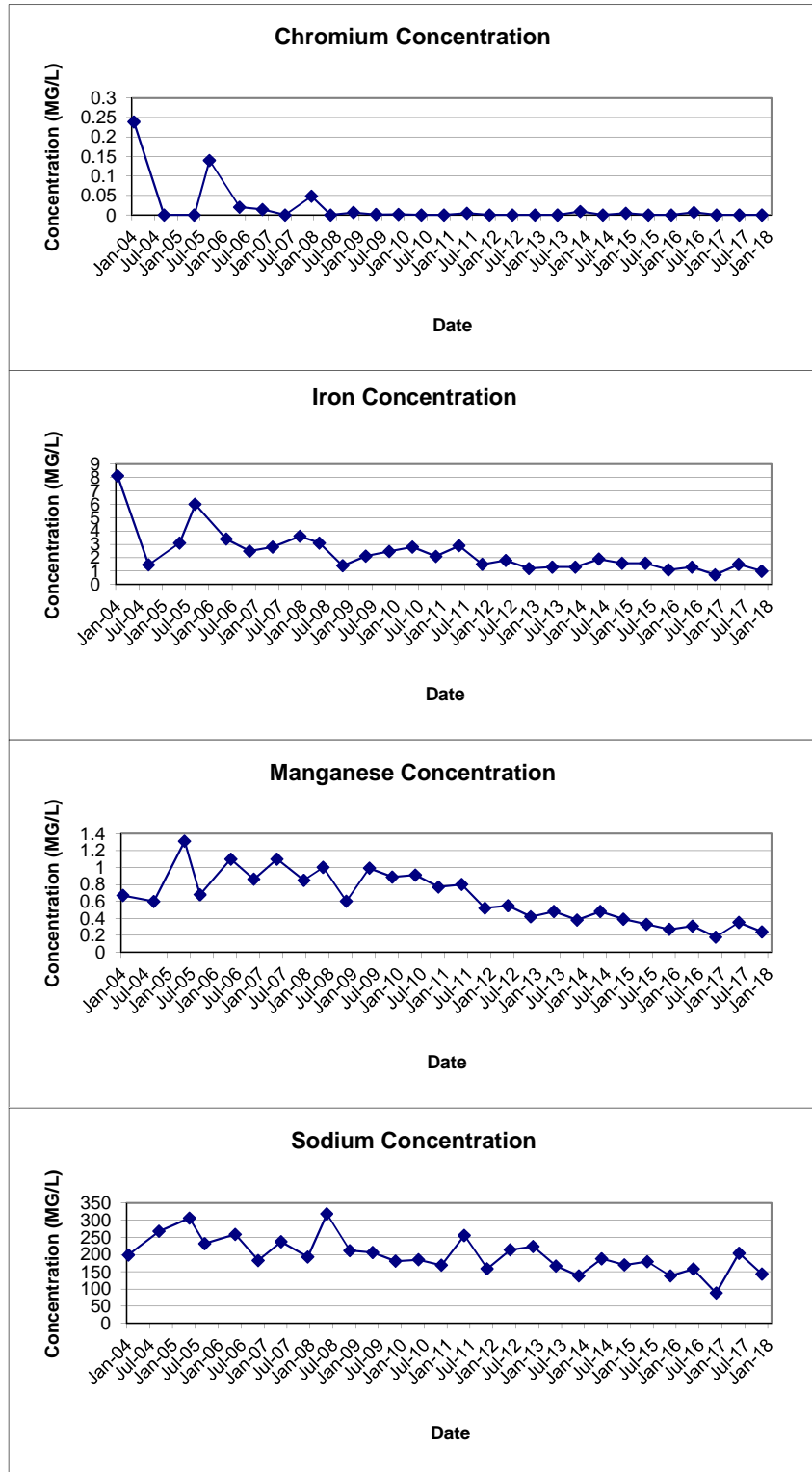
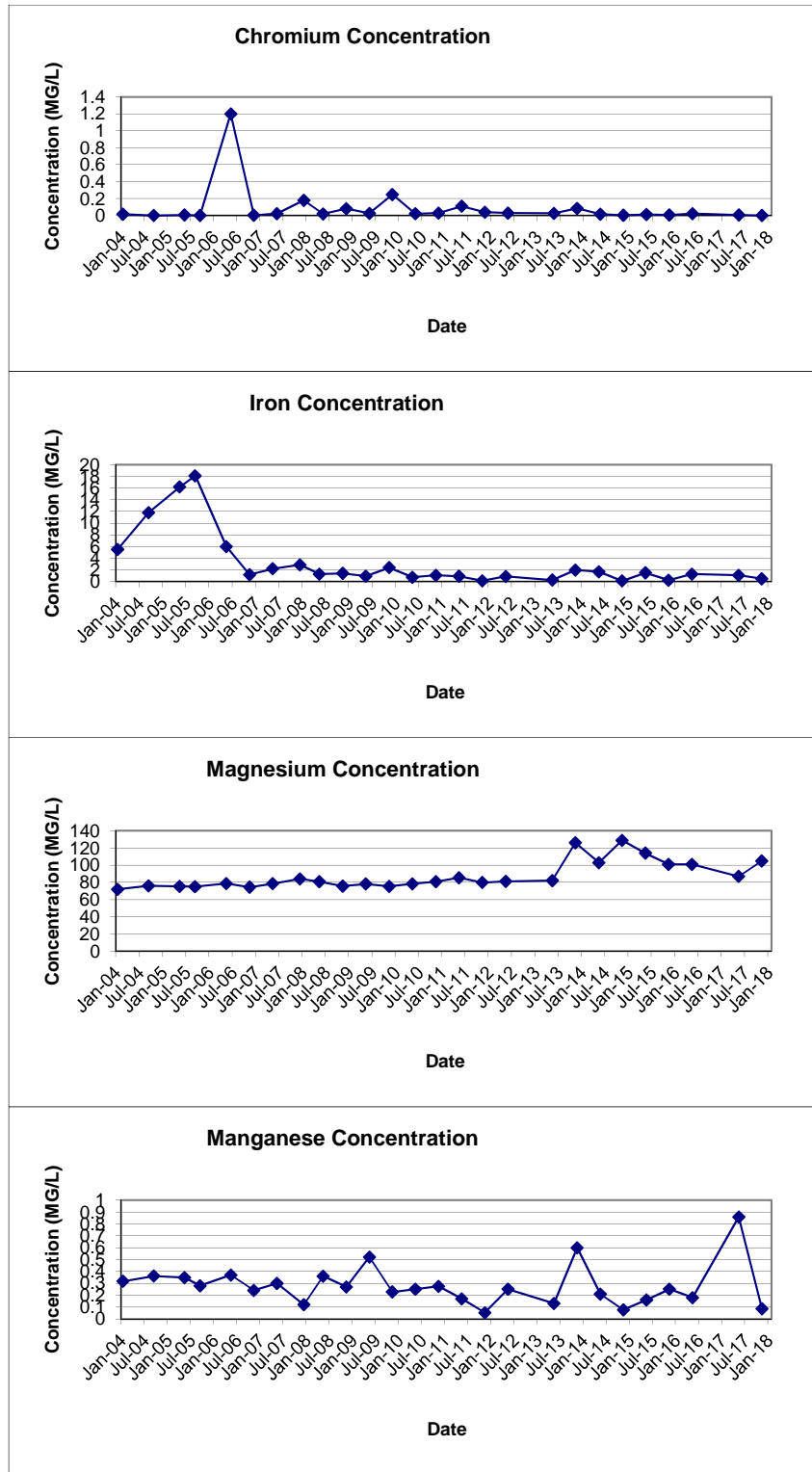
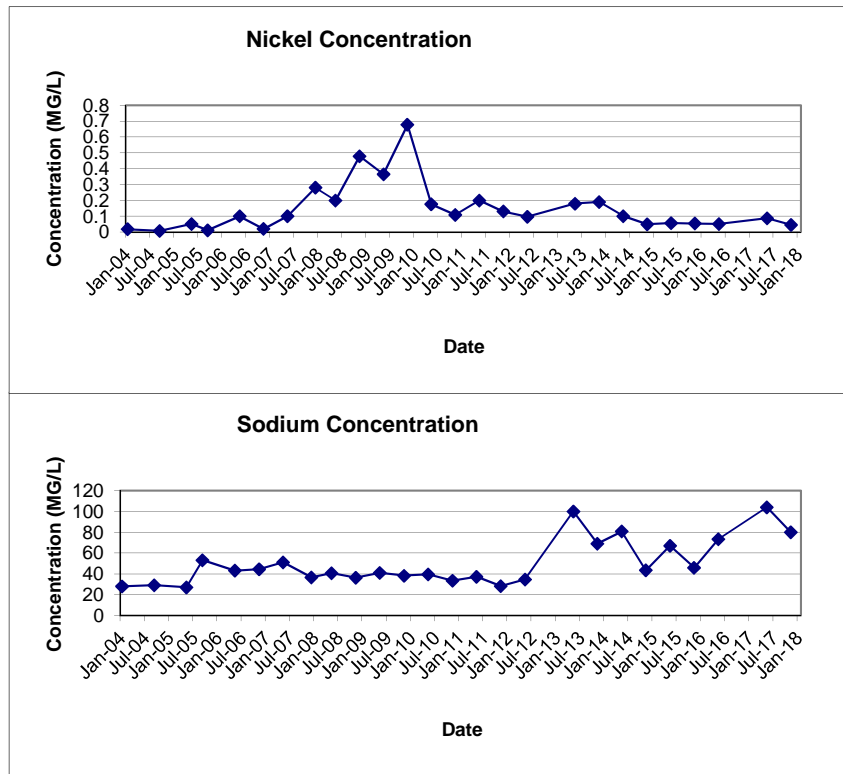


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



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

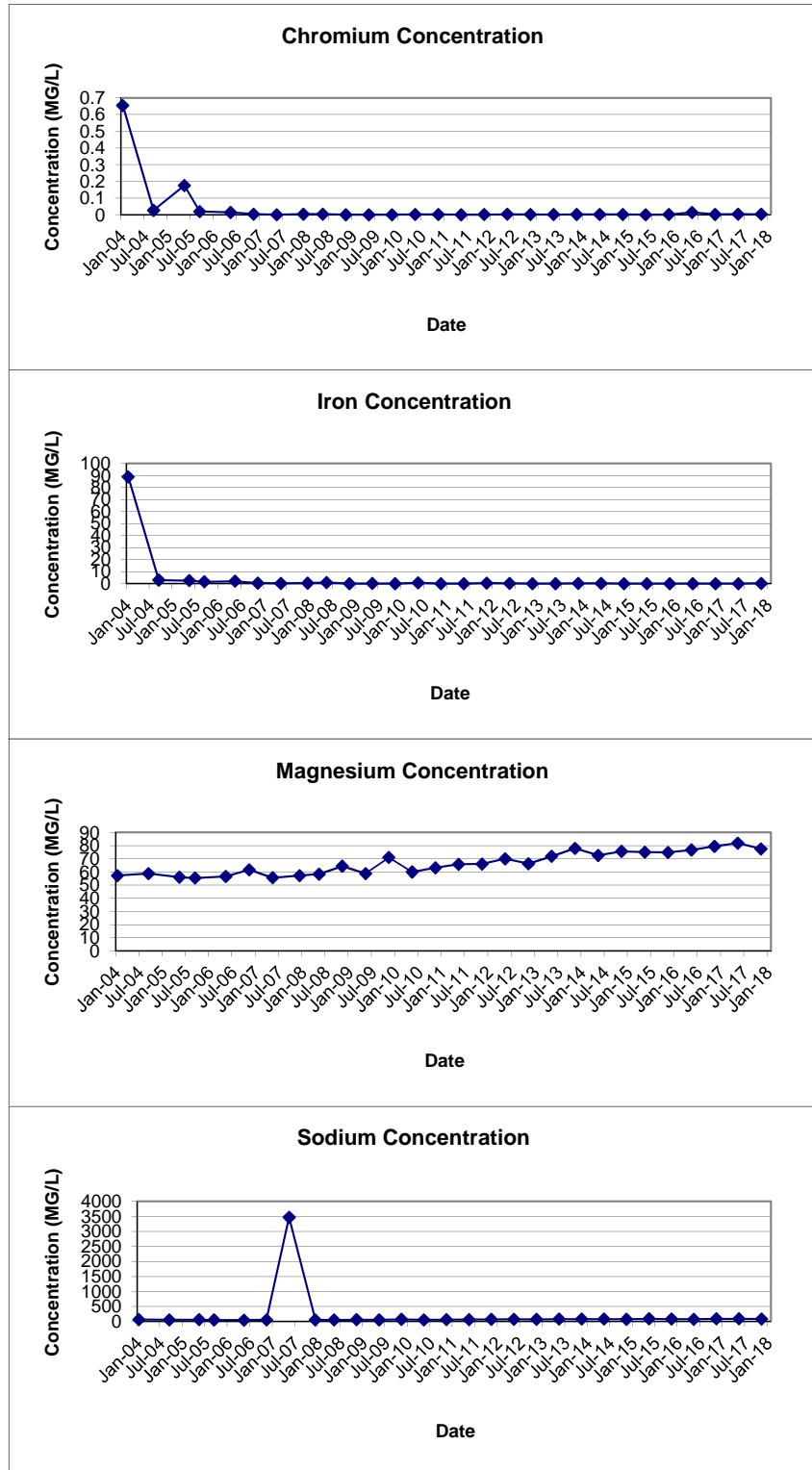


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04S

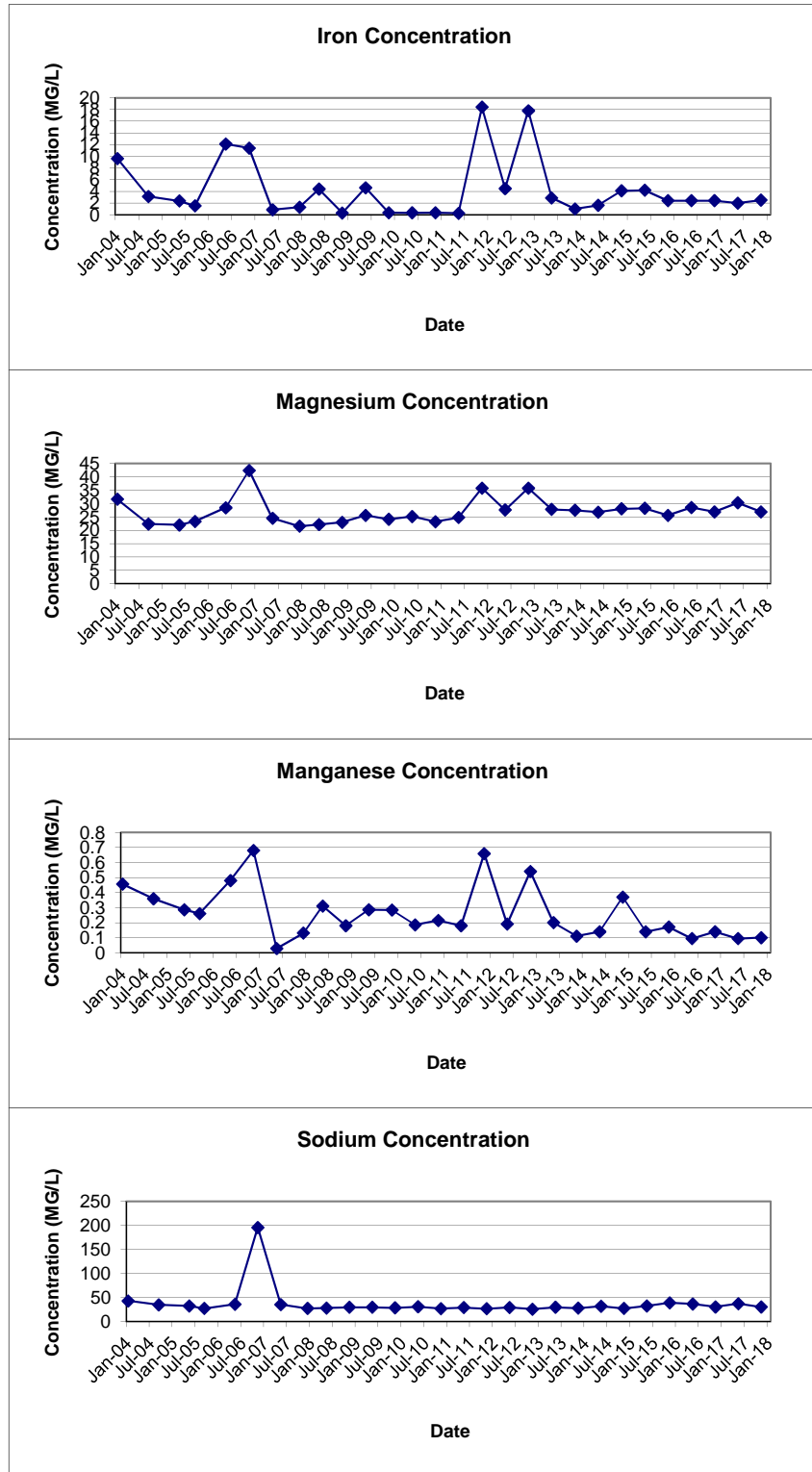


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

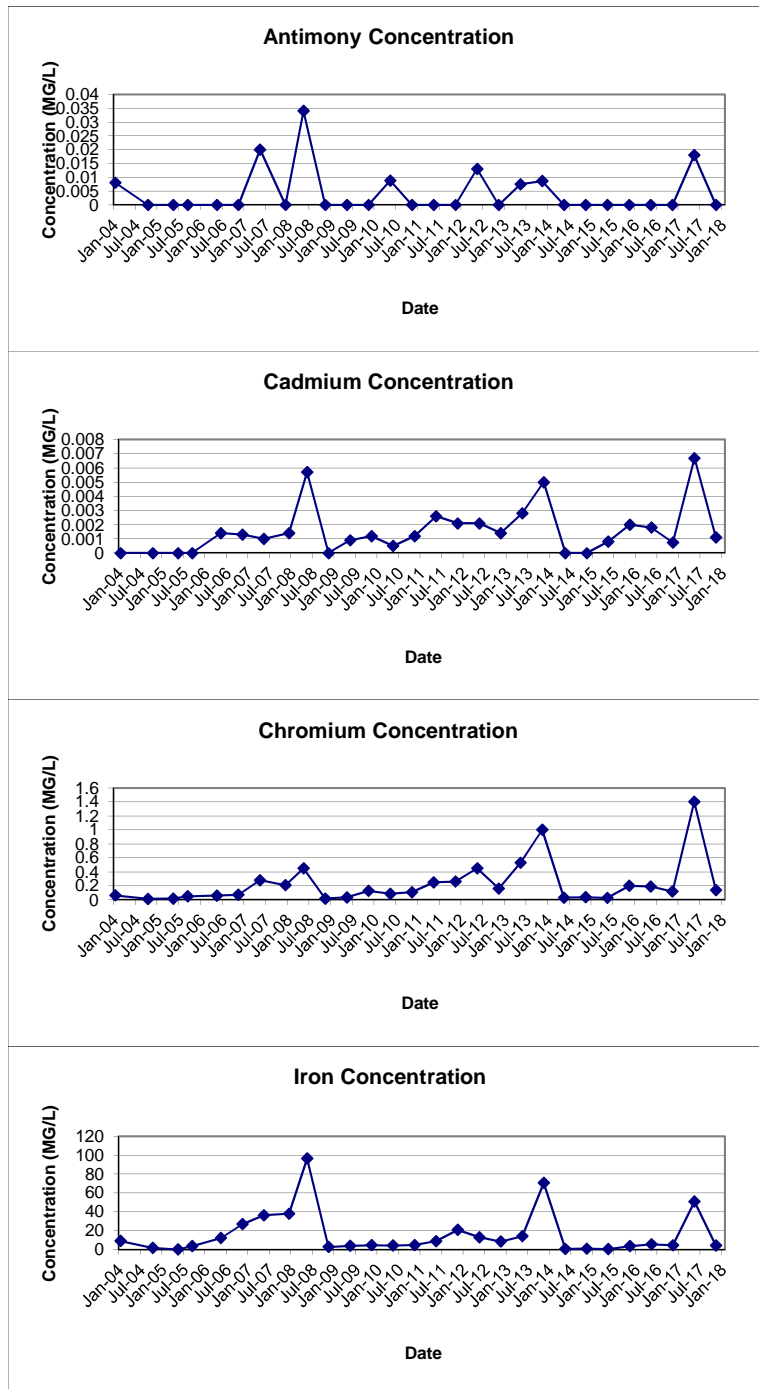


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

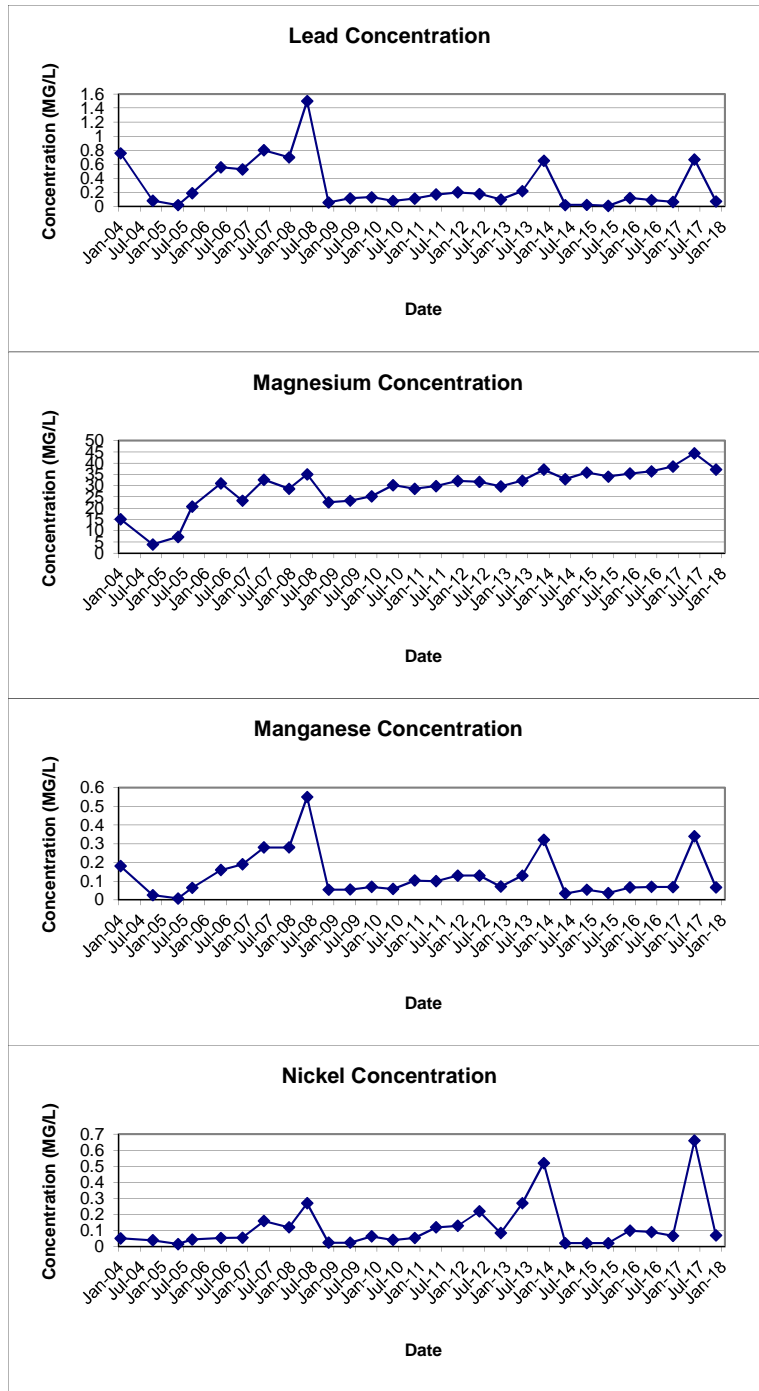


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

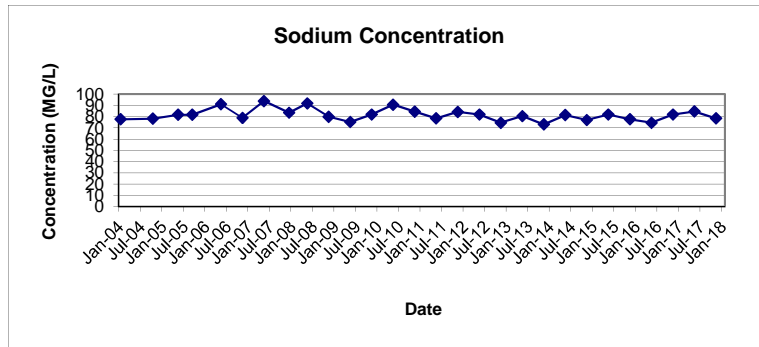


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07S

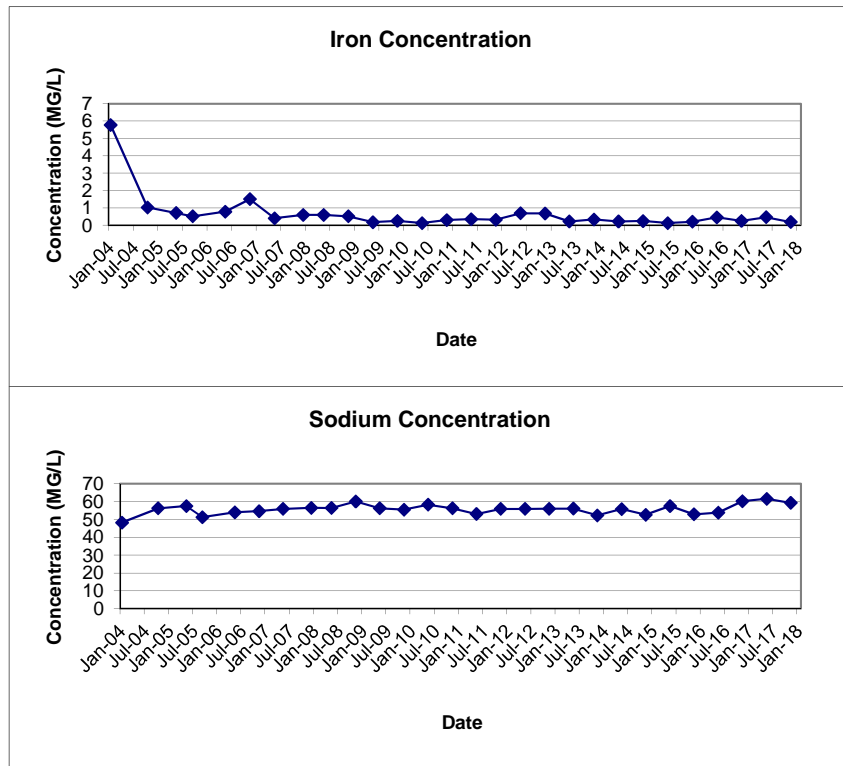


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08D

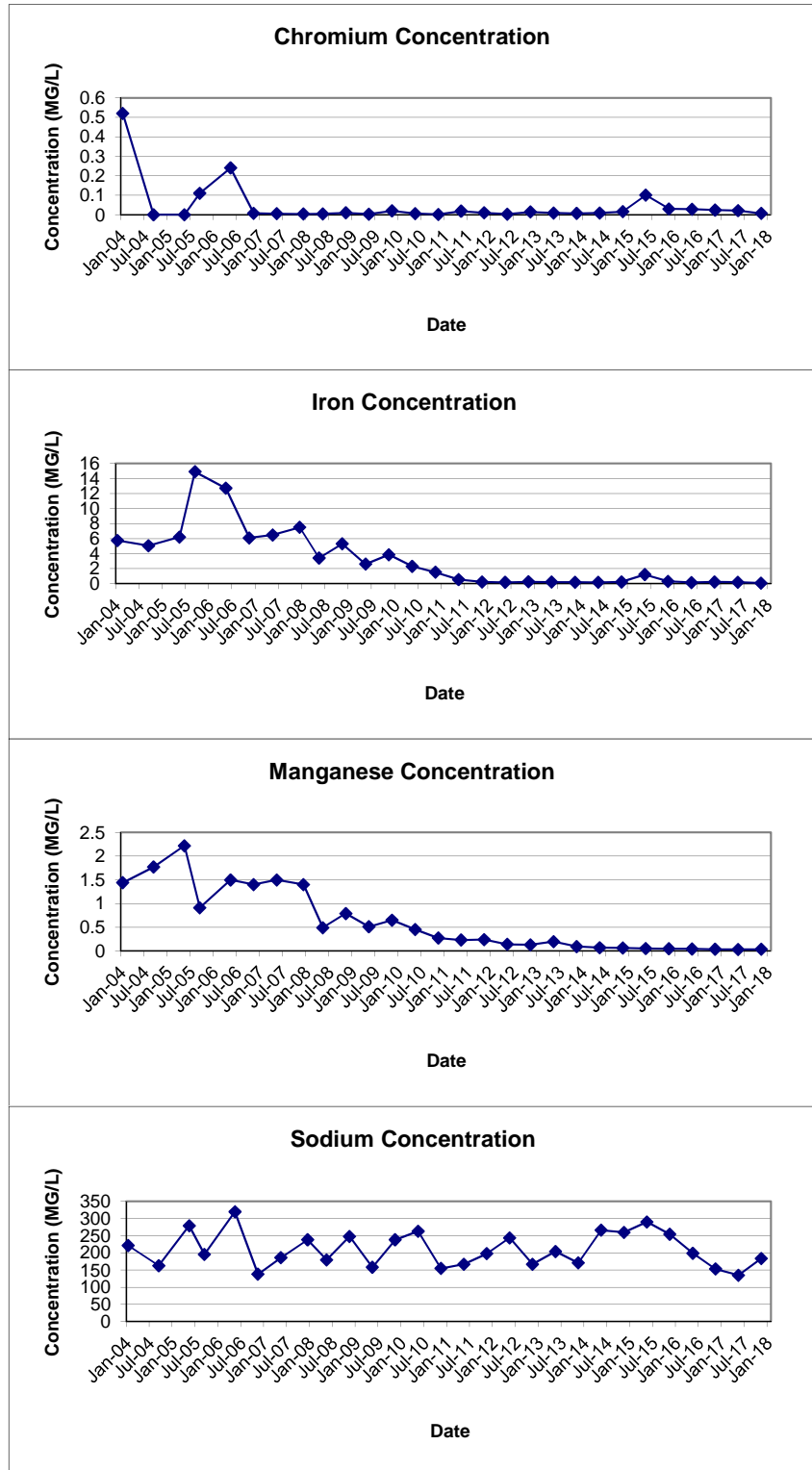


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08SR

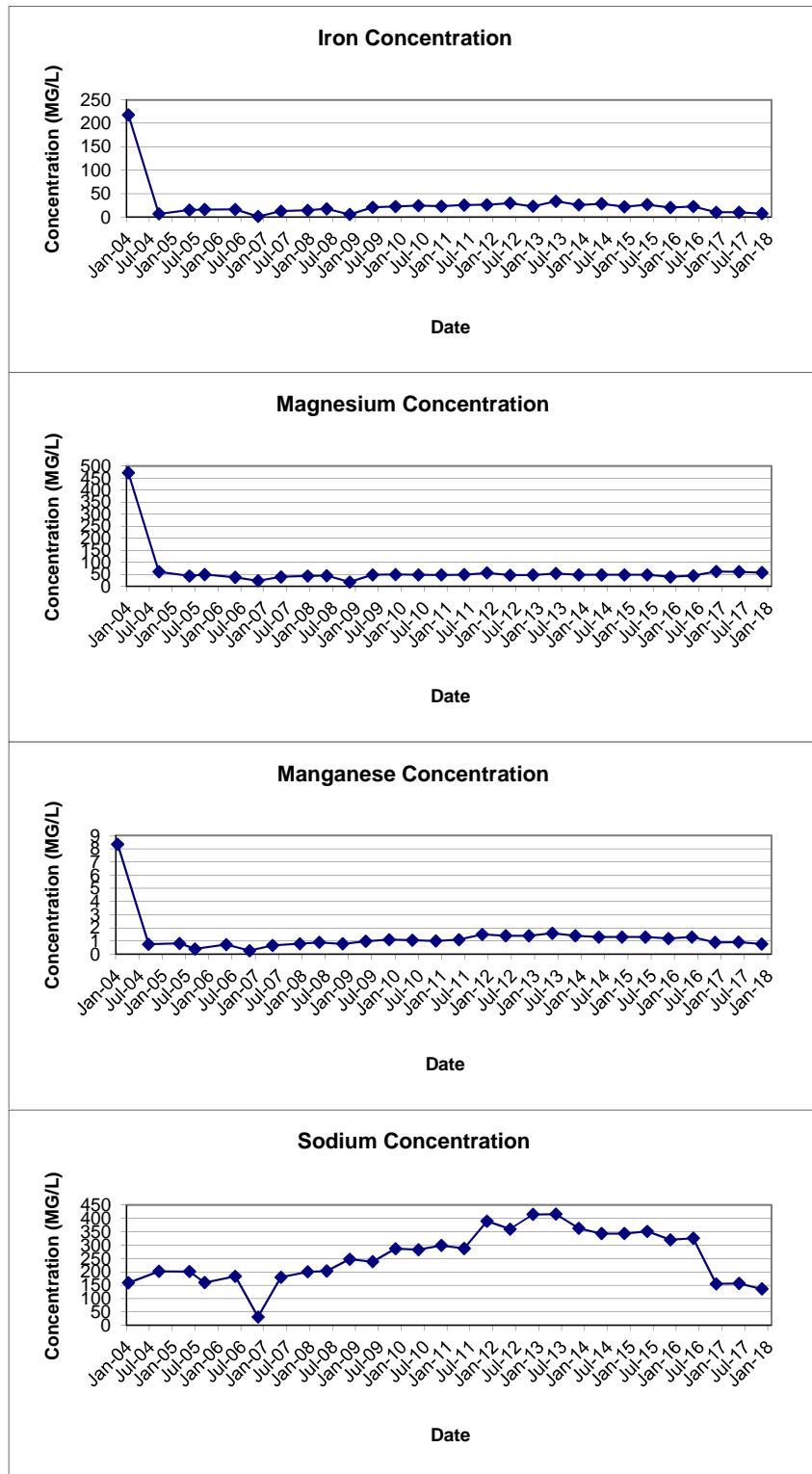


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

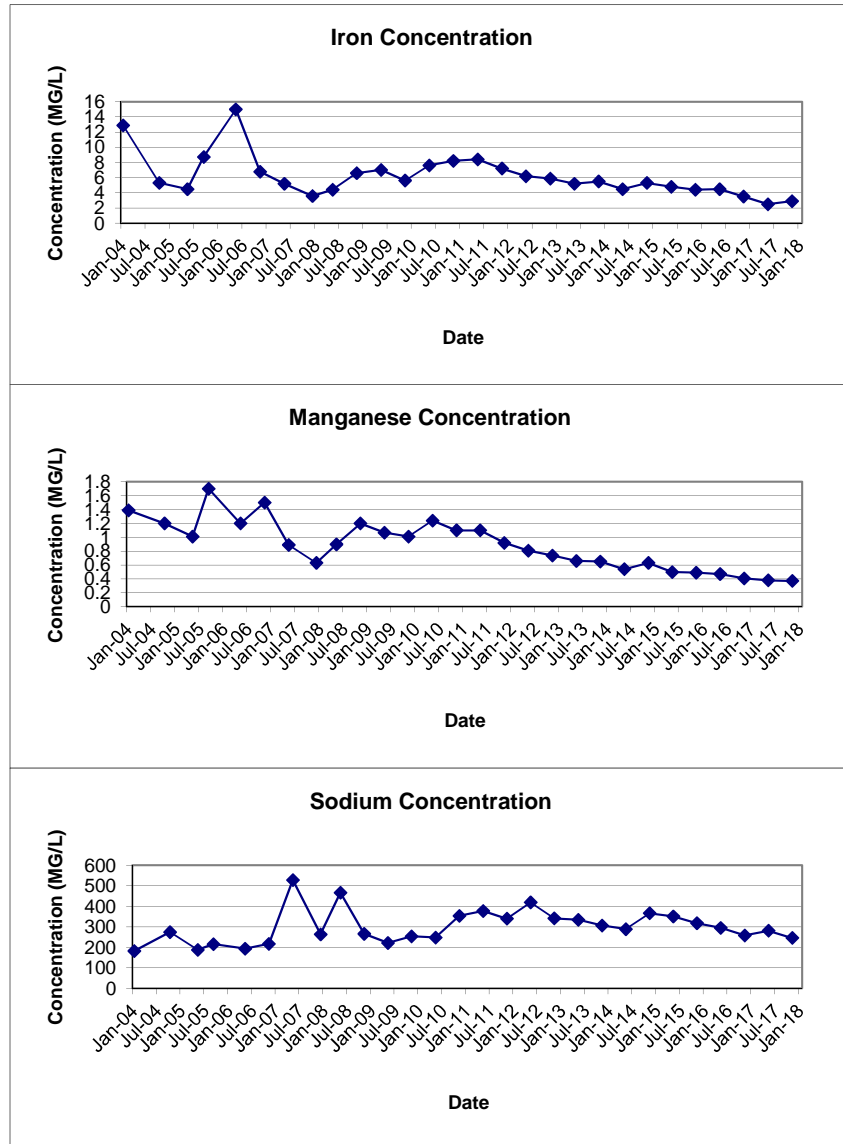


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

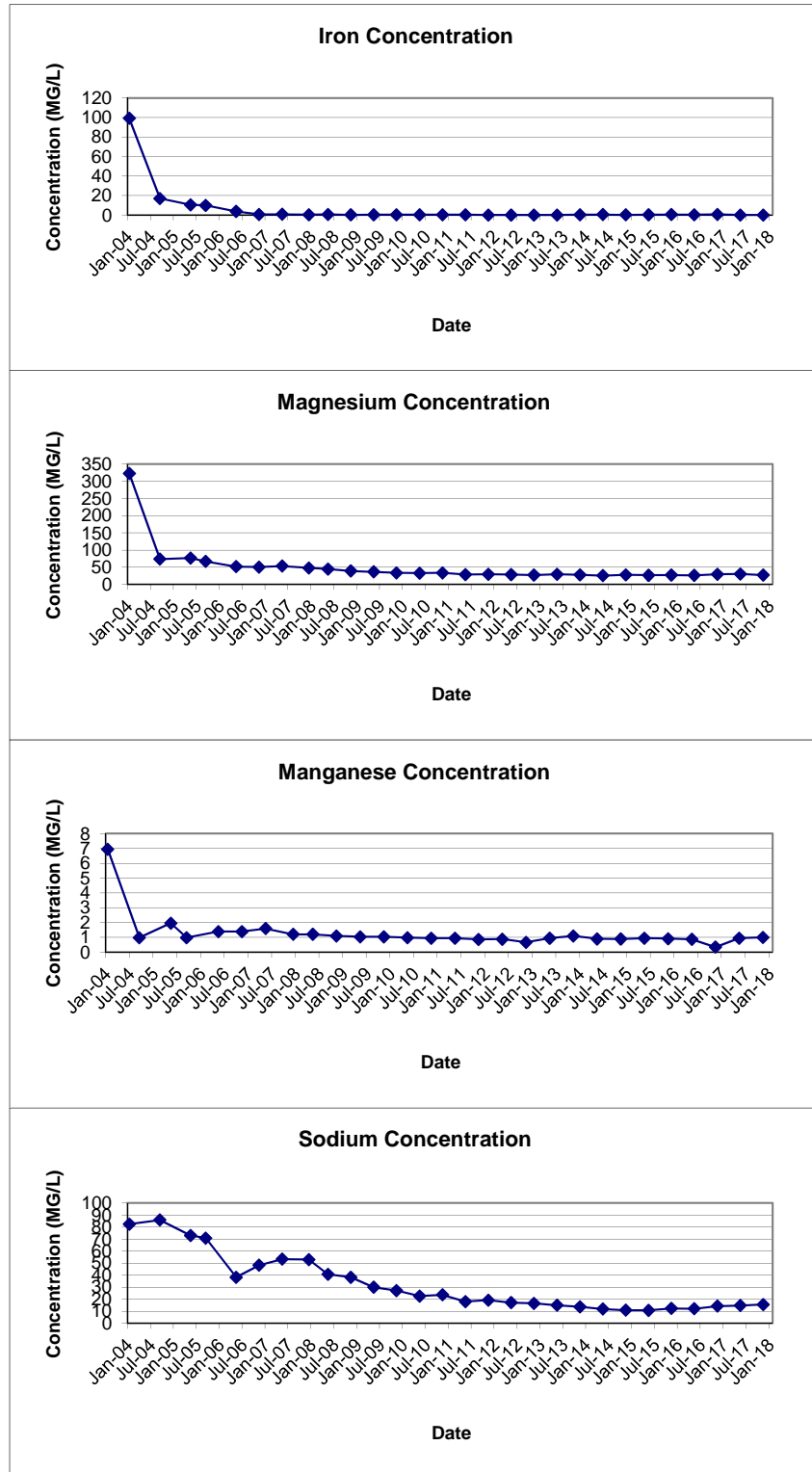


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

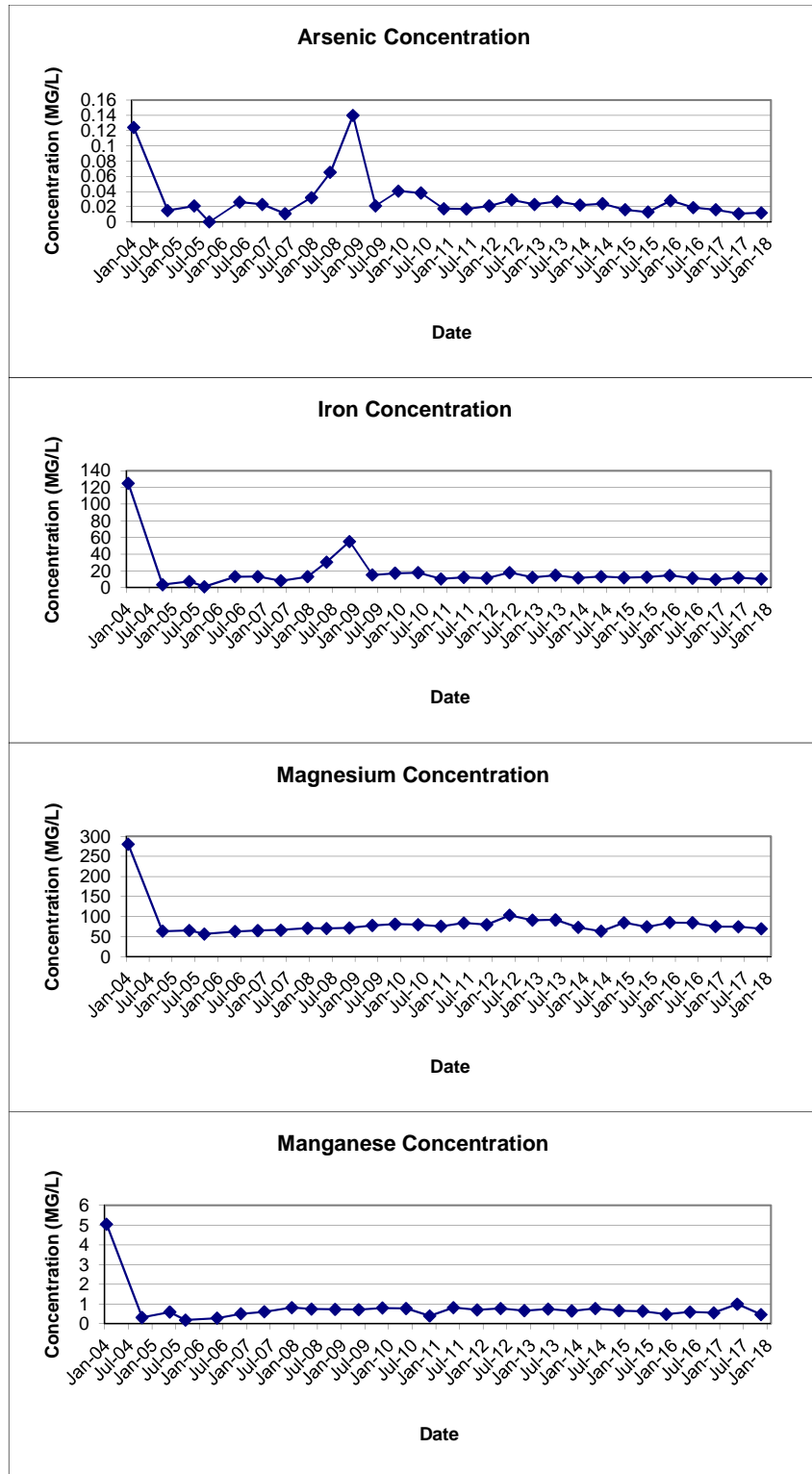


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

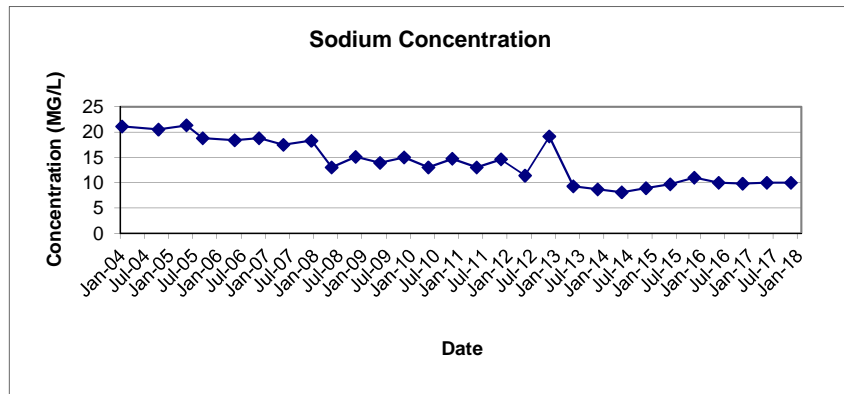


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

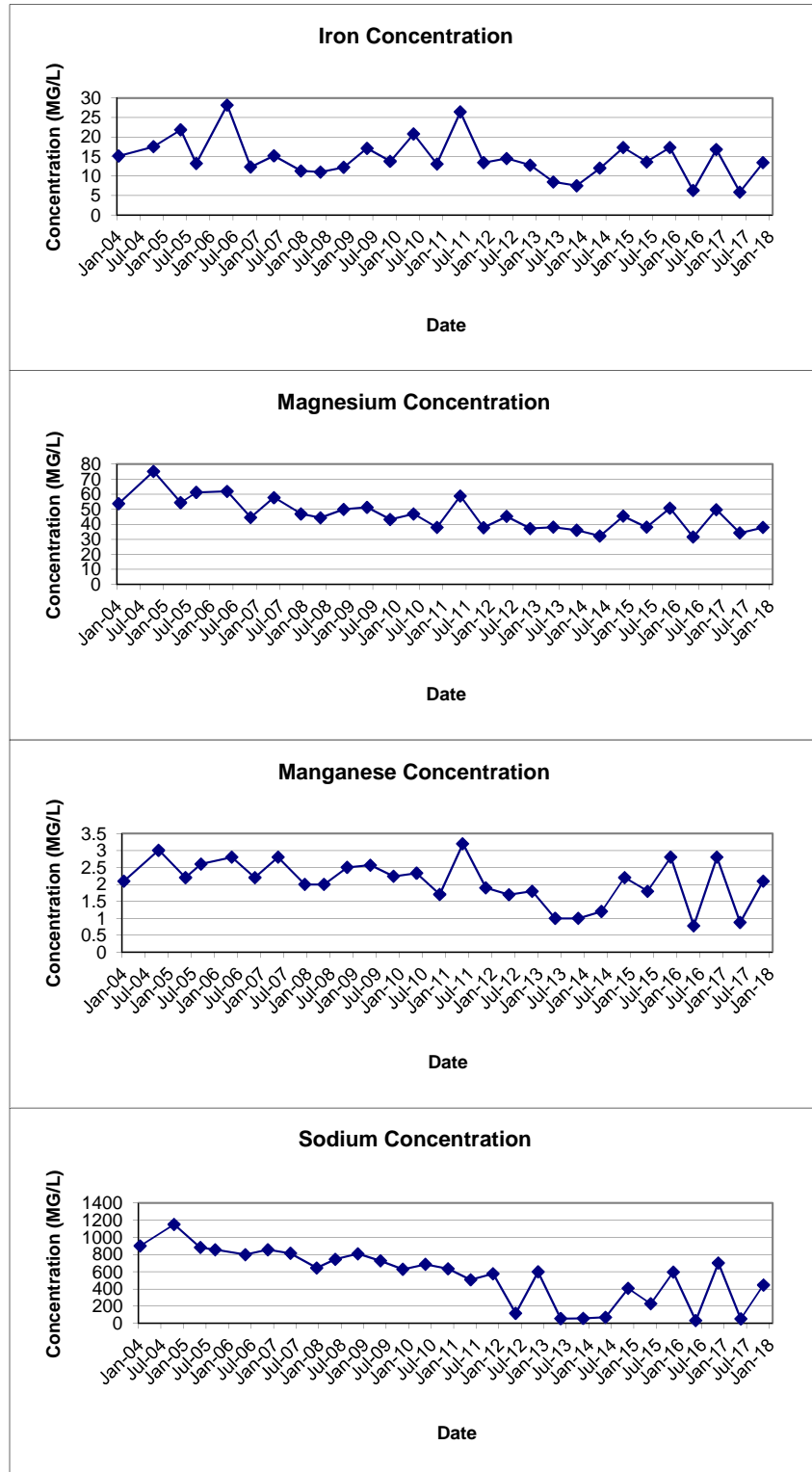


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

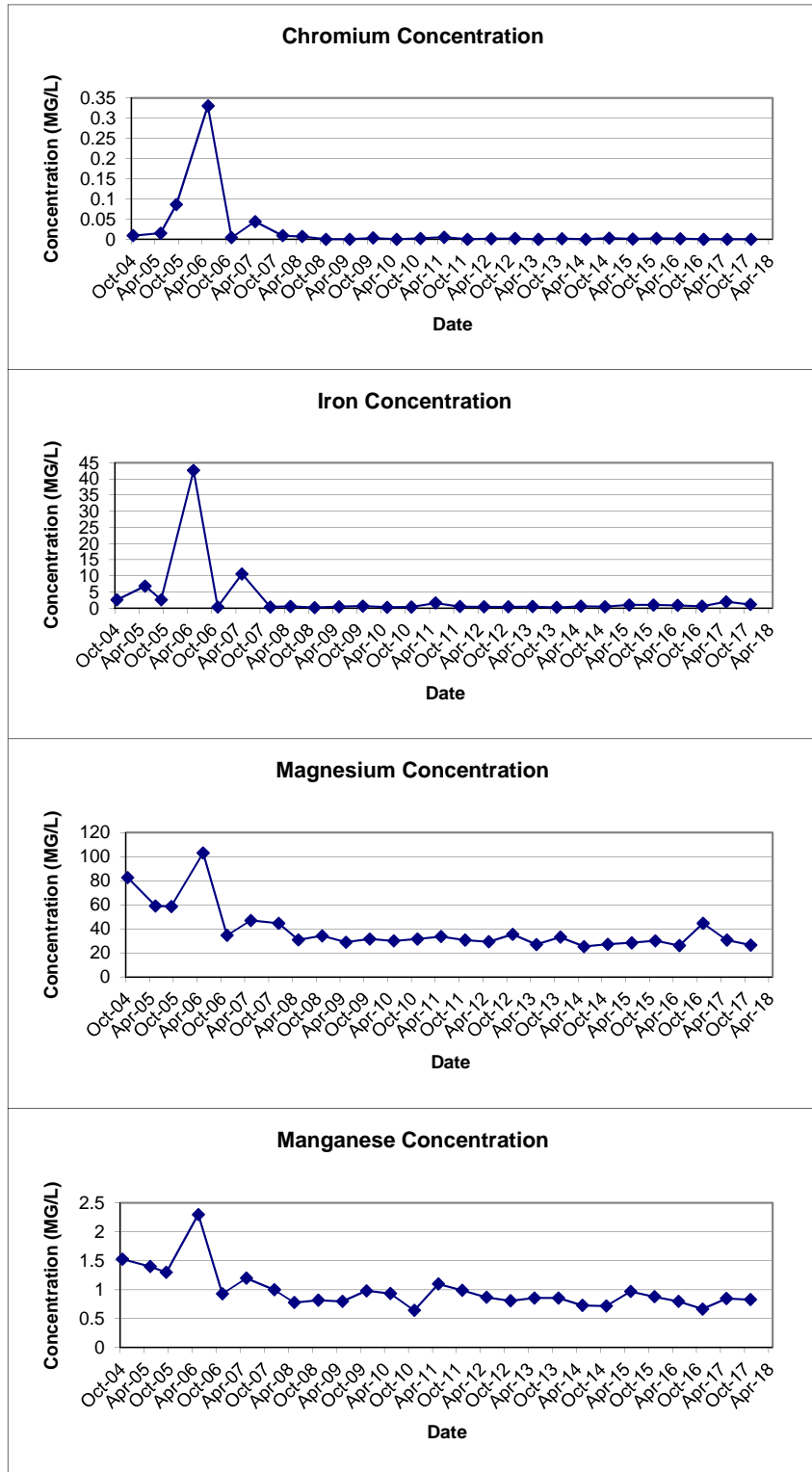


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

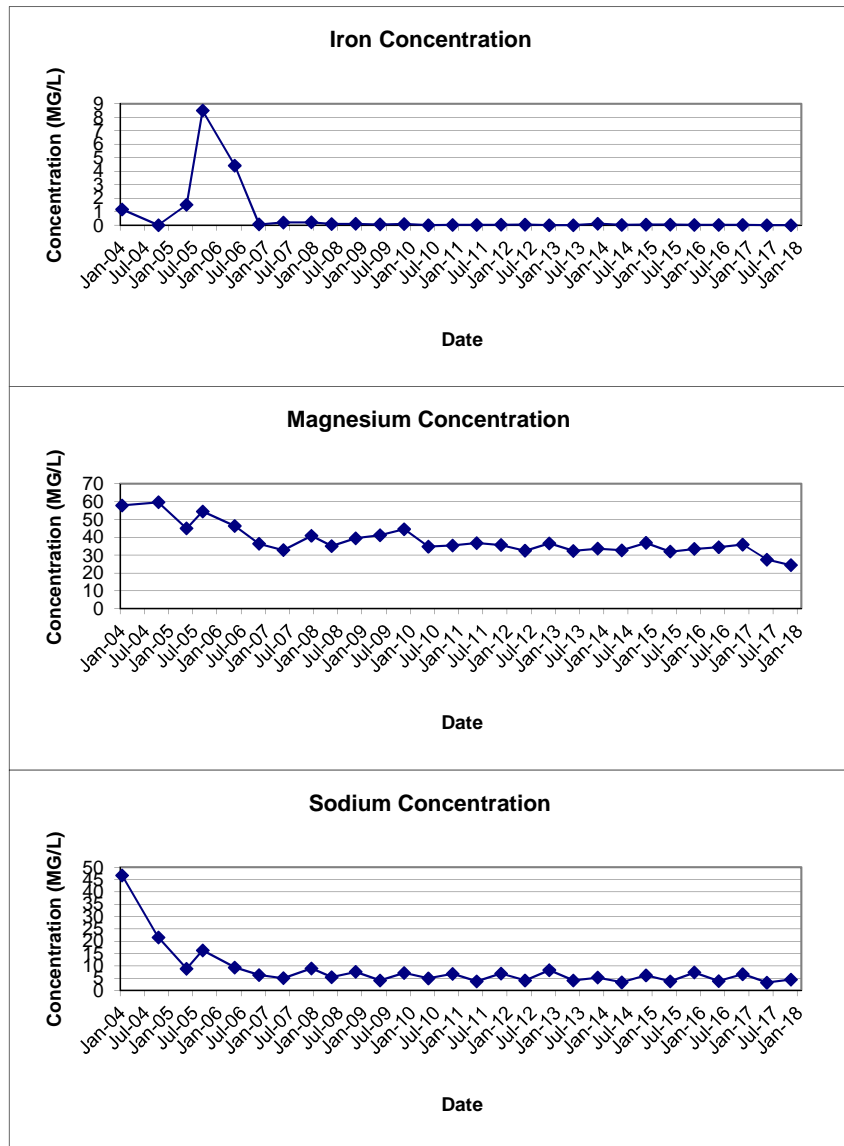


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

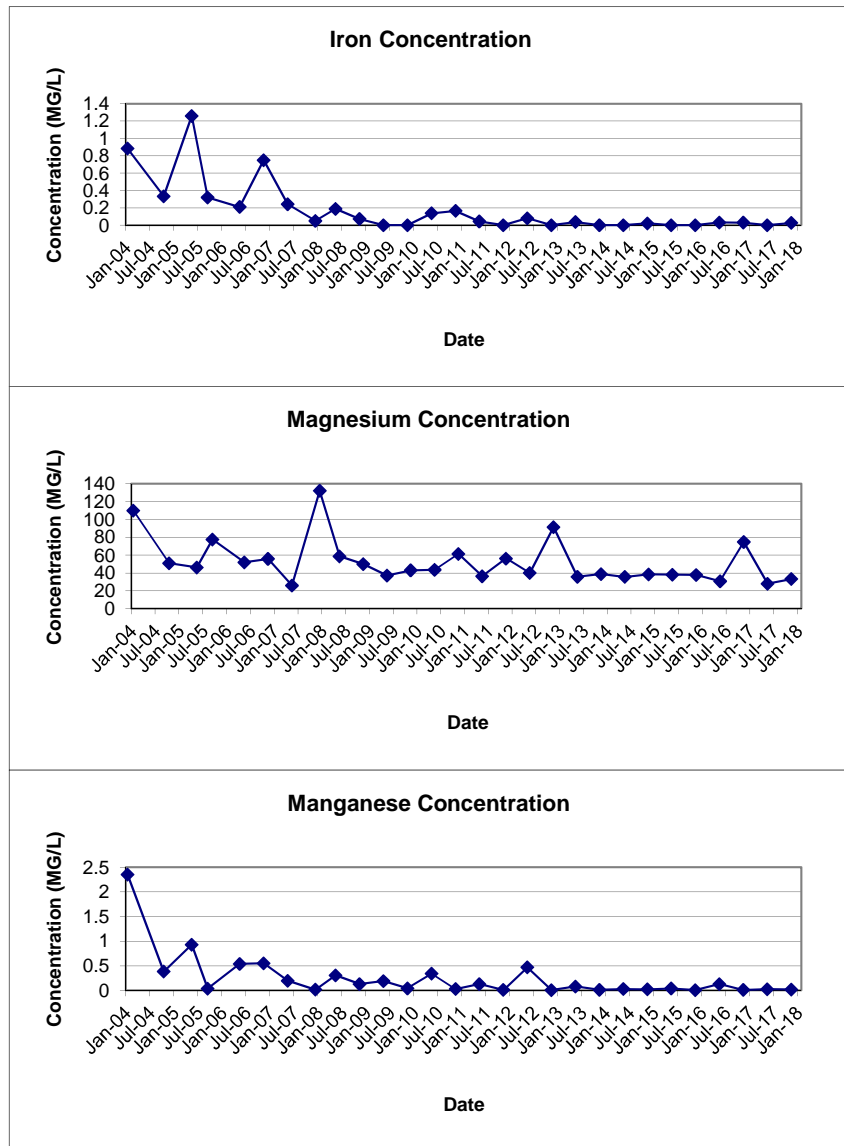


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

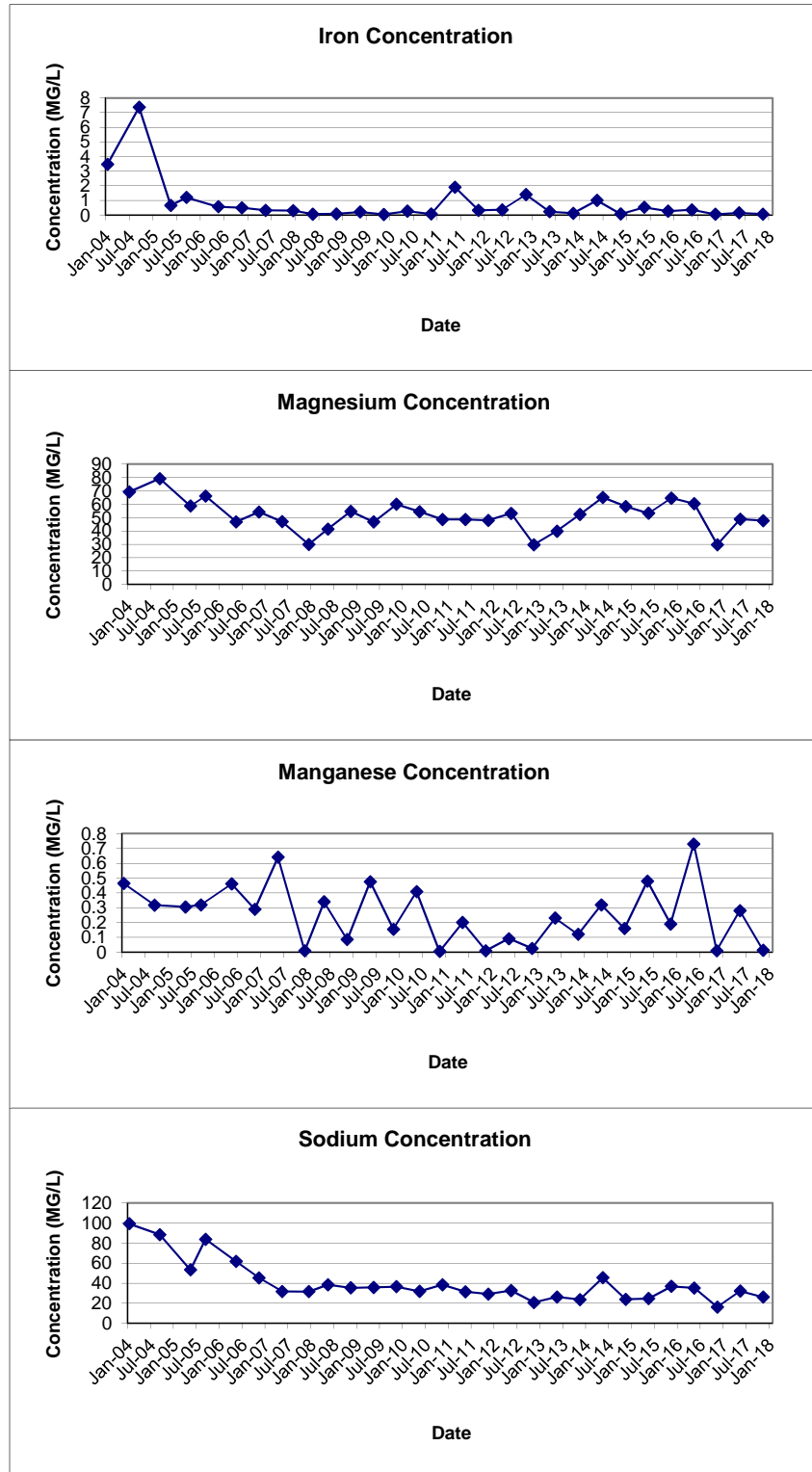
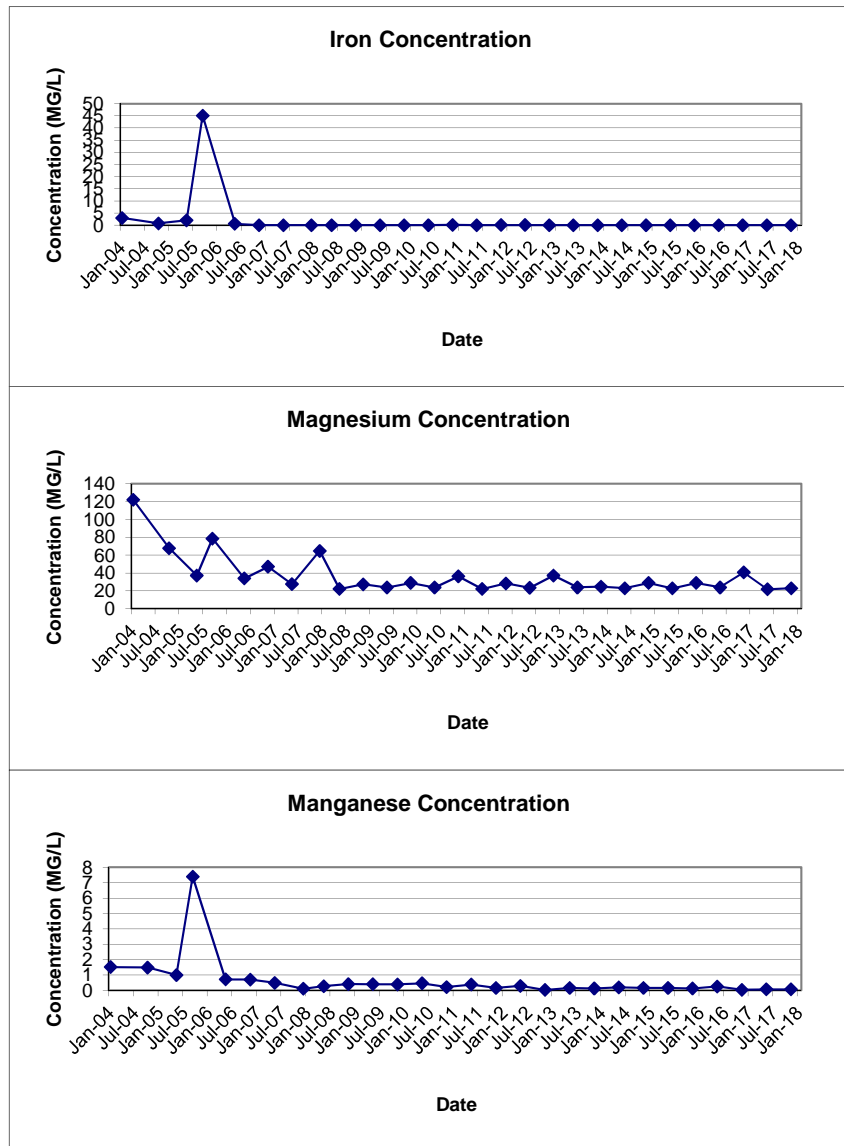


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



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

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS**A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS**

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

Sample Point	Parameter	Discharge Limitations ⁽¹⁾	Sampling Requirements	
		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:

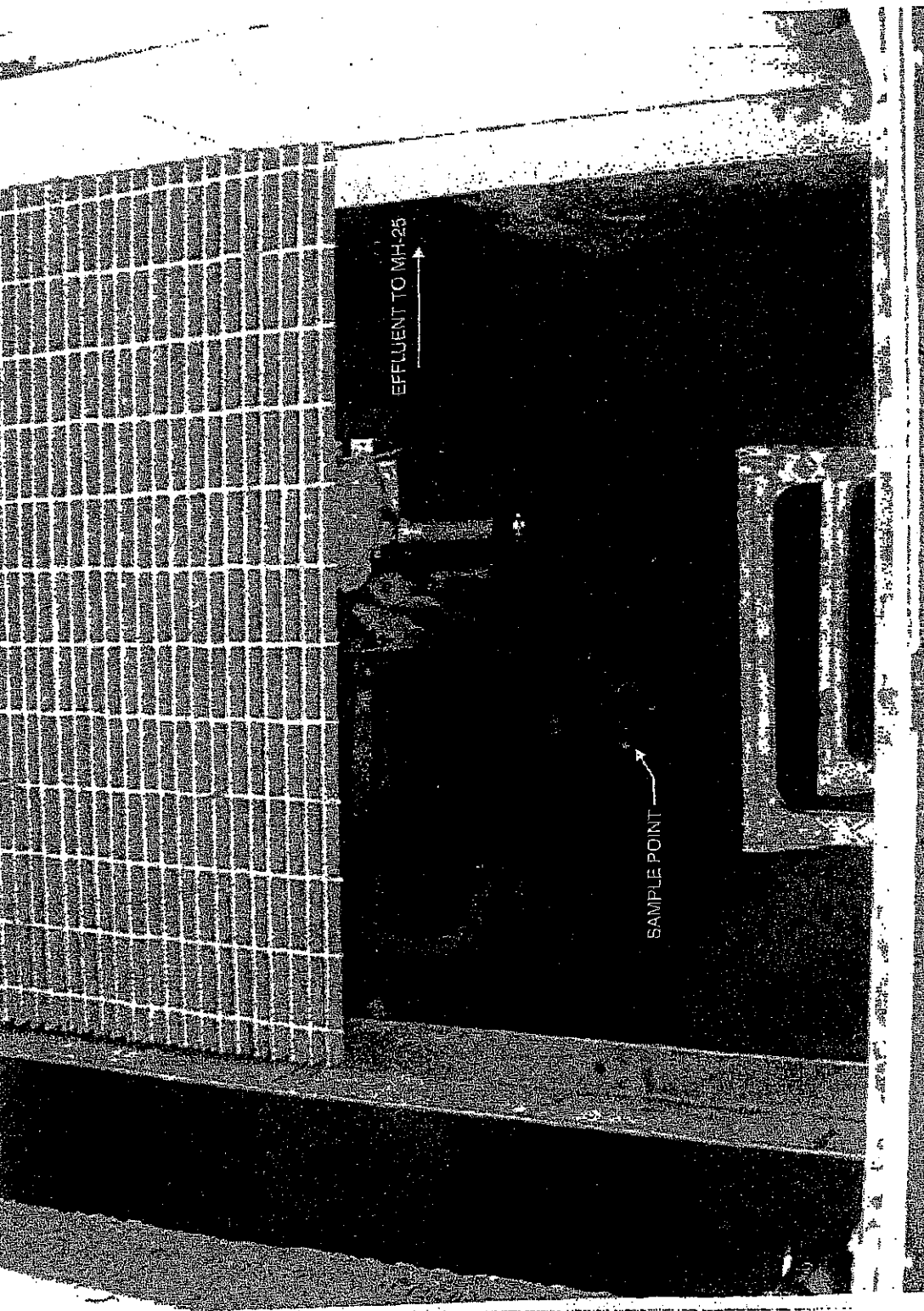
Sample Point	Parameter	Reporting Requirements	
		Initial Report	Subsequent Reports
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	June 30, 2016	Every March 31 st , June 30 th , September 30 th and December 31 st
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016	

* 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.



PFOHL BROTHERS LANDFILL
EFFLUENT SAMPLE POINT

FIGURE 1

URS

**TOWN OF CHEEKTOWAGA/BUFFALO POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT**

PART II GENERAL CONDITIONS

A. MONITORING AND REPORTING

1. Local Limits

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

2. Definitions

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

3. Discharge Sampling Analysis

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

4. Recording of Results

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

5. Additional Monitoring by Permittee

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

6. Reporting

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

**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 submit 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: 9/26/17 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 78° F, Clear

Sampling Device: NA

Time of Installation: 10:15 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: No wells were running at the time of sample set-up.
PLC display volumes: WW-01 (56,955 gals), WW-02 (-4,695 gals), WW-03 (682 gals),
WW-04 (-12,269 gals), WW-05 (966,269 gals), WW-06 (669,374 gals) & MH-25 (1,715,815 gals).

Date: 9/27/17 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 80° F, Clear

Time of Collection: 10:15

Field Measurements:

10:15/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 7.44

Temperature: 17.8°C

Identification: EFF-092717

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (56,955 gals), WW-02 (-4,695 gals), WW-03 (682 gals),
WW-04 (-16,399 gals), WW-05 (967,210 gals), WW-06 (672,337 gals) & MH-25 (1,720,845 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
SEPTEMBER 2017**

Sample ID	EFF-092717			
Matrix	Effluent Water			
Date Sampled	9/27/2017			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.47	0.02	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.00002	1.17	No
Total Chromium	< 0.0010	< 0.00004	1.17	No
Total Copper	0.0075	0.0003	3.74	No
Total Lead	0.0032	0.0001	1.17	No
Total Nickel	0.0028	0.0001	3.27	No
Total Zinc	0.024	0.001	5.84	No
Total Suspended Solids	194.0	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	7.44	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		5,030	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
 * Mercury and organics analysis performed once per permit duration

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

SAMPLING FIELD SHEET



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: 12/20/17 Crew: R. Murphy, S. Moeller, T. Urban

Weather: 33° F, Cloudy

Sampling Device: NA

Time of Installation: 14:25 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 (56,903 gals), WW-02 (-4,677 gals), WW-03 (1,138 gals),
WW-04 (-117,209 gals), WW-05 (2,198,485 gals), WW-06 (2,476,177 gals) & MH-25 (4,821,169 gals).

Date: 12/21/17 Crew: R. Murphy, S. Moeller, T. Urban

Weather: 34° F, Cloudy

Time of Collection: 14:25

Field Measurements:

14:25/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 7.58

Temperature: 9.8°C

Identification: EFF-122117

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: Well WW-06 was running at the time of sample collection.
PLC display volumes: WW-01 (56,903 gals), WW-02 (-4,677 gals), WW-03 (1,138 gals),
WW-04 (-117,209 gals), WW-05 (2,219,122 gals), WW-06 (2,571,267 gals) & MH-25 (4,936,625 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
DECEMBER 2017**

Sample ID	EFF-122117			
Matrix	Effluent Water			
Date Sampled	12/21/2017			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.19	0.18	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.0005	1.17	No
Total Chromium	< 0.0010	< 0.00096	1.17	No
Total Copper	0.002	0.002	3.74	No
Total Lead	< 0.0030	< 0.003	1.17	No
Total Nickel	0.0016	0.002	3.27	No
Total Zinc	0.0073	0.007	5.84	No
Total Suspended Solids	4.0	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	7.58	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		115,456	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
* Mercury and organics analysis performed once per permit duration

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

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date(s) of Inspection: November 20, 2017

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-01S	OK	OK	OK	Bulged	3.20	14.94	
GW-01D	OK	OK	OK	Bulged	1.98	39.65	
GW-03S	OK	OK	OK	OK	3.05	13.22	
GW-03D	OK	OK	OK	OK	1.55	35.70	
GW-04S	OK	OK	OK	OK	3.80	16.23	
GW-04D	OK	OK	OK	OK	12.08	45.57	
GW-07S	OK	OK	OK	OK	4.31	35.33	
GW-07D	OK	OK	OK	Damaged	46.55	60.83	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, K. McGovern

Supervisor: J. Sundquist

Date(s) of Inspection: November 20, 2017

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	5.09	13.02	
GW-08D	OK	OK	OK	OK	5.58	36.54	
GW-26D	OK	OK	OK	OK	6.48	40.70	
GW-28S	OK	OK	OK	OK	8.25	15.52	
GW-29S	OK	OK	OK	OK	6.47	20.04	
GW-30S	OK	OK	OK	OK	7.70	17.97	
GW-31S	OK	OK	OK	OK	2.50	9.57	
GW-32S	OK	OK	OK	OK	2.21	9.93	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, K. McGovern

Supervisor: J. Sundquist

Date(s) of Inspection: November 20, 2017

<i>Well I.D. Number</i>	<i>Lock</i>	<i>Surface Seal</i>	<i>Protective Casing</i>	<i>Riser</i>	<i>Water Level (ft. BTOC)</i>	<i>Well Depth (ft. BTOC)</i>	<i>Other Comments</i>
GW-33S	OK	OK	OK	OK	3.10	8.21	
GW-34S	OK	OK	OK	OK	2.61	10.01	
GW-35S	OK	OK	OK	OK	3.02	7.46	

Additional Comments:

DATA APPLICABILITY REPORT

SEMI-ANNUAL GROUNDWATER MONITORING

PFOHL BROTHERS LANDFILL SITE

Analyses Performed by:

TESTAMERICA LABORATORIES, INC.

10 HAZELWOOD DRIVE

AMHERST, NY 14228

Prepared for:

TOWN OF CHEEKTOWAGA

CHEEKTOWAGA, NY 14225

Prepared by:

URS CORPORATION

257 WEST GENESEE STREET, SUITE 400

BUFFALO, NY 14202-2657

DECEMBER 2017

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TABLES (Following Text)

Table 1	Validated Groundwater Sample Results
Table 2	Validated Field QC Sample Results

APPENDICES

Appendix A – Validated Sample Reporting Forms
Appendix B – Support Documentation

I. INTRODUCTION

This Data Applicability Report (DAR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B-Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, May 2010. This DAR discusses the usability of the analytical data for groundwater samples collected during the November 20-22, 2017 semi-annual monitoring program at the Pfohl Brothers Landfill Site, located in Cheektowaga, NY.

II. ANALYTICAL METHODOLOGIES AND DATA VALIDATION PROCEDURES

The data being evaluated are from the November 20-22, 2017 sampling of nineteen (19) groundwater samples, one (1) field duplicate, one (1) matrix spike (MS)/matrix spike duplicate (MSD) pair, and two (2) trip blanks. The analytical laboratory that performed the analyses was TestAmerica Laboratories, Inc. located in Amherst, NY. The samples were analyzed for the following project-specific parameters: Volatile Organic Compounds (VOCs) following United States Environmental Protection Agency (USEPA) Method 8260C, Semivolatile Organic Compounds (SVOCs) by USEPA Method 8270D, and metals by USEPA Method 6010C/7470A. The trip blanks were analyzed for VOCs only.

A limited data validation was performed in accordance with the following USEPA guidelines:

- *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2016-002, September 2016.
- *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2016-001, September 2016.

The limited data validation included a review of completeness of all required deliverables; holding times; quality control (QC) results (blanks, matrix spike recoveries, duplicate analyses, and laboratory control sample recoveries) to determine if the data are within the protocol-required QC limits and specifications; a determination that all samples were

analyzed using established and agreed upon analytical protocols; and a review of laboratory data qualifiers.

Definitions of USEPA data qualifiers are presented at the end of this text. The validated analytical results are presented on Table 1 (groundwater). Copies of the validated laboratory results (i.e., sample reporting forms) are presented in Appendix A. Documentation supporting the qualification of data is presented in Appendix B. Only analytical deviations affecting data usability are discussed in this report.

III. DATA DELIVERABLE COMPLETENESS

In accordance with the project requirements, limited deliverable data packages were provided by the laboratory, which only consisted of analytical summaries, QC reporting forms and case narratives.

IV. SAMPLE RECEIPT/PRESERVATION/HOLDING TIMES

All samples were received by the laboratory intact, properly preserved and under proper chain-of-custody (COC). All samples were analyzed within the required holding times.

Due to the low recharge rates of monitoring wells GW-07D and GW-07S, the VOC aliquots were collected on 11/20/17, while the SVOC/metals aliquots were collected on 11/21/17. All aliquots of sample GW-04S were collected on 11/21/17, however the VOCs were collected at 07:45 am while the SVOCs/metals were collected at 09:15 am, due to a low recharge rate.

V. NON-CONFORMANCES

The metals method blank exhibited contamination for manganese (Mn) at a concentration less than the reporting limit (RL). The laboratory qualified the detected Mn results 'B' in the associated samples. However, since the associated sample results were greater than ten times the method blank results, and also greater than the RL, the 'B' qualifiers were removed during the limited data validation.

The laboratory case narrative indicates the metals continuing calibration verification (CCV) was outside of the QC limit for chromium (Cr), iron (Fe), and manganese (Mn). These metals have been qualified 'J' or 'UJ' in the associated samples as indicated on Table 1.

VI. SAMPLE RESULTS AND REPORTING

All reporting limits (RLs) were reported in accordance with method requirements and were adjusted for sample size and dilution factors. Results for compounds/analytes detected below the RL are qualified 'J'.

Sample GW-30S was analyzed for VOCs at a dilution of two due to foaming issues with the sample. The reporting limits for the non-detect compounds are the lowest achievable at the dilution. Note, VOCs have not been detected in this monitoring well since 2014.

A field duplicate was collected at groundwater location GW-03D. The field duplicate results exhibited good field and analytical precision.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified 'J'/'UJ' (estimated/non-detect, estimated RL) during the limited data review are considered conditionally usable. All other sample results are usable as reported. URS does not recommend the recollection of any samples at this time.

Prepared By: Ann Marie Kropovitch, Chemist

Date:

Reviewed by: Peter R. Fairbanks, Senior Chemist

Date:

DEFINITIONS OF USEPA DATA QUALIFIERS

- U – The analyte was analyzed for, but was not detected above the level of the sample reporting limit.
- J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ – The metal result is an estimated quantity, but the result may be biased high.
- J- – The metal result is an estimated quantity, but the result may be biased low.
- UJ – The analyte was analyzed for, but not detected. The reporting limit is approximate and may be inaccurate or imprecise.
- R – The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-03D	GW-03S
Sample ID		GW-01D	GW-01S	FD-112017	GW-03D	GW-03S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/20/17	11/20/17	11/20/17	11/20/17	11/20/17
Parameter	Units			Field Duplicate (1-1)		
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U	10 U	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	2.6 J	2.4 J	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	3.8 J	3.4 J	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.079	0.20	0.070	0.069	0.11
Cadmium	MG/L	0.0010 U	0.00062 J	0.0010 U	0.0010 U	0.0010
Chromium	MG/L	0.0055	0.0040 U	0.0040 UJ	0.0040 UJ	0.021
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.0028 J
Iron	MG/L	0.28	7.2 J	1.0 J	1.0 J	0.50
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	33.9	24.0	14.5	14.3	105
Manganese	MG/L	0.019	1.3 J	0.24 J	0.24 J	0.087
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.010 U	0.010 U	0.0038 J	0.0038 J	0.045

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-03D	GW-03S
Sample ID		GW-01D	GW-01S	FD-112017	GW-03D	GW-03S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/20/17	11/20/17	11/20/17	11/20/17	11/20/17
Parameter	Units			Field Duplicate (1-1)		
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	99.1	140	144	142	79.9
Zinc	MG/L	0.017	0.010 U	0.0065 J	0.0067 J	0.015

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17
 CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Sample ID		GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/21/17	11/21/17	11/20/17	11/21/17	11/20/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	NA	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U	NA	2.0 U
Acetone	UG/L	10 U	10 U	10 U	NA	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U	NA	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U	NA	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	NA	10 U	NA
1,4-Dichlorobenzene	UG/L	10 U	10 U	NA	10 U	NA
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	NA	3.7 J	NA
Phenol	UG/L	5.0 U	5.0 U	NA	5.0 U	NA
Metals						
Antimony	MG/L	0.020 U	0.020 U	NA	0.020 U	NA
Arsenic	MG/L	0.010 U	0.010 U	NA	0.010 U	NA
Barium	MG/L	0.092	0.12	NA	0.078	NA
Cadmium	MG/L	0.0010 U	0.00059 J	NA	0.0011	NA
Chromium	MG/L	0.0029 J	0.0063	NA	0.14	NA
Copper	MG/L	0.010 U	0.0031 J	NA	0.016	NA
Iron	MG/L	0.38	2.5	NA	4.5 J	NA
Lead	MG/L	0.0050 U	0.0037 J	NA	0.072	NA
Magnesium	MG/L	77.5	26.9	NA	37.2	NA
Manganese	MG/L	0.024	0.10	NA	0.068 J	NA
Mercury	MG/L	0.00020 U	0.00020 U	NA	0.00020 U	NA
Nickel	MG/L	0.010 U	0.0064 J	NA	0.070	NA

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17
 CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Sample ID		GW-04D	GW-04S	GW-07D	GW-07D	GW-07S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/21/17	11/21/17	11/20/17	11/21/17	11/20/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	NA	0.0030 U	NA
Sodium	MG/L	89.3	30.2	NA	78.4	NA
Zinc	MG/L	0.043	0.0089 J	NA	0.047	NA

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17
 CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID		GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/21/17	11/21/17	11/21/17	11/21/17	11/21/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	NA	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	NA	2.0 U	2.0 U	0.90 J	2.0 U
Acetone	UG/L	NA	10 U	10 U	10 U	10 U
Benzene	UG/L	NA	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	NA	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.35	0.072	0.12	0.11	0.089
Cadmium	MG/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	0.0016 J	0.0066	0.0040 UJ	0.0040 U	0.0040 UJ
Copper	MG/L	0.010 U	0.0026 J	0.010 U	0.010 U	0.010 U
Iron	MG/L	0.18	0.097	7.0 J	2.9	0.12
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	40.4	14.8	57.2	16.8	27.4
Manganese	MG/L	0.082	0.034	0.78	0.37	1.0
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.016	0.0029 J	0.010 U	0.010 U	0.0014 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Sample ID		GW-07S	GW-08D	GW-08SR	GW-26D	GW-28S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/21/17	11/21/17	11/21/17	11/21/17	11/21/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	59.3	184	136	246	15.7
Zinc	MG/L	0.0028 J	0.032	0.010 U	0.0083 J	0.0024 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/22/17	11/22/17	11/22/17	11/22/17	11/22/17
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U
Acetone	UG/L	10 U	20 U	10 U	10 U	10 U
Benzene	UG/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.012	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.18	0.28	0.080	0.051	0.057
Cadmium	MG/L	0.0010 U	0.0010 U	0.00051 J	0.0010 U	0.00050 J
Chromium	MG/L	0.0040 U	0.0040 U	0.0040 U	0.0040 U	0.0010 J
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Iron	MG/L	10.2	13.4	1.1	0.050 U	0.027 J
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	69.6	37.9	26.5	24.4	33.3
Manganese	MG/L	0.48	2.1	0.83	0.21	0.019
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.010 U	0.010 U	0.0027 J	0.010 U	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17
 CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Sample ID		GW-29S	GW-30S	GW-31S	GW-32S	GW-33S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/22/17	11/22/17	11/22/17	11/22/17	11/22/17
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	10.0	446	3.9	4.4	3.1
Zinc	MG/L	0.0021 J	0.010 U	0.0040 J	0.010 U	0.0015 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-34S	GW-35S
Sample ID		GW-34S	GW-35S
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		11/21/17	11/21/17
Parameter	Units		
Volatile Organic Compounds			
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U
1,2-Dichloroethane (total)	UG/L	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U
Semivolatile Organic Compounds			
1,3-Dichlorobenzene	UG/L	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U
Metals			
Antimony	MG/L	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U
Barium	MG/L	0.11	0.089
Cadmium	MG/L	0.00058 J	0.0010 U
Chromium	MG/L	0.013	0.0040 UJ
Copper	MG/L	0.010 U	0.010 U
Iron	MG/L	0.058	0.033 J
Lead	MG/L	0.0050 U	0.0050 U
Magnesium	MG/L	47.7	22.9
Manganese	MG/L	0.014	0.071
Mercury	MG/L	0.00020 U	0.00020 U
Nickel	MG/L	0.0088 J	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-34S	GW-35S
Sample ID		GW-34S	GW-35S
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		11/21/17	11/21/17
Parameter	Units		
Metals			
Silver	MG/L	0.0030 U	0.0030 U
Sodium	MG/L	26.1	2.6
Zinc	MG/L	0.0025 J	0.0024 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

TABLE 2
VALIDATED FIELD QC SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		FIELDQC	FIELDQC
Sample ID		TB-112017-112117	TB-112217
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		11/21/17	11/22/17
Parameter	Units	Trip Blank (1-1)	Trip Blank (1-1)
Volatile Organic Compounds			
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 12/8/17

CHECKED BY: PRF 12/11/17

Detection Limits shown are PQL

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-01D

Lab Sample ID: 480-127921-4

Date Collected: 11/20/17 13:36

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 12:18	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 12:18	1
Acetone	ND		10	3.0	ug/L			11/25/17 12:18	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 12:18	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 12:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/25/17 12:18	1
Toluene-d8 (Surr)	102		80 - 120		11/25/17 12:18	1
4-Bromofluorobenzene (Surr)	98		73 - 120		11/25/17 12:18	1
Dibromofluoromethane (Surr)	97		75 - 123		11/25/17 12:18	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 17:18	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 17:18	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 17:18	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	91		41 - 120	11/22/17 14:15	11/27/17 17:18	1
2-Fluorobiphenyl	99		48 - 120	11/22/17 14:15	11/27/17 17:18	1
2-Fluorophenol	76		35 - 120	11/22/17 14:15	11/27/17 17:18	1
Nitrobenzene-d5	87		46 - 120	11/22/17 14:15	11/27/17 17:18	1
Phenol-d5	57		22 - 120	11/22/17 14:15	11/27/17 17:18	1
p-Terphenyl-d14	90		59 - 136	11/22/17 14:15	11/27/17 17:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:16	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:16	1
Barium	0.079		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:16	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:16	1
Chromium	0.0055		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 12:39	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:16	1
Iron	0.28		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 16:29	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:16	1
Magnesium	33.9		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:16	1
Manganese	0.019		0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 16:29	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:16	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:16	1
Sodium	99.1		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:16	1
Zinc	0.017		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 16:53	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-01S

Lab Sample ID: 480-127921-3

Date Collected: 11/20/17 12:17

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 01:49	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 01:49	1
Acetone	ND		10	3.0	ug/L			11/25/17 01:49	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 01:49	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 01:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		11/25/17 01:49	1
Toluene-d8 (Surr)	98		80 - 120		11/25/17 01:49	1
4-Bromofluorobenzene (Surr)	97		73 - 120		11/25/17 01:49	1
Dibromofluoromethane (Surr)	96		75 - 123		11/25/17 01:49	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 17:46	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 17:46	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 17:46	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		41 - 120	11/22/17 14:15	11/27/17 17:46	1
2-Fluorobiphenyl	101		48 - 120	11/22/17 14:15	11/27/17 17:46	1
2-Fluorophenol	77		35 - 120	11/22/17 14:15	11/27/17 17:46	1
Nitrobenzene-d5	87		46 - 120	11/22/17 14:15	11/27/17 17:46	1
Phenol-d5	57		22 - 120	11/22/17 14:15	11/27/17 17:46	1
p-Terphenyl-d14	93		59 - 136	11/22/17 14:15	11/27/17 17:46	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:13	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:13	1
Barium	0.20		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:13	1
Cadmium	0.00062	J	0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:13	1
Chromium	ND		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 12:35	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:13	1
Iron	7.2		0.050	0.019	mg/L		11/22/17 09:17	11/29/17 14:13	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:13	1
Magnesium	24.0		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:13	1
Manganese	1.3		0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 14:13	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:13	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:13	1
Sodium	140		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:13	1
Zinc	ND		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:13	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 16:51	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-03D

Lab Sample ID: 480-127921-5

Date Collected: 11/20/17 15:20

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 02:12	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 02:12	1
Acetone	ND		10	3.0	ug/L			11/25/17 02:12	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 02:12	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 02:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		11/25/17 02:12	1
Toluene-d8 (Surr)	100		80 - 120		11/25/17 02:12	1
4-Bromofluorobenzene (Surr)	100		73 - 120		11/25/17 02:12	1
Dibromofluoromethane (Surr)	103		75 - 123		11/25/17 02:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,3-Dichlorobenzene	2.4	J	10	0.48	ug/L		11/22/17 14:15	11/27/17 18:15	1
1,4-Dichlorobenzene	3.4	J	10	0.46	ug/L		11/22/17 14:15	11/27/17 18:15	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 18:15	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 18:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	93		41 - 120	11/22/17 14:15	11/27/17 18:15	1
2-Fluorobiphenyl	88		48 - 120	11/22/17 14:15	11/27/17 18:15	1
2-Fluorophenol	67		35 - 120	11/22/17 14:15	11/27/17 18:15	1
Nitrobenzene-d5	75		46 - 120	11/22/17 14:15	11/27/17 18:15	1
Phenol-d5	50		22 - 120	11/22/17 14:15	11/27/17 18:15	1
p-Terphenyl-d14	85		59 - 136	11/22/17 14:15	11/27/17 18:15	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:34	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:34	1
Barium	0.069		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:34	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:34	1
Chromium	ND		0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 14:34	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:34	1
Iron	1.0		0.050	0.019	mg/L		11/22/17 09:17	11/29/17 14:34	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:34	1
Magnesium	14.3		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:34	1
Manganese	0.24		0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 14:34	1
Nickel	0.0038	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:34	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:34	1
Sodium	142		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:34	1
Zinc	0.0067	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:05	1

TestAmerica Buffalo

GW-03D Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: FD-112017

Lab Sample ID: 480-127921-6

Date Collected: 11/20/17 00:00

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 02:35	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 02:35	1
Acetone	ND		10	3.0	ug/L			11/25/17 02:35	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 02:35	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/25/17 02:35	1
Toluene-d8 (Surr)	101		80 - 120		11/25/17 02:35	1
4-Bromofluorobenzene (Surr)	99		73 - 120		11/25/17 02:35	1
Dibromofluoromethane (Surr)	98		75 - 123		11/25/17 02:35	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	2.6	J	10	0.48	ug/L		11/22/17 14:15	11/27/17 18:44	1
1,4-Dichlorobenzene	3.8	J	10	0.46	ug/L		11/22/17 14:15	11/27/17 18:44	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 18:44	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 18:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		41 - 120	11/22/17 14:15	11/27/17 18:44	1
2-Fluorobiphenyl	91		48 - 120	11/22/17 14:15	11/27/17 18:44	1
2-Fluorophenol	68		35 - 120	11/22/17 14:15	11/27/17 18:44	1
Nitrobenzene-d5	76		46 - 120	11/22/17 14:15	11/27/17 18:44	1
Phenol-d5	49		22 - 120	11/22/17 14:15	11/27/17 18:44	1
p-Terphenyl-d14	88		59 - 136	11/22/17 14:15	11/27/17 18:44	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:38	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:38	1
Barium	0.070		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:38	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:38	1
Chromium	ND		0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 14:38	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:38	1
Iron	1.0		0.050	0.019	mg/L		11/22/17 09:17	11/29/17 14:38	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:38	1
Magnesium	14.5		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:38	1
Manganese	0.24		0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 14:38	1
Nickel	0.0038	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:38	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:38	1
Sodium	144		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:38	1
Zinc	0.0065	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:38	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:06	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-03S

Lab Sample ID: 480-127921-7

Date Collected: 11/20/17 16:00

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 02:59	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 02:59	1
Acetone	ND		10	3.0	ug/L			11/25/17 02:59	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 02:59	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 02:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/25/17 02:59	1
Toluene-d8 (Surr)	99		80 - 120		11/25/17 02:59	1
4-Bromofluorobenzene (Surr)	96		73 - 120		11/25/17 02:59	1
Dibromofluoromethane (Surr)	102		75 - 123		11/25/17 02:59	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 19:13	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 19:13	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 19:13	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 19:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	98		41 - 120	11/22/17 14:15	11/27/17 19:13	1
2-Fluorobiphenyl	91		48 - 120	11/22/17 14:15	11/27/17 19:13	1
2-Fluorophenol	67		35 - 120	11/22/17 14:15	11/27/17 19:13	1
Nitrobenzene-d5	76		46 - 120	11/22/17 14:15	11/27/17 19:13	1
Phenol-d5	50		22 - 120	11/22/17 14:15	11/27/17 19:13	1
p-Terphenyl-d14	81		59 - 136	11/22/17 14:15	11/27/17 19:13	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:42	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:42	1
Barium	0.11		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:42	1
Cadmium	0.0010		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:42	1
Chromium	0.021		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 12:56	1
Copper	0.0028	J	0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:42	1
Iron	0.50		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 16:58	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:42	1
Magnesium	105		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:42	1
Manganese	0.087		0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 16:58	1
Nickel	0.045		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:42	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:42	1
Sodium	79.9		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:42	1
Zinc	0.015		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:08	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-04D

Lab Sample ID: 480-127921-9

Date Collected: 11/21/17 09:06

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/26/17 17:25	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			11/26/17 17:25	1
Acetone	ND		10	3.0	ug/L			11/26/17 17:25	1
Benzene	ND		1.0	0.41	ug/L			11/26/17 17:25	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/26/17 17:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		11/26/17 17:25	1
Toluene-d8 (Surr)	99		80 - 120		11/26/17 17:25	1
4-Bromofluorobenzene (Surr)	100		73 - 120		11/26/17 17:25	1
Dibromofluoromethane (Surr)	100		75 - 123		11/26/17 17:25	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 19:42	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 19:42	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 19:42	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 19:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		41 - 120	11/22/17 14:15	11/27/17 19:42	1
2-Fluorobiphenyl	80		48 - 120	11/22/17 14:15	11/27/17 19:42	1
2-Fluorophenol	59		35 - 120	11/22/17 14:15	11/27/17 19:42	1
Nitrobenzene-d5	67		46 - 120	11/22/17 14:15	11/27/17 19:42	1
Phenol-d5	46		22 - 120	11/22/17 14:15	11/27/17 19:42	1
p-Terphenyl-d14	76		59 - 136	11/22/17 14:15	11/27/17 19:42	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:56	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:56	1
Barium	0.092		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:56	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:56	1
Chromium	0.0029	J	0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:11	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:56	1
Iron	0.38		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:02	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:56	1
Magnesium	77.5		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:56	1
Manganese	0.024	B	0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:02	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:56	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:56	1
Sodium	89.3		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:56	1
Zinc	0.043		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:56	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:10	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-04S

Lab Sample ID: 480-127921-8

Date Collected: 11/21/17 07:45

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/26/17 17:02	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/26/17 17:02	1
Acetone	ND		10	3.0	ug/L			11/26/17 17:02	1
Benzene	ND		1.0	0.41	ug/L			11/26/17 17:02	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/26/17 17:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/26/17 17:02	1
Toluene-d8 (Surr)	105		80 - 120		11/26/17 17:02	1
4-Bromofluorobenzene (Surr)	101		73 - 120		11/26/17 17:02	1
Dibromofluoromethane (Surr)	105		75 - 123		11/26/17 17:02	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-04S

Lab Sample ID: 480-127921-10

Date Collected: 11/21/17 09:15

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 20:11	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 20:11	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 20:11	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 20:11	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		41 - 120				11/22/17 14:15	11/27/17 20:11	1
2-Fluorobiphenyl	94		48 - 120				11/22/17 14:15	11/27/17 20:11	1
2-Fluorophenol	68		35 - 120				11/22/17 14:15	11/27/17 20:11	1
Nitrobenzene-d5	80		46 - 120				11/22/17 14:15	11/27/17 20:11	1
Phenol-d5	53		22 - 120				11/22/17 14:15	11/27/17 20:11	1
p-Terphenyl-d14	95		59 - 136				11/22/17 14:15	11/27/17 20:11	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 14:59	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 14:59	1
Barium	0.12		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 14:59	1
Cadmium	0.00059	J	0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 14:59	1
Chromium	0.0063		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:14	1
Copper	0.0031	J	0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 14:59	1
Iron	2.5		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:05	1
Lead	0.0037	J	0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 14:59	1
Magnesium	26.9		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 14:59	1
Manganese	0.10		0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:05	1
Nickel	0.0064	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 14:59	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 14:59	1
Sodium	30.2		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 14:59	1
Zinc	0.0089	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 14:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:13	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-07D

Lab Sample ID: 480-127921-2

Date Collected: 11/20/17 09:40

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 01:26	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 01:26	1
Acetone	ND		10	3.0	ug/L			11/25/17 01:26	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 01:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 01:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120					11/25/17 01:26	1
Toluene-d8 (Surr)	98		80 - 120					11/25/17 01:26	1
4-Bromofluorobenzene (Surr)	96		73 - 120					11/25/17 01:26	1
Dibromofluoromethane (Surr)	99		75 - 123					11/25/17 01:26	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-07D

Lab Sample ID: 480-127921-12

Date Collected: 11/21/17 09:50

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 21:09	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 21:09	1
Bis(2-ethylhexyl) phthalate	3.7	J	5.0	2.2	ug/L		11/22/17 14:15	11/27/17 21:09	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 21:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	102		41 - 120	11/22/17 14:15	11/27/17 21:09	1
2-Fluorobiphenyl	94		48 - 120	11/22/17 14:15	11/27/17 21:09	1
2-Fluorophenol	69		35 - 120	11/22/17 14:15	11/27/17 21:09	1
Nitrobenzene-d5	80		46 - 120	11/22/17 14:15	11/27/17 21:09	1
Phenol-d5	53		22 - 120	11/22/17 14:15	11/27/17 21:09	1
p-Terphenyl-d14	76		59 - 136	11/22/17 14:15	11/27/17 21:09	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:07	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:07	1
Barium	0.078		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:07	1
Cadmium	0.0011		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:07	1
Chromium	0.14		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:22	1
Copper	0.016		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:07	1
Iron	4.5		0.050	0.019	mg/L		11/22/17 09:17	11/29/17 15:07	1
Lead	0.072		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:07	1
Magnesium	37.2		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:07	1
Manganese	0.068		0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 15:07	1
Nickel	0.070		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:07	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:07	1
Sodium	78.4		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:07	1
Zinc	0.047		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:07	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:16	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-07S

Lab Sample ID: 480-127921-1

Date Collected: 11/20/17 09:35

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/25/17 01:03	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/25/17 01:03	1
Acetone	ND		10	3.0	ug/L			11/25/17 01:03	1
Benzene	ND		1.0	0.41	ug/L			11/25/17 01:03	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/25/17 01:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		11/25/17 01:03	1
Toluene-d8 (Surr)	101		80 - 120		11/25/17 01:03	1
4-Bromofluorobenzene (Surr)	99		73 - 120		11/25/17 01:03	1
Dibromofluoromethane (Surr)	97		75 - 123		11/25/17 01:03	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-07S

Lab Sample ID: 480-127921-11

Date Collected: 11/21/17 09:35

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 20:40	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 20:40	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 20:40	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		41 - 120	11/22/17 14:15	11/27/17 20:40	1
2-Fluorobiphenyl	97		48 - 120	11/22/17 14:15	11/27/17 20:40	1
2-Fluorophenol	75		35 - 120	11/22/17 14:15	11/27/17 20:40	1
Nitrobenzene-d5	83		46 - 120	11/22/17 14:15	11/27/17 20:40	1
Phenol-d5	57		22 - 120	11/22/17 14:15	11/27/17 20:40	1
p-Terphenyl-d14	86		59 - 136	11/22/17 14:15	11/27/17 20:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:03	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:03	1
Barium	0.35		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:03	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:03	1
Chromium	0.0016	J	0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:18	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:03	1
Iron	0.18		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:09	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:03	1
Magnesium	40.4		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:03	1
Manganese	0.082	B	0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:09	1
Nickel	0.016		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:03	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:03	1
Sodium	59.3		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:03	1
Zinc	0.0028	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:14	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08D

Lab Sample ID: 480-127921-15

Date Collected: 11/21/17 13:30

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 11:57	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 11:57	1
Acetone	ND		10	3.0	ug/L			11/27/17 11:57	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 11:57	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 11:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/27/17 11:57	1
Toluene-d8 (Surr)	100		80 - 120		11/27/17 11:57	1
4-Bromofluorobenzene (Surr)	101		73 - 120		11/27/17 11:57	1
Dibromofluoromethane (Surr)	101		75 - 123		11/27/17 11:57	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 22:36	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 22:36	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 22:36	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 22:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	74		41 - 120	11/22/17 14:15	11/27/17 22:36	1
2-Fluorobiphenyl	88		48 - 120	11/22/17 14:15	11/27/17 22:36	1
2-Fluorophenol	66		35 - 120	11/22/17 14:15	11/27/17 22:36	1
Nitrobenzene-d5	75		46 - 120	11/22/17 14:15	11/27/17 22:36	1
Phenol-d5	49		22 - 120	11/22/17 14:15	11/27/17 22:36	1
p-Terphenyl-d14	84		59 - 136	11/22/17 14:15	11/27/17 22:36	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:18	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:18	1
Barium	0.072		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:18	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:18	1
Chromium	0.0066		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:29	1
Copper	0.0026	J	0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:18	1
Iron	0.097		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:16	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:18	1
Magnesium	14.8		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:18	1
Manganese	0.034	B	0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:16	1
Nickel	0.0029	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:18	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:18	1
Sodium	184		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:18	1
Zinc	0.032		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:18	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:25	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08SR

Lab Sample ID: 480-127921-14

Date Collected: 11/21/17 12:22

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 11:34	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			11/27/17 11:34	1
Acetone	ND		10	3.0	ug/L			11/27/17 11:34	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 11:34	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 11:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		11/27/17 11:34	1
Toluene-d8 (Surr)	99		80 - 120		11/27/17 11:34	1
4-Bromofluorobenzene (Surr)	97		73 - 120		11/27/17 11:34	1
Dibromofluoromethane (Surr)	105		75 - 123		11/27/17 11:34	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 22:07	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 22:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 22:07	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 22:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	91		41 - 120	11/22/17 14:15	11/27/17 22:07	1
2-Fluorobiphenyl	96		48 - 120	11/22/17 14:15	11/27/17 22:07	1
2-Fluorophenol	73		35 - 120	11/22/17 14:15	11/27/17 22:07	1
Nitrobenzene-d5	82		46 - 120	11/22/17 14:15	11/27/17 22:07	1
Phenol-d5	55		22 - 120	11/22/17 14:15	11/27/17 22:07	1
p-Terphenyl-d14	87		59 - 136	11/22/17 14:15	11/27/17 22:07	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:14	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:14	1
Barium	0.12		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:14	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:14	1
Chromium	ND	JS	0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 15:14	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:14	1
Iron	7.0	JS	0.050	0.019	mg/L		11/22/17 09:17	11/29/17 15:14	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:14	1
Magnesium	57.2		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:14	1
Manganese	0.78	JS	0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 15:14	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:14	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:14	1
Sodium	136		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:14	1
Zinc	ND		0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:20	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-26D

Lab Sample ID: 480-127921-18

Date Collected: 11/21/17 16:30

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 13:07	1
1,2-Dichloroethene, Total	0.90	J	2.0	0.81	ug/L			11/27/17 13:07	1
Acetone	ND		10	3.0	ug/L			11/27/17 13:07	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 13:07	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 13:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/27/17 13:07	1
Toluene-d8 (Surr)	100		80 - 120		11/27/17 13:07	1
4-Bromofluorobenzene (Surr)	99		73 - 120		11/27/17 13:07	1
Dibromofluoromethane (Surr)	100		75 - 123		11/27/17 13:07	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/28/17 00:03	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/28/17 00:03	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/28/17 00:03	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/28/17 00:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		41 - 120	11/22/17 14:15	11/28/17 00:03	1
2-Fluorobiphenyl	92		48 - 120	11/22/17 14:15	11/28/17 00:03	1
2-Fluorophenol	68		35 - 120	11/22/17 14:15	11/28/17 00:03	1
Nitrobenzene-d5	76		46 - 120	11/22/17 14:15	11/28/17 00:03	1
Phenol-d5	52		22 - 120	11/22/17 14:15	11/28/17 00:03	1
p-Terphenyl-d14	87		59 - 136	11/22/17 14:15	11/28/17 00:03	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:39	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	12/01/17 17:27	1
Barium	0.11		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:39	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:39	1
Chromium	ND		0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 15:39	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:39	1
Iron	2.9		0.050	0.019	mg/L		11/22/17 09:17	11/29/17 15:39	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:39	1
Magnesium	16.8		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:39	1
Manganese	0.37		0.0030	0.00040	mg/L		11/22/17 09:17	11/29/17 15:39	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:39	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:39	1
Sodium	246		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:39	1
Zinc	0.0083	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:39	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:30	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-28S

Lab Sample ID: 480-127921-16

Date Collected: 11/21/17 14:15

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 12:20	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 12:20	1
Acetone	ND		10	3.0	ug/L			11/27/17 12:20	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 12:20	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 12:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		11/27/17 12:20	1
Toluene-d8 (Surr)	102		80 - 120		11/27/17 12:20	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/27/17 12:20	1
Dibromofluoromethane (Surr)	101		75 - 123		11/27/17 12:20	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 23:05	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 23:05	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 23:05	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 23:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	78		41 - 120	11/22/17 14:15	11/27/17 23:05	1
2-Fluorobiphenyl	97		48 - 120	11/22/17 14:15	11/27/17 23:05	1
2-Fluorophenol	71		35 - 120	11/22/17 14:15	11/27/17 23:05	1
Nitrobenzene-d5	84		46 - 120	11/22/17 14:15	11/27/17 23:05	1
Phenol-d5	52		22 - 120	11/22/17 14:15	11/27/17 23:05	1
p-Terphenyl-d14	82		59 - 136	11/22/17 14:15	11/27/17 23:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:21	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:21	1
Barium	0.089		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:21	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:21	1
Chromium	ND		0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 15:21	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:21	1
Iron	0.12		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:20	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:21	1
Magnesium	27.4		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:21	1
Manganese	1.0		0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:20	1
Nickel	0.0014	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:21	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:21	1
Sodium	15.7		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:21	1
Zinc	0.0024	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:27	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-29S

Lab Sample ID: 480-127965-1

Date Collected: 11/22/17 08:37

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 15:26	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			11/27/17 15:26	1
Acetone	ND		10	3.0	ug/L			11/27/17 15:26	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 15:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/27/17 15:26	1
Toluene-d8 (Surr)	99		80 - 120		11/27/17 15:26	1
4-Bromofluorobenzene (Surr)	98		73 - 120		11/27/17 15:26	1
Dibromofluoromethane (Surr)	104		75 - 123		11/27/17 15:26	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/24/17 17:14	11/27/17 19:41	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/24/17 17:14	11/27/17 19:41	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/24/17 17:14	11/27/17 19:41	1
Phenol	ND		5.0	0.39	ug/L		11/24/17 17:14	11/27/17 19:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		41 - 120	11/24/17 17:14	11/27/17 19:41	1
2-Fluorobiphenyl	92		48 - 120	11/24/17 17:14	11/27/17 19:41	1
2-Fluorophenol	71		35 - 120	11/24/17 17:14	11/27/17 19:41	1
Nitrobenzene-d5	91		46 - 120	11/24/17 17:14	11/27/17 19:41	1
Phenol-d5	55		22 - 120	11/24/17 17:14	11/27/17 19:41	1
p-Terphenyl-d14	94		59 - 136	11/24/17 17:14	11/27/17 19:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/27/17 08:20	12/02/17 14:24	1
Arsenic	0.012		0.010	0.0056	mg/L		11/27/17 08:20	12/02/17 14:24	1
Barium	0.18		0.0020	0.00070	mg/L		11/27/17 08:20	12/02/17 14:24	1
Cadmium	ND		0.0010	0.00050	mg/L		11/27/17 08:20	12/02/17 14:24	1
Chromium	ND		0.0040	0.0010	mg/L		11/27/17 08:20	12/02/17 14:24	1
Copper	ND		0.010	0.0016	mg/L		11/27/17 08:20	12/02/17 14:24	1
Iron	10.2		0.050	0.019	mg/L		11/27/17 08:20	12/02/17 14:24	1
Lead	ND		0.0050	0.0030	mg/L		11/27/17 08:20	12/02/17 14:24	1
Magnesium	69.6		0.20	0.043	mg/L		11/27/17 08:20	12/02/17 14:24	1
Manganese	0.48		0.0030	0.00040	mg/L		11/27/17 08:20	12/02/17 14:24	1
Nickel	ND		0.010	0.0013	mg/L		11/27/17 08:20	12/02/17 14:24	1
Silver	ND		0.0030	0.0017	mg/L		11/27/17 08:20	12/02/17 14:24	1
Sodium	10.0		1.0	0.32	mg/L		11/27/17 08:20	12/02/17 14:24	1
Zinc	0.0021	J	0.010	0.0015	mg/L		11/27/17 08:20	12/02/17 14:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/17 13:25	11/28/17 17:19	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-30S

Lab Sample ID: 480-127965-2

Date Collected: 11/22/17 09:20

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			11/27/17 15:49	2
1,2-Dichloroethene, Total	ND		4.0	1.6	ug/L			11/27/17 15:49	2
Acetone	ND		20	6.0	ug/L			11/27/17 15:49	2
Benzene	ND		2.0	0.82	ug/L			11/27/17 15:49	2
Vinyl chloride	ND		2.0	1.8	ug/L			11/27/17 15:49	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		11/27/17 15:49	2
Toluene-d8 (Surr)	101		80 - 120		11/27/17 15:49	2
4-Bromofluorobenzene (Surr)	99		73 - 120		11/27/17 15:49	2
Dibromofluoromethane (Surr)	100		75 - 123		11/27/17 15:49	2

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/24/17 17:14	11/27/17 20:09	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/24/17 17:14	11/27/17 20:09	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/24/17 17:14	11/27/17 20:09	1
Phenol	ND		5.0	0.39	ug/L		11/24/17 17:14	11/27/17 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	84		41 - 120	11/24/17 17:14	11/27/17 20:09	1
2-Fluorobiphenyl	86		48 - 120	11/24/17 17:14	11/27/17 20:09	1
2-Fluorophenol	67		35 - 120	11/24/17 17:14	11/27/17 20:09	1
Nitrobenzene-d5	84		46 - 120	11/24/17 17:14	11/27/17 20:09	1
Phenol-d5	50		22 - 120	11/24/17 17:14	11/27/17 20:09	1
p-Terphenyl-d14	84		59 - 136	11/24/17 17:14	11/27/17 20:09	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		11/27/17 08:20	12/02/17 14:39	1
Arsenic	ND		0.010	0.0056	mg/L		11/27/17 08:20	12/02/17 14:39	1
Barium	0.28		0.0020	0.00070	mg/L		11/27/17 08:20	12/02/17 14:39	1
Cadmium	ND		0.0010	0.00050	mg/L		11/27/17 08:20	12/02/17 14:39	1
Chromium	ND		0.0040	0.0010	mg/L		11/27/17 08:20	12/02/17 14:39	1
Copper	ND		0.010	0.0016	mg/L		11/27/17 08:20	12/02/17 14:39	1
Iron	13.4		0.050	0.019	mg/L		11/27/17 08:20	12/02/17 14:39	1
Lead	ND		0.0050	0.0030	mg/L		11/27/17 08:20	12/02/17 14:39	1
Magnesium	37.9		0.20	0.043	mg/L		11/27/17 08:20	12/02/17 14:39	1
Manganese	2.1		0.0030	0.00040	mg/L		11/27/17 08:20	12/02/17 14:39	1
Nickel	ND		0.010	0.0013	mg/L		11/27/17 08:20	12/02/17 14:39	1
Silver	ND		0.0030	0.0017	mg/L		11/27/17 08:20	12/02/17 14:39	1
Sodium	446		1.0	0.32	mg/L		11/27/17 08:20	12/02/17 14:39	1
Zinc	ND		0.010	0.0015	mg/L		11/27/17 08:20	12/02/17 14:39	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/17 13:25	11/28/17 17:21	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-31S

Lab Sample ID: 480-127965-3

Date Collected: 11/22/17 10:03

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 16:12	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 16:12	1
Acetone	ND		10	3.0	ug/L			11/27/17 16:12	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 16:12	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 16:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/27/17 16:12	1
Toluene-d8 (Surr)	98		80 - 120		11/27/17 16:12	1
4-Bromofluorobenzene (Surr)	98		73 - 120		11/27/17 16:12	1
Dibromofluoromethane (Surr)	99		75 - 123		11/27/17 16:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/24/17 17:14	11/27/17 20:37	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/24/17 17:14	11/27/17 20:37	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/24/17 17:14	11/27/17 20:37	1
Phenol	ND		5.0	0.39	ug/L		11/24/17 17:14	11/27/17 20:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		41 - 120	11/24/17 17:14	11/27/17 20:37	1
2-Fluorobiphenyl	96		48 - 120	11/24/17 17:14	11/27/17 20:37	1
2-Fluorophenol	74		35 - 120	11/24/17 17:14	11/27/17 20:37	1
Nitrobenzene-d5	96		46 - 120	11/24/17 17:14	11/27/17 20:37	1
Phenol-d5	56		22 - 120	11/24/17 17:14	11/27/17 20:37	1
p-Terphenyl-d14	96		59 - 136	11/24/17 17:14	11/27/17 20:37	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/27/17 08:20	12/02/17 14:43	1
Arsenic	ND		0.010	0.0056	mg/L		11/27/17 08:20	12/02/17 14:43	1
Barium	0.080		0.0020	0.00070	mg/L		11/27/17 08:20	12/02/17 14:43	1
Cadmium	0.00051	J	0.0010	0.00050	mg/L		11/27/17 08:20	12/02/17 14:43	1
Chromium	ND		0.0040	0.0010	mg/L		11/27/17 08:20	12/02/17 14:43	1
Copper	ND		0.010	0.0016	mg/L		11/27/17 08:20	12/02/17 14:43	1
Iron	1.1		0.050	0.019	mg/L		11/27/17 08:20	12/02/17 14:43	1
Lead	ND		0.0050	0.0030	mg/L		11/27/17 08:20	12/02/17 14:43	1
Magnesium	26.5		0.20	0.043	mg/L		11/27/17 08:20	12/02/17 14:43	1
Manganese	0.83		0.0030	0.00040	mg/L		11/27/17 08:20	12/02/17 14:43	1
Nickel	0.0027	J	0.010	0.0013	mg/L		11/27/17 08:20	12/02/17 14:43	1
Silver	ND		0.0030	0.0017	mg/L		11/27/17 08:20	12/02/17 14:43	1
Sodium	3.9		1.0	0.32	mg/L		11/27/17 08:20	12/02/17 14:43	1
Zinc	0.0040	J	0.010	0.0015	mg/L		11/27/17 08:20	12/02/17 14:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/17 13:25	11/28/17 17:23	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-32S

Lab Sample ID: 480-127965-4

Date Collected: 11/22/17 10:48

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 16:36	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 16:36	1
Acetone	ND		10	3.0	ug/L			11/27/17 16:36	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 16:36	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		11/27/17 16:36	1
Toluene-d8 (Surr)	100		80 - 120		11/27/17 16:36	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/27/17 16:36	1
Dibromofluoromethane (Surr)	100		75 - 123		11/27/17 16:36	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/24/17 17:14	11/27/17 21:04	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/24/17 17:14	11/27/17 21:04	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/24/17 17:14	11/27/17 21:04	1
Phenol	ND		5.0	0.39	ug/L		11/24/17 17:14	11/27/17 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	70		41 - 120	11/24/17 17:14	11/27/17 21:04	1
2-Fluorobiphenyl	89		48 - 120	11/24/17 17:14	11/27/17 21:04	1
2-Fluorophenol	67		35 - 120	11/24/17 17:14	11/27/17 21:04	1
Nitrobenzene-d5	88		46 - 120	11/24/17 17:14	11/27/17 21:04	1
Phenol-d5	51		22 - 120	11/24/17 17:14	11/27/17 21:04	1
p-Terphenyl-d14	91		59 - 136	11/24/17 17:14	11/27/17 21:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/27/17 08:20	12/02/17 14:46	1
Arsenic	ND		0.010	0.0056	mg/L		11/27/17 08:20	12/02/17 14:46	1
Barium	0.051		0.0020	0.00070	mg/L		11/27/17 08:20	12/02/17 14:46	1
Cadmium	ND		0.0010	0.00050	mg/L		11/27/17 08:20	12/02/17 14:46	1
Chromium	ND		0.0040	0.0010	mg/L		11/27/17 08:20	12/02/17 14:46	1
Copper	ND		0.010	0.0016	mg/L		11/27/17 08:20	12/02/17 14:46	1
Iron	ND		0.050	0.019	mg/L		11/27/17 08:20	12/02/17 14:46	1
Lead	ND		0.0050	0.0030	mg/L		11/27/17 08:20	12/02/17 14:46	1
Magnesium	24.4		0.20	0.043	mg/L		11/27/17 08:20	12/02/17 14:46	1
Manganese	0.21		0.0030	0.00040	mg/L		11/27/17 08:20	12/02/17 14:46	1
Nickel	ND		0.010	0.0013	mg/L		11/27/17 08:20	12/02/17 14:46	1
Silver	ND		0.0030	0.0017	mg/L		11/27/17 08:20	12/02/17 14:46	1
Sodium	4.4		1.0	0.32	mg/L		11/27/17 08:20	12/02/17 14:46	1
Zinc	ND		0.010	0.0015	mg/L		11/27/17 08:20	12/02/17 14:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/17 13:25	11/28/17 17:24	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-33S

Lab Sample ID: 480-127965-5

Date Collected: 11/22/17 11:40

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 16:59	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 16:59	1
Acetone	ND		10	3.0	ug/L			11/27/17 16:59	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 16:59	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/27/17 16:59	1
Toluene-d8 (Surr)	102		80 - 120		11/27/17 16:59	1
4-Bromofluorobenzene (Surr)	100		73 - 120		11/27/17 16:59	1
Dibromofluoromethane (Surr)	102		75 - 123		11/27/17 16:59	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/24/17 17:14	11/27/17 21:31	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/24/17 17:14	11/27/17 21:31	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/24/17 17:14	11/27/17 21:31	1
Phenol	ND		5.0	0.39	ug/L		11/24/17 17:14	11/27/17 21:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	76		41 - 120	11/24/17 17:14	11/27/17 21:31	1
2-Fluorobiphenyl	98		48 - 120	11/24/17 17:14	11/27/17 21:31	1
2-Fluorophenol	75		35 - 120	11/24/17 17:14	11/27/17 21:31	1
Nitrobenzene-d5	99		46 - 120	11/24/17 17:14	11/27/17 21:31	1
Phenol-d5	58		22 - 120	11/24/17 17:14	11/27/17 21:31	1
p-Terphenyl-d14	100		59 - 136	11/24/17 17:14	11/27/17 21:31	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/27/17 08:20	12/02/17 14:50	1
Arsenic	ND		0.010	0.0056	mg/L		11/27/17 08:20	12/02/17 14:50	1
Barium	0.057		0.0020	0.00070	mg/L		11/27/17 08:20	12/02/17 14:50	1
Cadmium	0.00050	J	0.0010	0.00050	mg/L		11/27/17 08:20	12/02/17 14:50	1
Chromium	0.0010	J	0.0040	0.0010	mg/L		11/27/17 08:20	12/02/17 14:50	1
Copper	ND		0.010	0.0016	mg/L		11/27/17 08:20	12/02/17 14:50	1
Iron	0.027	J	0.050	0.019	mg/L		11/27/17 08:20	12/02/17 14:50	1
Lead	ND		0.0050	0.0030	mg/L		11/27/17 08:20	12/02/17 14:50	1
Magnesium	33.3		0.20	0.043	mg/L		11/27/17 08:20	12/02/17 14:50	1
Manganese	0.019		0.0030	0.00040	mg/L		11/27/17 08:20	12/02/17 14:50	1
Nickel	ND		0.010	0.0013	mg/L		11/27/17 08:20	12/02/17 14:50	1
Silver	ND		0.0030	0.0017	mg/L		11/27/17 08:20	12/02/17 14:50	1
Sodium	3.1		1.0	0.32	mg/L		11/27/17 08:20	12/02/17 14:50	1
Zinc	0.0015	J	0.010	0.0015	mg/L		11/27/17 08:20	12/02/17 14:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/17 13:25	11/28/17 17:26	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-34S

Lab Sample ID: 480-127921-13

Date Collected: 11/21/17 10:58

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND	F1	1.0	0.23	ug/L			11/27/17 11:11	1
1,2-Dichloroethane, Total	ND	F1	2.0	0.81	ug/L			11/27/17 11:11	1
Acetone	ND		10	3.0	ug/L			11/27/17 11:11	1
Benzene	ND	F1	1.0	0.41	ug/L			11/27/17 11:11	1
Vinyl chloride	ND	F1	1.0	0.90	ug/L			11/27/17 11:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/27/17 11:11	1
Toluene-d8 (Surr)	102		80 - 120		11/27/17 11:11	1
4-Bromofluorobenzene (Surr)	98		73 - 120		11/27/17 11:11	1
Dibromofluoromethane (Surr)	99		75 - 123		11/27/17 11:11	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 21:38	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 21:38	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 21:38	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 21:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	81		41 - 120	11/22/17 14:15	11/27/17 21:38	1
2-Fluorobiphenyl	93		48 - 120	11/22/17 14:15	11/27/17 21:38	1
2-Fluorophenol	71		35 - 120	11/22/17 14:15	11/27/17 21:38	1
Nitrobenzene-d5	79		46 - 120	11/22/17 14:15	11/27/17 21:38	1
Phenol-d5	52		22 - 120	11/22/17 14:15	11/27/17 21:38	1
p-Terphenyl-d14	90		59 - 136	11/22/17 14:15	11/27/17 21:38	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:10	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:10	1
Barium	0.11		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:10	1
Cadmium	0.00058	J	0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:10	1
Chromium	0.013		0.0040	0.0010	mg/L		12/06/17 10:20	12/07/17 13:25	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:10	1
Iron	0.058		0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:13	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:10	1
Magnesium	47.7		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:10	1
Manganese	0.014	✓	0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:13	1
Nickel	0.0088	J	0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:10	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:10	1
Sodium	26.1		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:10	1
Zinc	0.0025	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:10	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:18	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-35S

Lab Sample ID: 480-127921-17

Date Collected: 11/21/17 15:22

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 12:43	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			11/27/17 12:43	1
Acetone	ND		10	3.0	ug/L			11/27/17 12:43	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 12:43	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/27/17 12:43	1
Toluene-d8 (Surr)	100		80 - 120		11/27/17 12:43	1
4-Bromofluorobenzene (Surr)	99		73 - 120		11/27/17 12:43	1
Dibromofluoromethane (Surr)	103		75 - 123		11/27/17 12:43	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/22/17 14:15	11/27/17 23:34	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/22/17 14:15	11/27/17 23:34	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/22/17 14:15	11/27/17 23:34	1
Phenol	ND		5.0	0.39	ug/L		11/22/17 14:15	11/27/17 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	71		41 - 120	11/22/17 14:15	11/27/17 23:34	1
2-Fluorobiphenyl	89		48 - 120	11/22/17 14:15	11/27/17 23:34	1
2-Fluorophenol	70		35 - 120	11/22/17 14:15	11/27/17 23:34	1
Nitrobenzene-d5	77		46 - 120	11/22/17 14:15	11/27/17 23:34	1
Phenol-d5	54		22 - 120	11/22/17 14:15	11/27/17 23:34	1
p-Terphenyl-d14	94		59 - 136	11/22/17 14:15	11/27/17 23:34	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/22/17 09:17	11/29/17 15:25	1
Arsenic	ND		0.010	0.0056	mg/L		11/22/17 09:17	11/29/17 15:25	1
Barium	0.089		0.0020	0.00070	mg/L		11/22/17 09:17	11/29/17 15:25	1
Cadmium	ND		0.0010	0.00050	mg/L		11/22/17 09:17	11/29/17 15:25	1
Chromium	ND		0.0040	0.0010	mg/L		11/22/17 09:17	11/29/17 15:25	1
Copper	ND		0.010	0.0016	mg/L		11/22/17 09:17	11/29/17 15:25	1
Iron	0.033	J	0.050	0.019	mg/L		11/22/17 09:17	12/01/17 17:24	1
Lead	ND		0.0050	0.0030	mg/L		11/22/17 09:17	11/29/17 15:25	1
Magnesium	22.9		0.20	0.043	mg/L		11/22/17 09:17	11/29/17 15:25	1
Manganese	0.071	B	0.0030	0.00040	mg/L		11/22/17 09:17	12/01/17 17:24	1
Nickel	ND		0.010	0.0013	mg/L		11/22/17 09:17	11/29/17 15:25	1
Silver	ND		0.0030	0.0017	mg/L		11/22/17 09:17	11/29/17 15:25	1
Sodium	2.6		1.0	0.32	mg/L		11/22/17 09:17	11/29/17 15:25	1
Zinc	0.0024	J	0.010	0.0015	mg/L		11/22/17 09:17	11/29/17 15:25	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/17 11:55	11/24/17 17:29	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127921-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: TB-112017-112117

Lab Sample ID: 480-127921-19

Date Collected: 11/21/17 00:00

Matrix: Water

Date Received: 11/21/17 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 13:30	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 13:30	1
Acetone	ND		10	3.0	ug/L			11/27/17 13:30	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 13:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		11/27/17 13:30	1
Toluene-d8 (Surr)	101		80 - 120		11/27/17 13:30	1
4-Bromofluorobenzene (Surr)	97		73 - 120		11/27/17 13:30	1
Dibromofluoromethane (Surr)	102		75 - 123		11/27/17 13:30	1

Client Sample Results

Client: AECOM, Inc.

TestAmerica Job ID: 480-127965-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: TB-112217

Lab Sample ID: 480-127965-6

Date Collected: 11/22/17 00:00

Matrix: Water

Date Received: 11/22/17 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/27/17 17:22	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/27/17 17:22	1
Acetone	ND		10	3.0	ug/L			11/27/17 17:22	1
Benzene	ND		1.0	0.41	ug/L			11/27/17 17:22	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/27/17 17:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120					11/27/17 17:22	1
Toluene-d8 (Surr)	100		80 - 120					11/27/17 17:22	1
4-Bromofluorobenzene (Surr)	97		73 - 120					11/27/17 17:22	1
Dibromofluoromethane (Surr)	99		75 - 123					11/27/17 17:22	1

APPENDIX B

SUPPORT DOCUMENTATION

CHAIN OF CUSTODY RECORD

PROJECT NO. 60411174
 SAMPERS (PRINT SIGNATURE) ROB MUEHLER / Rob Muehl
 SITE NAME PFIZER Brothers Landfill
 DELIVERY SERVICE: Drop off AIRBILL NO.: —

LAB Test America
 COOLER 1 + 2 of 2
 PAGE 1 of 1

AECOM



480-127921

TESTS

VOCs
Metals
SVOCs

BOTTLE TYPE AND PRESERVATIVE

LOCATION IDENTIFIER	DATE	TIME	COMP/GRAB	SAMPLE ID	MATRIX	TOTAL NO. # OF CONTAINERS	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO. # (RPMs ONLY)
Gw-075	11/20/17	0935	G	Gw-075	WG	3		N ₁			
Gw-072	11/20/17	0940	G	Gw-072	WG	3		N ₁			
Gw-015	11/20/17	1217	G	Gw-015	WG	6		N ₁			
Gw-010	11/20/17	1336	G	Gw-010	WG	6		N ₁			
Gw-010	11/20/17	1336	G	Gw-010-MSD	WG	6		MS			
Gw-010	11/20/17	1336	G	Gw-010-MSD	WG	6		MS			
Gw-030	11/20/17	1520	G	Gw-030	WG	6		N ₁			
FIELD DUB	11/20/17	1600	G	FD-112017	WG	6		N ₁			
Gw-035	11/20/17	0745	G	Gw-035	WG	6		N ₁			
Gw-045	11/20/17	0745	G	Gw-045	WG	3		N ₁			
Gw-040	11/20/17	0906	G	Gw-040	WG	6		N ₁			
Gw-045	11/20/17	0915	G	Gw-045	WG	3		N ₁			
Gw-075	11/20/17	0935	G	Gw-075	WG	3		N ₁			

MATRIX TYPE CODES	AA - AMBIENT AIR SE - SEDIMENT SH - HAZARDOUS SOLID WASTE	SL - SLUDGE WP - DRINKING WATER WW - WASTE WATER	WG - GROUND WATER SO - SOIL DC - DRILL CUTTINGS	WL - LEACHATE GS - SOIL GAS WC - DRILLING WATER	WO - OCEAN WATER WS - SURFACE WATER WQ - WATER FIELD QC	LH - HAZARDOUS LIQUID WASTE LF - FLOATING/FREE PRODUCT ON GW TABLE
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SAMPLE TYPE CODES	TB# - TRIP BLANK SD# - MATRIX SPIKE DUPLICATE	RB# - RINSE BLANK FR# - FIELD REPLICATE	N# - NORMAL ENVIRONMENTAL SAMPLE MS# - MATRIX SPIKE	(# SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)		
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RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	SPECIAL INSTRUCTIONS
<u>Bob Muehl</u>	11/20/17	1750	<u>[Signature]</u>	11/21/17	1730	Any Questions Contact Ann Marie Koppley @ 746-856 5636. Samples kept on ice.
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME	

Distribution: Original accompanies shipment, copy to coordinator field files

#1 3.11.17

Case Narrative

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-127921-1

Job ID: 480-127921-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-127921-1

Receipt

The samples were received on 11/21/2017 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.7° C and 3.1° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-389809/38) contained Total Chromium outside the control limits. All reported samples GW-03D (480-127921-5), FD-112017 (480-127921-6), GW-08SR (480-127921-14), GW-28S (480-127921-16) and GW-35S (480-127921-17) associated with this CCVL were either below the laboratory's standard reporting limit for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-389803/38) contained Total Iron and Manganese outside the control limits. All reported samples GW-01S (480-127921-3), GW-03D (480-127921-5), FD-112017 (480-127921-6), GW-07D (480-127921-12) and GW-08SR (480-127921-14) associated with this CCVL were either below the laboratory's standard reporting limit for these analytes or contained these analytes at concentrations greater than 10X the values found in the CCVL; therefore, re-analysis of samples was not performed.

Method(s) 6010C: The Method Blank for preparation batch 480-388775 contained Total Chromium above the reporting limit (RL). None of the samples associated with this method blank GW-03D (480-127921-5), FD-112017 (480-127921-6), GW-08SR (480-127921-14), GW-28S (480-127921-16), GW-35S (480-127921-17) and GW-26D (480-127921-18) contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

CHAIN OF CUSTODY RECORD

PROJECT NO. 60411174 SITE NAME PFOHC BROTHERS LANDFILL
 SAMPLERS (PRINT SIGNATURE) Bob Murrill / Bob Murrill Kevin McCawen / KMM

DELIVERY SERVICE: Drop off AIRBILL NO.: —

LOCATION IDENTIFIER	DATE	TIME	COMP GRAB	SAMPLE ID	MATRIX	TOTAL NO # OF CONTAINERS
Gw-29S	11/22/17	0837	G	Gw-29S	WLG	6
Gw-30S	11/22/17	0920	G	Gw-30S	WLG	6
Gw-31S	11/22/17	1003	G	Gw-31S	WLG	6
Gw-32S	11/22/17	1048	G	Gw-32S	WLG	6
Gw-33S	11/22/17	1140	G	Gw-33S	WLG	6
TRP-24WC	11/22/17	—	G	TR-112217	WQ	2

MATRIX CODES	AA AMBIENT AIR SE SEDIMENT SH HAZARDOUS SOLID WASTE	SL SLUDGE WP DRINKING WATER WW WASTE WATER	WG GROUND WATER SO SOIL DC DRILL CUTTINGS	WL LEACHATE GS SOIL GAS WC DRILLING WATER	WO OCEAN WATER WS SURFACE WATER WQ WATER FIELD QC	LH HAZARDOUS LIQUID WASTE LF FLOATING/FREE PRODUCT ON GW TABLE
SAMPLE TYPE CODES	TB# THIP BLANK SP# MATRIX SPIKE DUPLICATE	RB# RISE BLANK FR# FIELD REPLICATE	N# NORMAL ENVIRONMENTAL SAMPLE MS# MATRIX SPIKE	(* SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)		

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
<i>[Signature]</i>	11/22/17	1330	<i>[Signature]</i>	11/21/17	1730
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME
<i>[Signature]</i>					

Distribution: Original accompanies shipment, copy to coordinator field files

TESTS

VOCs	SVCs	Nekals
BOTTLE TYPE AND PRESERVATIVE		
40ml amber	glass - none	250ml plastic HNCs

REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO # (RPMIS ONLY)
	N ₁			
	N ₁			
	N ₁			
	N ₁			
	N ₁			
	TB ₁			

AECOM

LAB Test America
 COOLER 1 of 1
 PAGE 1 of 1

480-127965 COC

Case Narrative

Client: AECOM, Inc.
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-127965-1

Job ID: 480-127965-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-127965-1

Receipt

The samples were received on 11/22/2017 1:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

GC/MS VOA

Method(s) 8260C: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: GW-30S (480-127965-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

ATTACHMENT C

IC/EC CERTIFICATION



Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



Site No. **915043** **Site Details** **Box 1**

Site Name Pfohl Brothers Landfill

Site Address: Aero Drive and Transit Road Zip Code: 14225
City/Town: Cheektowaga
County: Erie
Site Acreage: 94.0

Reporting Period: February 12, 2017 to February 12, 2018

- | | YES | NO |
|--|-------------------------------------|-------------------------------------|
| 1. Is the information above correct? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| If NO, include handwritten above or on a separate sheet. | | |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form. | | |
| 5. Is the site currently undergoing development? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- | | Box 2 | |
|--|-------------------------------------|--------------------------|
| | YES | NO |
| 6. Is the current site use consistent with the use(s) listed below?
Closed Landfill | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Are all ICs/ECs in place and functioning as designed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Description of Institutional Controls

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
81.04-1-26	William A. Pfohl	Ground Water Use Restriction Soil Management Plan Landuse Restriction Building Use Restriction Surface Water Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

81.04-1-27 Paul Pfohl

Ground Water Use Restriction
Landuse Restriction

Building Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

81.04-1-28.1 Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

81.04-2-10.1 Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

81.04-2-11

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

81.04-2-9.1

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

In accordance with the Declaration of Covenants and Restrictions filed with the Erie County Clerk's Office on 4/25/03 and included as Appendix P in the Remedial Action Construction Report, Vol. II, the following Controls are in place:

- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
- B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs prohibited.
- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

82.03-4-10

Elizabeth L. McBride

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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82.03-4-11

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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82.03-4-5

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

82.03-4-6

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

82.03-4-8

Paul Pfohl

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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82.03-4-9.11

Aero Land, Inc. c/o Jerome Hirsh

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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82.03-4-9.12

Stuart Jenkins

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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82.03-4-9.2

Aero Land, Inc. c/o Jerome Hirsh

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

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Box 4

Description of Engineering Controls

Parcel

Engineering Control

81.04-1-26

Vapor Mitigation
Fencing/Access Control
Cover System
Leachate Collection

81.04-1-27

Cover System
Leachate Collection
Fencing/Access Control
Vapor Mitigation

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

81.04-1-28.1

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

Parcel

Engineering Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

81.04-2-10.1

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

81.04-2-11

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

81.04-2-9.1

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-10

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

82.03-4-11

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-5

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-6

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-8

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-9.11

Vapor Mitigation
Cover System

Parcel

Engineering Control

Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-9.12

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

82.03-4-9.2

Vapor Mitigation
Cover System
Leachate Collection
Fencing/Access Control

For Declaration of Covenants and Restrictions, see Appendix P in the Remedial Action Construction Report, Vol. II

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES NO

☒ ☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO

☒ ☐

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 915043

Box 6

O & M MANAGER

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I PATRICK T. BOWEN, P.E. at TOWN OF CHEEKTOWAGA
275 ALEXANDER AVE., CHEEKTOWAGA, NY 14211
print name print business address

am certifying as SITE O & M MANAGER (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Patrick T. Bowen 6/21/18
Signature of ~~Owner, Remedial Party~~, or Designated Representative Date
Rendering Certification SITE O & M PROVIDER/MANAGER

IC/EC CERTIFICATIONS

Box 7

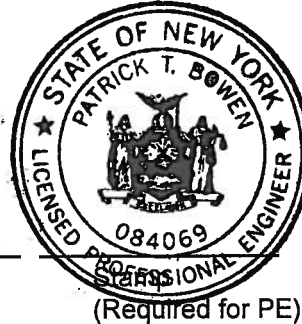
Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I PATRICK T. BOWEN, P.E. at TOWN OF CHEEKTOWAGA
275 ALEXANDER AVE, CHEEKTOWAGA, NY 14211
print name print business address

am certifying as a Professional Engineer for the TOWN OF CHEEKTOWAGA
(Owner or Remedial Party)
SITE O&M PROVIDER/MANAGER

Patrick T. Bowen
Signature of Professional Engineer, for the ~~Owner or~~
~~Remedial Party~~, Rendering Certification
SITE O&M PROVIDER/MANAGER



6/21/18
Date

(Required for PE)