



April 5, 2019

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

**Re: 2018 Periodic Review Report
Pfohl Brothers Landfill, Town of Cheektowaga, New York
Site 915043**

Dear Mr. Szymanski:

Enclosed is the 2018 Periodic Review Report (PRR) for the Pfohl Brothers Landfill in Cheektowaga, New York. URS has prepared this report on the behalf of the Town of Cheektowaga in accordance with your correspondence to Jon Sundquist on April 15, 2014. Specifically, no separate Semi-Annual report for the July-December period is submitted. It is included only as an attachment to this report. Additionally, the Data Applicability Report for each semi-annual period is included.

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

Sincerely,

URS CORPORATION

A handwritten signature in black ink, reading "Robert J. Murphy".

Robert J. Murphy, P.G.
Project Manager

Enclosures

cc: Patrick Bowen, P.E. – Town of Cheektowaga (w/attachments)
File 11172700 (C-1)

**PERIODIC REVIEW REPORT 2018
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY**

Submitted to:

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

Prepared by:

**URS CORPORATION
257 WEST GENESEE STREET, SUITE 400
BUFFALO, NEW YORK 14202**

Prepared for:

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

APRIL 2019

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Figure 2-1 Site Plan

ATTACHMENTS

Attachment A January 2018 – June 2018 Semi Annual Report and Data Applicability Report
Attachment B July 2018 – December 2018 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 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 organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), and metals. 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 stipulated the removal of 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 and Maintenance (O&M) Plan was approved in March 2006 and is being implemented by the Town of Cheektowaga.

1.2 Effectiveness of Remedial Program

During 2018, 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 O&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 wet wells. Leachate and groundwater collected in the wet wells is pumped via submersible pumps in the wet wells to a 15-inch sanitary sewer line on the south side of Aero Drive. This sanitary sewer, installed as part of the remedy, connects to the existing 15-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.

O&M commenced in 2002 upon completion of construction. These efforts are performed in accordance with the O&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 groundwater 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 O&M are:

- ▶ Groundwater Monitoring

- ▶ Effluent Monitoring
- ▶ Hydraulic Monitoring
- ▶ Wetlands Monitoring
- ▶ General physical and mechanical maintenance.

The Town of Cheektowaga submits O&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 2018 are attached to this Periodic Review Report. A summary of the findings of performance, effectiveness, and protectiveness for 2018 is presented in the sections below.

3.1 Groundwater Monitoring

As the O&M contractor for the Town of Cheektowaga, URS Corporation (URS) has performed 30 rounds of semi-annual groundwater sampling. The most recent sampling was conducted in May and November 2018. 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 two exceptions for SVOCs during the November event. 1,4-Dichlorobenzene was detected in well GW-03D at an estimated concentration of 4.2 micrograms per liter ($\mu\text{g/L}$), slightly exceeding its standard of 3.0 $\mu\text{g/L}$ and bis(2-ethylhexyl)phthalate was detected in well GW-07D at an estimated concentration of 5.4 $\mu\text{g/L}$, slightly exceeding its standard of 5.0 $\mu\text{g/L}$.

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 2018 were chromium, nickel, and lead in well GW-07D during both sampling events. In addition, antimony was above Class GA standards in well GW-07D during the November event. Chromium was above Class GA standards in well GW-08D during the November event. No significant changes in metals concentrations were observed when compared to previous analytical results and were within the historical range of concentrations observed for these metals. The attached semi-annual reports present the 2018 data in tables, graphs, and charts.

Emerging Contaminants Sampling

In a letter dated June 12, 2018, the NYSDEC requested analysis of site groundwater for the presence of the emerging contaminants 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). A work plan was prepared and submitted to the NYSDEC and approved on November 7, 2018. The November 2018 sampling event included sampling and analysis for 1,4-dioxane and PFAS at four wells (GW-08D, GW-08SR, GW-26D, and GW-35S) in accordance with the approved work plan.

Results from the emerging contaminants sampling are summarized in the July 2018 to December 2018 Semi Annual Report. In brief, 1,4-dioxane was not detected in the four wells sampled. One or more PFAS were detected in each of the wells sampled. Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) were compared to and were well below the USEPA Drinking Water Health Advisory (USEPA, May 2016) of 70 nanograms per liter (ng/L) (individually or combined).

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 O&M plan as approved by NYSDEC.

3.3 Effluent Monitoring

URS performed effluent monitoring on a quarterly basis during 2018. 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 2018.

3.4 Hydraulic Monitoring

URS performed hydraulic monitoring on a quarterly basis during 2018. Hydraulic monitoring is performed through measuring the water elevation in each of the six wet wells 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 wet well 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 2018 with one exception. The water elevation in WW-6 was higher (1.78') than the nearest monitoring well GW-34S on

September 12, 2018. Therefore, these data demonstrate that the collection system is largely operating as designed.

3.5 Wetlands Monitoring

The monitoring of wetlands mitigation measures has not been performed as originally planned in the O&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. As such, monitoring of the planted wetland mitigation species is no longer performed.

3.6 General Physical and Mechanical Maintenance

The Town of Cheektowaga performs 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 2018 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 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.

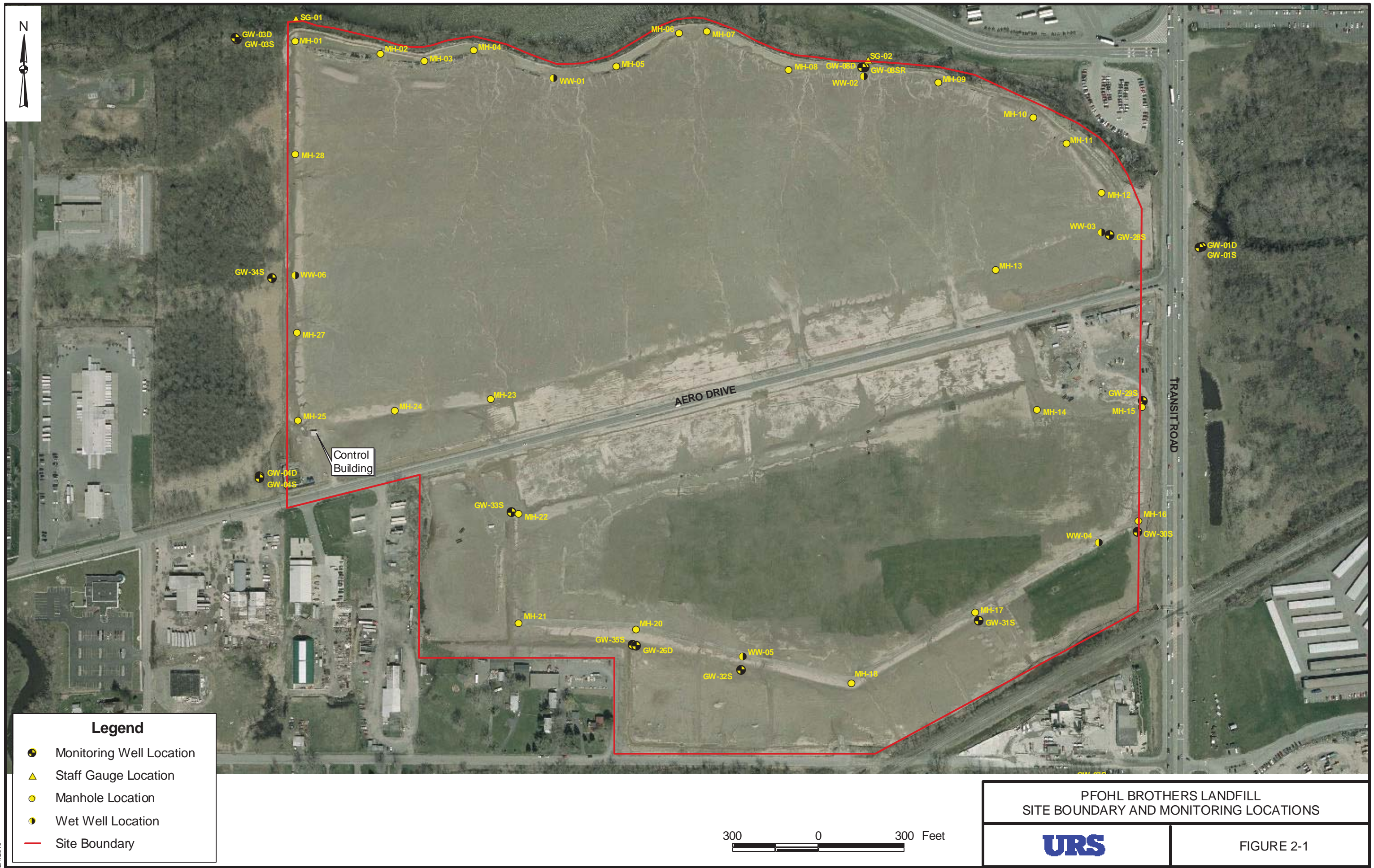
5.0 OPERATION & MAINTENANCE AND MONITORING PLAN COMPLIANCE

The components of the O&M Plan are discussed above in Section 3.0. Summaries of O&M activities performed during 2018 are provided in the attached semi-annual reports. The O&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 O&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 O&M for this site are recommended.

FIGURES



ATTACHMENTS

ATTACHMENT A

January 2018 – June 2018

Semi Annual Report

And

Data Applicability Report



February 22, 2019

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

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

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

Dear Mr. Szymanski:

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

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

Sincerely,

URS CORPORATION

A handwritten signature in black ink that reads "Robert J. Murphy". The signature is written in a cursive style.

Robert J. Murphy, P.G.
Project Manager

Enclosures

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

**SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2018 TO JUNE 2018
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY**

Submitted to:

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

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**FEBRUARY
2019**

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Figure 3-1	Monitoring Locations

APPENDICES

Appendix A	Example Daily Inspection Sheets
Appendix B	Monthly Flow Summaries (January 2018 – June 2018)
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 2018 through June 2018 included the following actions:

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet are attached in Appendix A.
- Total cumulative effluent flow rates and volumes were summarized on a monthly basis starting in February 2003. The monthly totals for the period of January 2018 through June 2018, including graphs showing daily total discharge (gallons) as a function of calendar day, are presented in Appendix B.
- The wet well pumps were shut down during wet weather flow conditions as necessary at various times throughout the year. Such actions were only taken upon request of the Buffalo Sewer Authority (BSA) during heavy storm events in order to reduce the hydraulic load on the BSA treatment system during such events. Shutdown events are recorded and included with the monthly flow data as previously requested by NYSDEC.
- Plowed snow to access the Control Building when necessary.
- Cleaned/replaced check valves as necessary at all six (6) wet wells and replaced surge suppressors and fuses as needed for pump station instrumentation equipment.
- Cleaned upper level equipment and applied corrosion inhibitor fluid.
- Inspected wet wells for excessive corrosion to critical equipment.
- Installed new telephone lines.
- Resolved HMI programming and software issues.
- Resolved wet well #4 level indicator issue.

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

3.0 MONITORING ACTIVITIES

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

3.1 Groundwater Hydraulic Monitoring

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

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

3.2 Groundwater Quality Monitoring

This semi-annual round of groundwater sampling was conducted between May 16 and 18, 2018. All wells listed in Table 3.2 of the O&M plan were purged and sampled using dedicated/disposable equipment. Figure 3-1 shows the well locations. Low flow sampling techniques were used at most monitoring well locations.

Passive diffusion bags (PDBs) were placed in three monitoring wells with low recharge rates (GW-04S, GW-07S, and GW-07D) on March 26, 2018. The PDBs were removed from the wells during the sampling event and their contents were analyzed for VOCs. Following removal of the PDBs the three wells were purged dry. These wells were sampled for the other required parameters after their water levels recovered.

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

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

Results

No VOCs or SVOCs were detected at concentrations above the Class GA water quality standards at any location.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. In addition, chromium, nickel, and lead were detected at concentrations exceeding their respective Class GA standards in well GW-07D.

Comparison to Historical Results

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

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

Trend Analysis

A trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards was performed and is presented in Figures E-1 through E-19 of Appendix E. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters exceeding groundwater standards have occurred over the semi-annual sampling events except as described below. Figure E-1 for GW-01D, indicates an upward trend in sodium concentrations since monitoring began. Figure E-2 for GW-01S, indicates an upward trend in manganese concentrations and a downward trend in sodium concentration since monitoring began. Figure E-3 for GW-03D indicates downward trends for iron, manganese, and sodium. Figure E-4 indicates upward trends for magnesium and sodium and a downward trend for manganese in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight increasing trend for magnesium. Figure E-6 for GW-04S, indicates an upward trend for magnesium and a downward trend for manganese. Figure E-7 for GW-07D indicates all metals returned to their typical concentrations after spiking higher during the May 2017 event and magnesium has trended upward since sampling began. Figure E-9 for GW-08D shows a decreasing trend for both iron and manganese since monitoring began. Figure E-11 for GW-26D indicates downward trends for iron and manganese. Figures E-12 and E-13 for GW-28S and GW-29S, respectively, indicate a decreasing trend for sodium since monitoring began. Figure E-14 for GW-30S shows a decreasing trend for iron, magnesium, manganese, and sodium with possible seasonal variation. Figure E-16 shows there is a seasonal variation in sodium concentration in monitoring well GW-32S, and magnesium appears to be decreasing. Figure E-18 for GW-34S indicates a seasonal fluctuation in manganese concentration.

Laboratory Report

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

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

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2018 and June 2018) of the groundwater collection system discharge since the previous semi-annual report. The sampling was performed in accordance with the requirements of Discharge Permit No. 16-04-CH016 between the Buffalo Sewer Authority and the Town of Cheektowaga. A copy of the permit is included as Appendix F.

During the sampling events in March 2018 and June 2018, each regulated parameter was below the limits set by the permit. Copies of the data summary tables that were included with the monitoring reports are included as Appendix G.

3.4 Monitoring Well Inspections

During the May 2018 groundwater sampling event, a well inspection was performed. All wells appeared to be in good condition with the exception of previously existing damage to the risers on GW-07D, GW-01S, and GW-01D. The monitoring well inspection logs may be found in Appendix H.

4.0 SUMMARY AND RECOMMENDATIONS

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

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

Groundwater Quality Monitoring: Groundwater sample results indicate that only low levels of organic compounds and metals are present. Similar concentrations of most parameters were found during previous sampling events. The next round of groundwater sampling will be conducted in November 2018. Low flow sampling techniques will be used. Passive diffusion bags will be used again for VOC analyses at the three wells (GW-04S, GW-07S, and GW-07D) that go dry even using low flow sampling techniques.

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

TABLES

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

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

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

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

Location ID			GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Sample ID			GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/17/18	05/17/18	05/17/18	05/16/18	05/17/18
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5			NA		NA
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3		NA		NA	
1,4-Dichlorobenzene	UG/L	3		NA		NA	
Metals							
Arsenic	MG/L	0.025		NA		NA	
Barium	MG/L	1	0.090	NA	0.13	NA	0.089
Cadmium	MG/L	0.005		NA		NA	0.0013
Chromium	MG/L	0.05	0.0036 J	NA	0.0050	NA	0.28
Copper	MG/L	0.2		NA	0.0053 J	NA	0.031
Iron	MG/L	0.3	0.17	NA	3.2	NA	5.2
Lead	MG/L	0.025		NA		NA	0.13
Magnesium	MG/L	35	78.0	NA	29.1	NA	37.4
Manganese	MG/L	0.3	0.022	NA	0.13	NA	0.088
Nickel	MG/L	0.1	0.0016 J	NA	0.0056 J	NA	0.14
Sodium	MG/L	20	95.6 J+	NA	34.2 J+	NA	84.6 J+
Zinc	MG/L	2	0.015	NA	0.013	NA	0.082

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

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

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

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

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

Location ID			GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Sample ID			GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/17/18	05/17/18	05/18/18	05/18/18	05/18/18
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	5					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Metals							
Arsenic	MG/L	0.025		0.012			
Barium	MG/L	1	0.082	0.17	0.10	0.069	0.050
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05	0.0017 J				
Copper	MG/L	0.2					
Iron	MG/L	0.3	1.1	9.9	4.6	1.6	
Lead	MG/L	0.025					
Magnesium	MG/L	35	26.4	72.3	31.5	25.5	27.4
Manganese	MG/L	0.3	1.4	0.52	0.70	0.80	0.43
Nickel	MG/L	0.1	0.0021 J			0.0020 J	
Sodium	MG/L	20	13.6	9.4	33.9	3.2	3.2
Zinc	MG/L	2	0.0068 J			0.0040 J	0.0034 J

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

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

Location ID			GW-33S	GW-34S	GW-35S
Sample ID			GW-33S	GW-34S	GW-35S
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-
Date Sampled			05/18/18	05/17/18	05/17/18
Parameter	Units	*			
Volatile Organic Compounds					
1,2-Dichloroethene (total)	UG/L	5			
Semivolatile Organic Compounds					
1,3-Dichlorobenzene	UG/L	3			
1,4-Dichlorobenzene	UG/L	3			
Metals					
Arsenic	MG/L	0.025			
Barium	MG/L	1	0.037	0.12	0.079
Cadmium	MG/L	0.005			
Chromium	MG/L	0.05			
Copper	MG/L	0.2			
Iron	MG/L	0.3	0.025 J	0.14	0.032 J
Lead	MG/L	0.025			
Magnesium	MG/L	35	29.1	46.3	21.2
Manganese	MG/L	0.3	0.11	0.41	0.19
Nickel	MG/L	0.1	0.0013 J	0.0056 J	
Sodium	MG/L	20	2.9	24.4	2.6
Zinc	MG/L	2	0.0031 J	0.0076 J	0.0027 J

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-2

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)

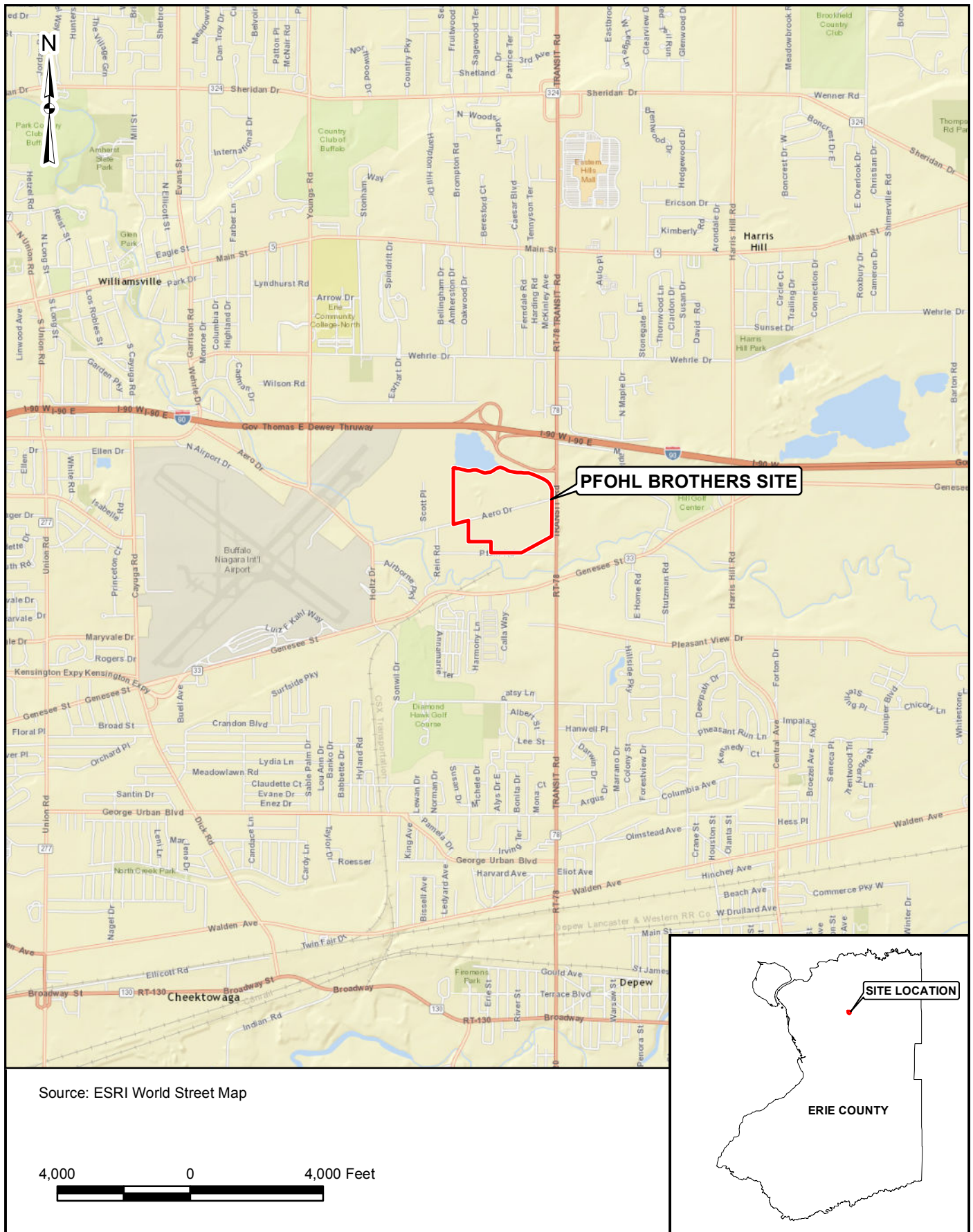
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

**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 2/3/18
Time 1333

Weather conditions Cloudy
Read by: JWN

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0	0	1138	2792
WW-2	4.7	0	-41613	162
WW-1	5.2	33.7	140120	5903
WW-6	8.2	51.6	3450664	15573
WW-4	9.8	0	-116828	7751
WW-5	10.1	30.2	2934170	19954

Flow Totalizer at Meter chamber 16611427

Heat Trace

Outside temp T = 26
Current A = 1.9

Set point SP = 40

Surge Suppressor events 417025

Motor Control Center

Volts 480 volts
Amps 10 amps

Which WW was running?

1 2 3 4 5 6

Filter Checked Changed

Comments and/or Current Conditions

Data for Monthly Rpt.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 3/24/18
Time 1028

Weather conditions Clear
Read by: _____

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	<u>99.0</u>	<u>0</u>	<u>1138</u>	<u>2792</u>
WW-2	<u>4.7</u>	<u>0</u>	<u>-4613</u>	<u>162</u>
WW-1	<u>4.0</u>	<u>26.3</u>	<u>1166408</u>	<u>6314</u>
WW-6	<u>7.4</u>	<u>45.0</u>	<u>3926933</u>	<u>15711</u>
WW-4	<u>7.0</u>	<u>25.0</u>	<u>-116702</u>	<u>7751</u>
WW-5	<u>7.3</u>	<u>14.5</u>	<u>4041910</u>	<u>20514</u>

Flow Totalizer at Meter chamber 9224077

Heat Trace

Outside temp T = 33
Current A = 2.0

Set point SP = 40

Surge Suppressor events 417059

Motor Control Center

Volts 480 volts
Amps 18 amps

Which WW was running?

1 2 3 4 5 6

Filter Checked Changed

Comments and/or Current Conditions

Ran # 4 & #5 on HAND to ✓

WW-5 will need check valve.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date

5/2/18
1058

Time

Weather conditions

Clear
TWN

Read by:

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	<u>9.0</u>	<u>0</u>	<u>1138</u>	<u>2792</u>
WW-2	<u>4.7</u>	<u>0</u>	<u>-4613</u>	<u>162</u>
WW-1	<u>4.5</u>	<u>0</u>	<u>1787884</u>	<u>6587</u>
WW-6	<u>7.2</u>	<u>165.7</u>	<u>4587428</u>	<u>15888</u>
WW-4	<u>6.9</u>	<u>0</u>	<u>-116620</u>	<u>7751</u>
WW-5	<u>6.9</u>	<u>0</u>	<u>4796170</u>	<u>20929</u>

Flow Totalizer at Meter chamber

11249788

Heat Trace

Outside temp T = 77

Set point SP = 40

Current A = 0

Surge Suppressor events

4/17/23

Motor Control Center

Volts 480 volts

Which WW was running?

Amps 5 amps

1 2 3 4 5 6

Filter

Checked

Changed

Comments and/or Current Conditions

AC checked - OK

Data

Site

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2018 – JUNE 2018

Pat Bowen

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

Mr. Bowen

Attached for your review, please find a copy of the January 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

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

716 583-6508 cell
716 896-1777 office

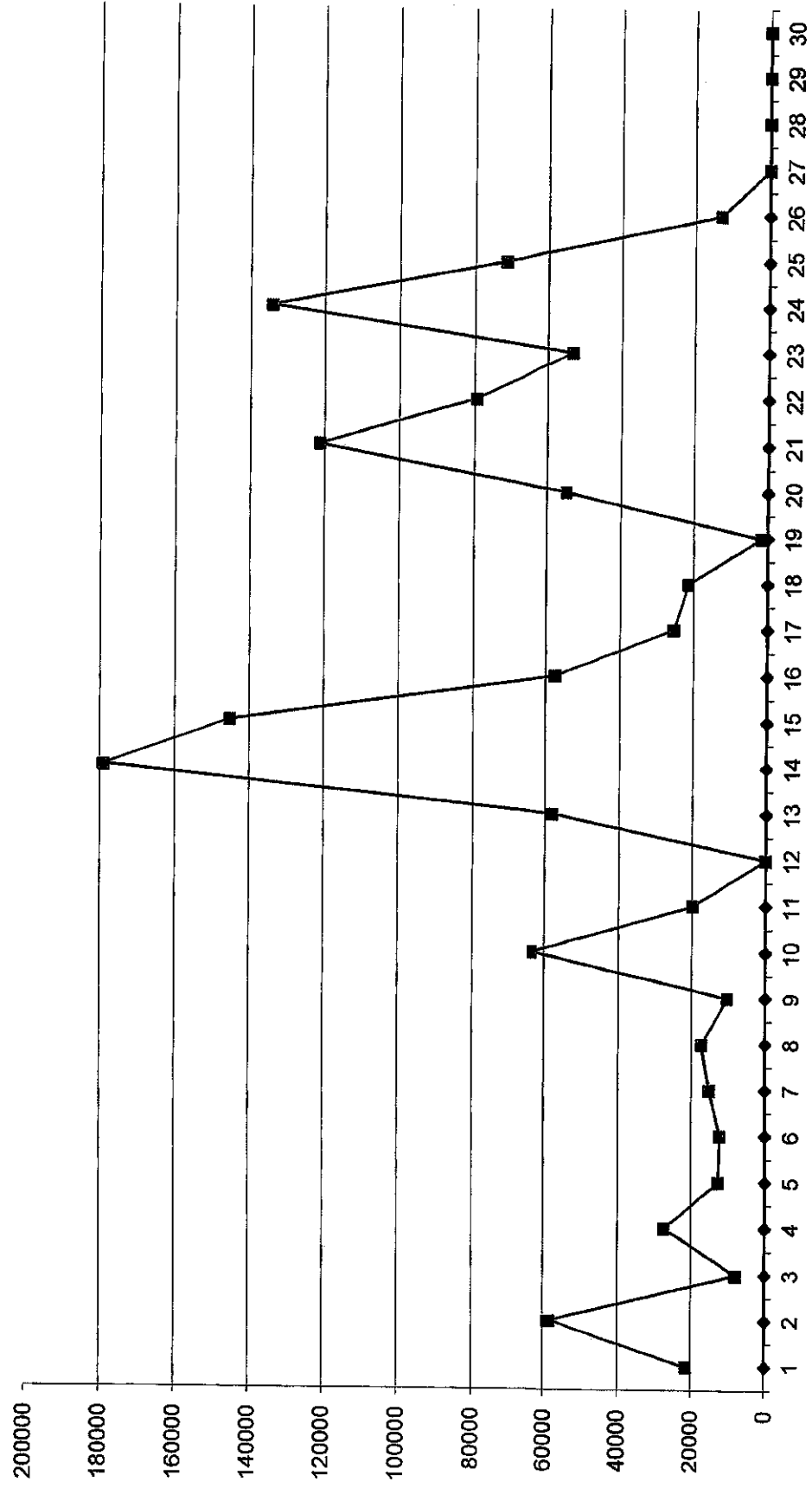
jnichy@tocny.org

Direct Discharge Flow Data

12/31/2017

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

January
2018



The
TOWN OF
CHEEKTOWAGA



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 10, 2018

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

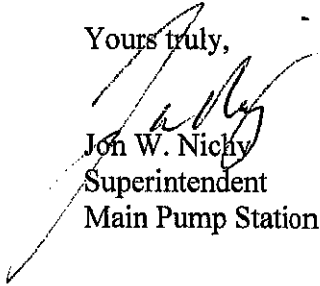
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the February 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,


Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

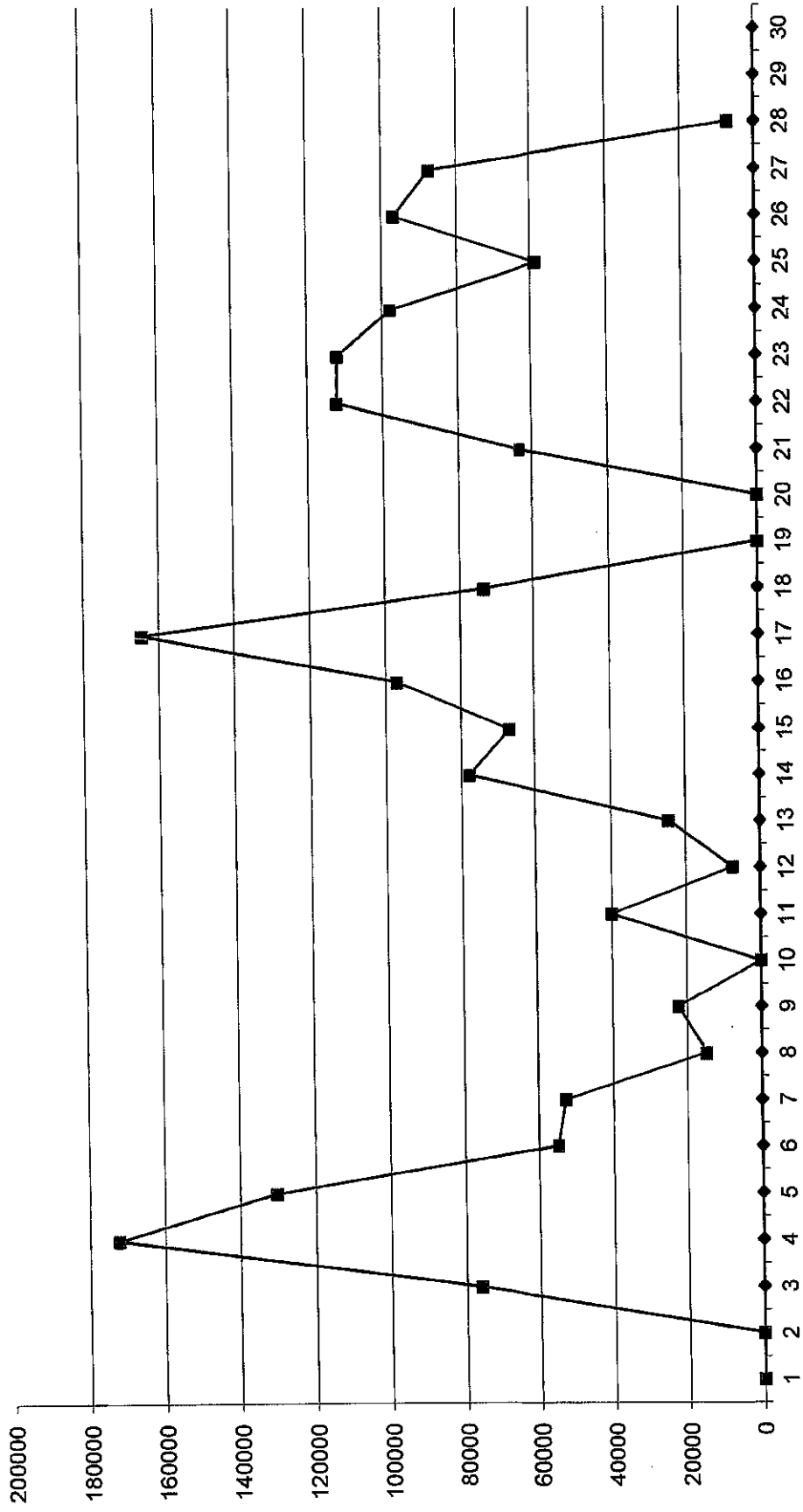
1/31/2018

6610396

0

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

February
2018



The
TOWN OF
CHEEKTOWAGA



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 14, 2018

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

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the March 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,

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

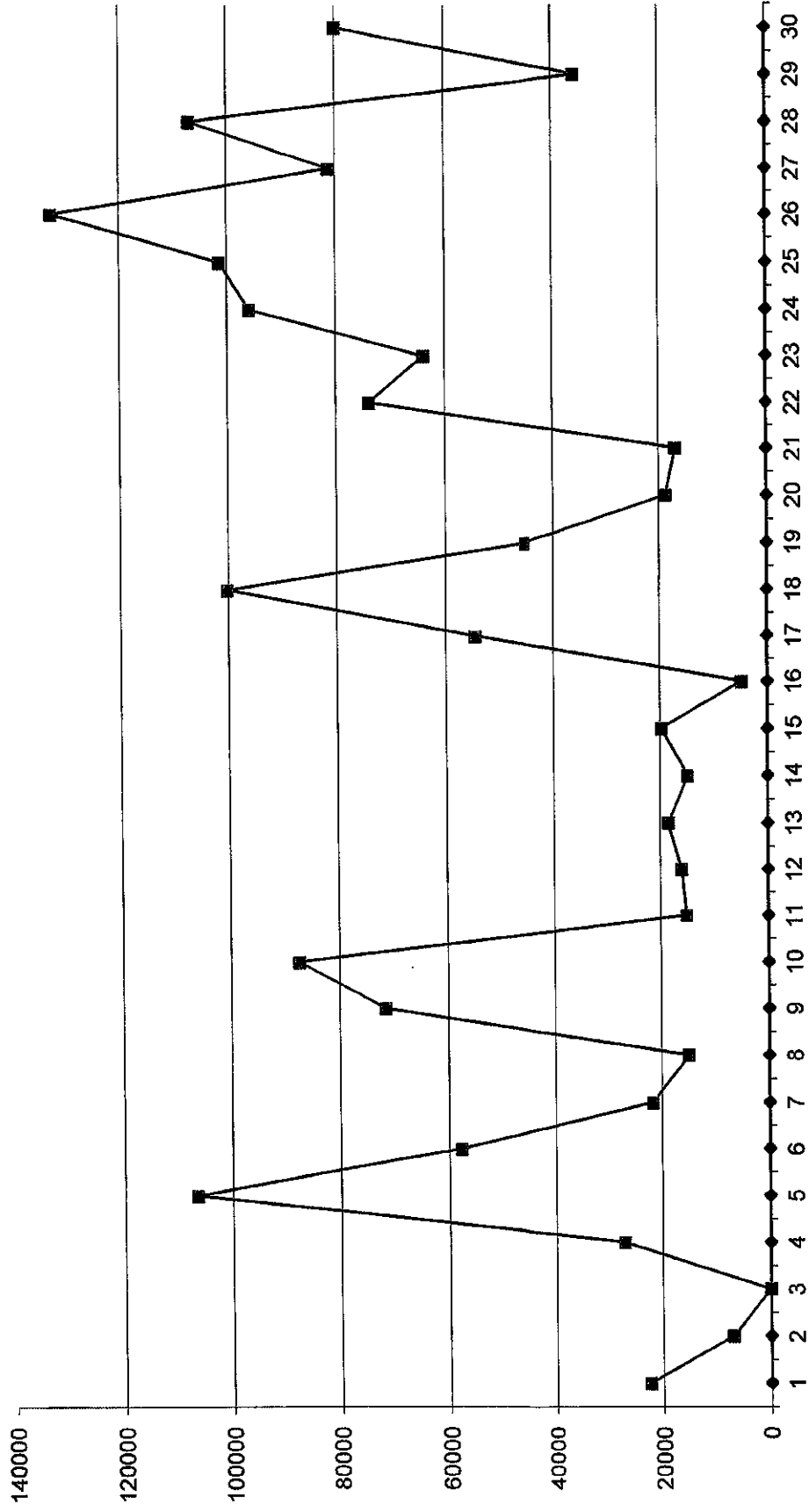
Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

2/28/2018

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

March
2018



May 3, 2018

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

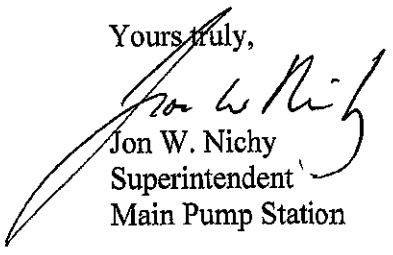
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the April 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,



Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

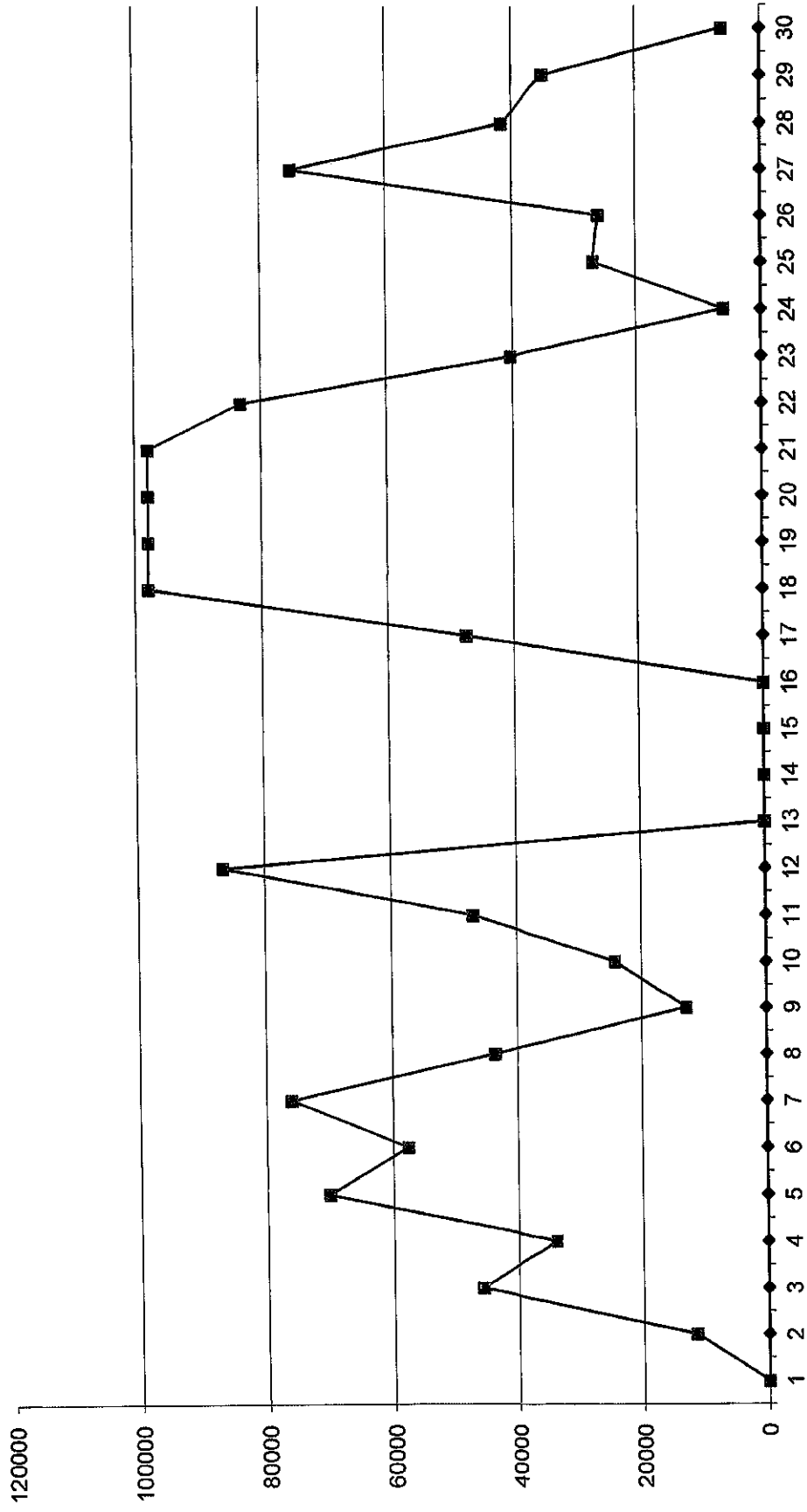
3/31/2018

9930793

96,696

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

April
2018



June 7, 2018

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

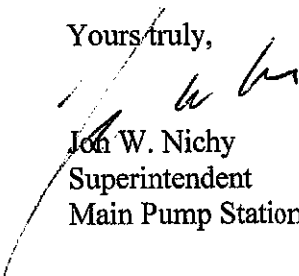
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the May 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,



Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

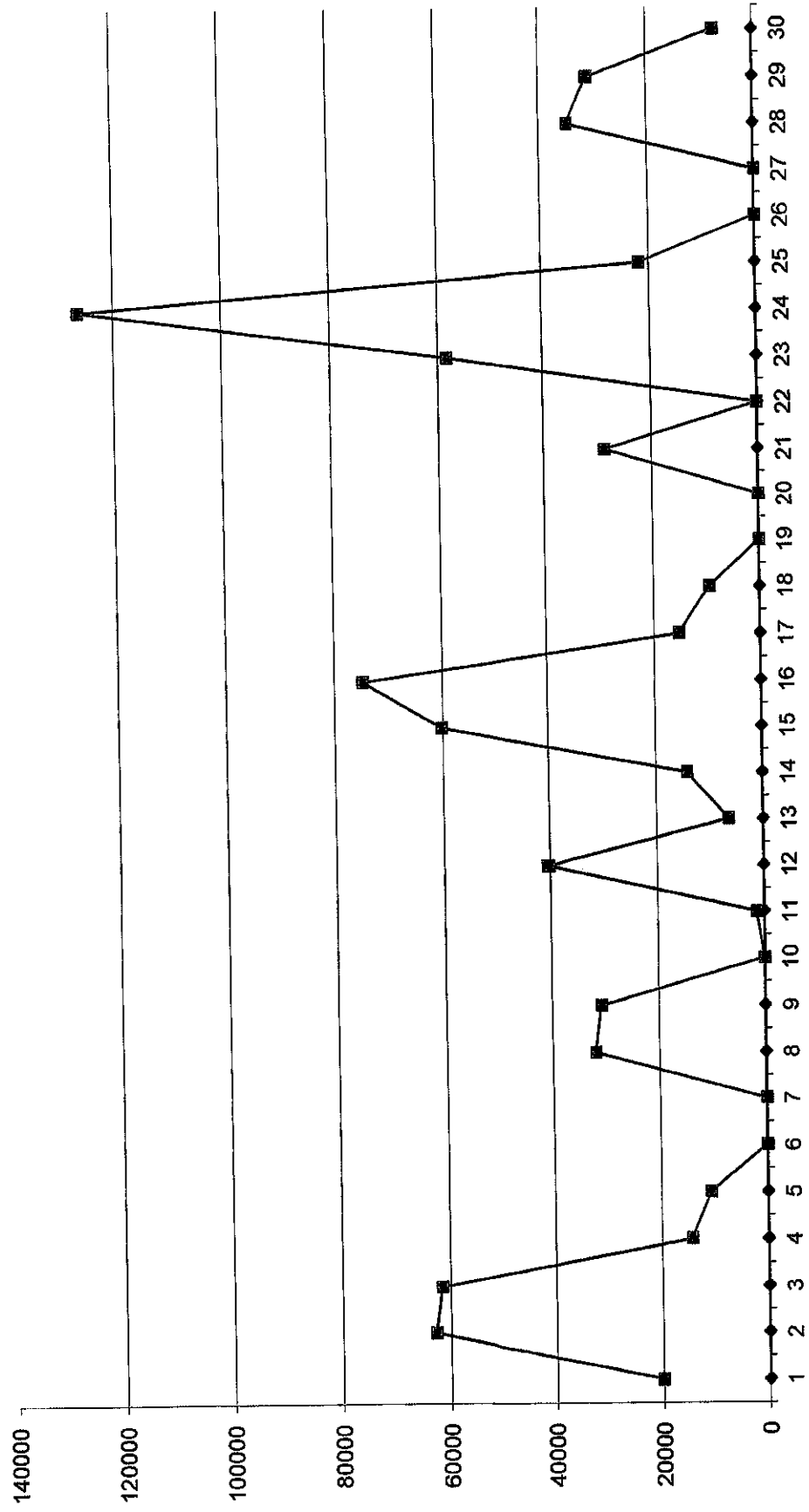
4/30/2018

11219469

6,021

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

May
2018



July 5, 2018

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

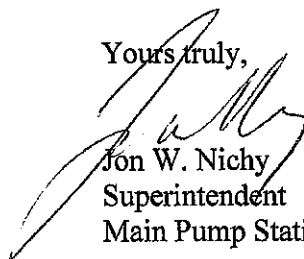
Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

Enclosed for your review, please find a copy of the June 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly,



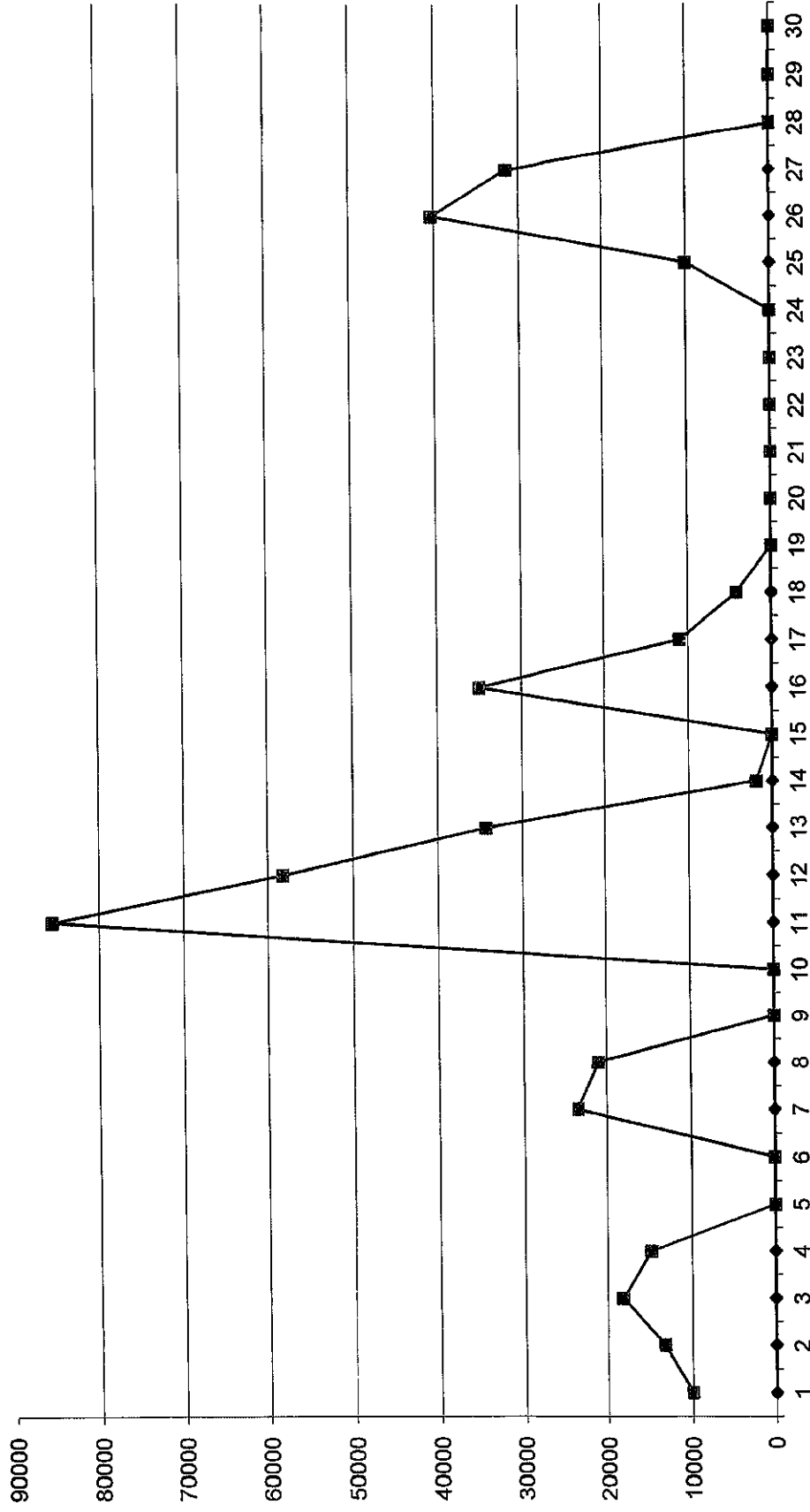
Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

5/31/2018

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

June
2018



APPENDIX C

HYDRAULIC MONITORING TABLES

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

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

NM - No Measurement

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

Type:

MH

MNW

SG

Manhole Monitoring Point

Monitoring Well

Staff Gauge

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

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

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

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

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

NM - No Measurement

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

Type:

MH Manhole Monitoring Point
 MNW Monitoring Well
 SG Staff Gauge

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

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

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

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

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

NM - No Measurement

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

Type:

MH Manhole Monitoring Point
MNW Monitoring Well
SG Staff Gauge

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

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

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

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

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

NM - No Measurement

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

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

**TABLE C-2
PFOHL BROTHERS LANDFILL SITE
OVERBURDEN HYDRAULIC GRADIENT**

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

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

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

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

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

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

Notes:

* = No corresponding monitoring well.
NA = Not applicable

APPENDIX D

**GROUNDWATER PURGE AND SAMPLE COLLECTION
LOGS**

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/16/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	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):	6.7	Estimated Purge Volume (liters):	11.3
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Sample ID: GW-01S Sample Time: 14:20 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

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

PURGE PARAMETERS

[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-01D

Date: 5/16/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.07'	Depth to Well Bottom:	39.65'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	90.4		Estimated Purge Volume (liters):	42.0	

Sample ID:	GW-01D	Sample Time:	13:00	QA/QC:	MS/MSD
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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-03S

Date: 5/16/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.37'	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):	6.7	Estimated Purge Volume (liters):	6.0
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Sample ID: GW-03S Sample Time: 7:12 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: 5/16/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.93'	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):	83.4	Estimated Purge Volume (liters):	36.0
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Sample ID:	GW-03D	Sample Time:	17:40	QA/QC:	Duplicate (FD-051618)
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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)
16:40	8.16	10.44	1.76	1.55	1.3	-81	600	1.93
16:45	8.14	10.25	1.74	0.85	0.0	-83	600	1.93
16:50	8.16	10.17	1.73	0.67	0.0	-85	600	1.93
16:55	8.13	10.10	1.72	0.57	0.0	-87	600	1.93
17:00	8.13	10.20	1.72	0.56	0.0	-88	600	1.93
17:05	8.13	10.10	1.72	0.52	0.0	-88	600	1.93
17:10	8.14	10.04	1.72	0.52	0.0	-89	600	1.93
17:15	8.13	10.05	1.72	0.52	0.0	-89	600	1.93
17:20	8.12	10.13	1.72	0.49	0.0	-90	600	1.93
17:25	8.11	10.20	1.72	0.48	0.0	-90	600	1.93
17:30	8.11	10.22	1.72	0.47	0.0	-90	600	1.93
17:35	8.11	10.19	1.72	0.47	0.0	-91	600	1.93
17:40	8.11	10.17	1.72	0.45	0.0	-91	600	1.93
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.32'	Depth to Well Bottom:	16.23'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	7.3		Estimated Purge Volume (liters):	11.4	

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

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 3/26/18, sampled VOCs from PDB at 07:43 on 5/17/18

Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 09:12.

PURGE PARAMETERS

[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-04D

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	12.11'	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):	82.6	Estimated Purge Volume (liters):	11.0
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Sample ID: GW-04D Sample Time: 9:07 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. ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07S
PROJECT NO.:	60411174		
STAFF:	Sean Connelly, Kevin McGovern		
DATE(S):	5/16/18 5/17/18		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.33	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.09	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.24	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	5.14	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	8.0	8"	2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Initial	2	4	6	8	Sample				
pH	8.93	8.88	8.87	8.86	8.78	8.91				
SPEC. COND. (mS/cm)	0.704	0.700	0.707	0.706	0.685	0.749				
DO (mg/l)	2.10	11.37	3.64	12.42	4.52	6.50				
TEMPERATURE (°C)	13.52	13.75	13.13	13.62	13.10	14.16				
TURBIDITY (NTU)	0.0	1.8	24.3	64.8	31.4	0.1				
ORP (millivolts)	-140	-97	-42	3	-25	-5				
TIME	10:59	11:04	11:12	11:20	11:25	9:35				

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

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07D
PROJECT NO.:	60411174		
STAFF:	Sean Connelly, Kevin McGovern		
DATE(S):	5/16/18 5/17/18		

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	60.83	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	47.05	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	13.78	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	9.09	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10.0	8"	2.60

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

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

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

 Strong Sulfur Odor

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.15'	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):	4.9	Estimated Purge Volume (liters):	9.0
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Sample ID: GW-8SR Sample Time: 12:10 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: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.98'	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):	75.5	Estimated Purge Volume (liters):	42.0
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Sample ID: GW-8D Sample Time: 13:15 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:15	8.35	12.70	1.84	6.41	0.0	-43	700	6.00
12:20	8.25	11.13	1.77	1.31	0.0	28	700	6.00
12:25	8.23	10.97	1.77	0.73	0.0	41	700	6.00
12:30	8.21	10.95	1.77	0.57	0.0	48	700	6.00
12:35	8.22	11.07	1.77	0.51	0.0	52	700	6.00
12:40	8.22	10.82	1.78	0.49	0.0	56	700	6.00
12:45	8.21	10.88	1.78	0.48	0.0	58	700	6.00
12:50	8.21	10.96	1.79	0.47	0.0	60	700	6.00
12:55	8.22	10.97	1.79	0.47	0.0	65	700	6.00
13:00	8.21	10.92	1.79	0.52	0.0	64	700	6.00
13:05	8.20	10.90	1.79	0.46	0.0	65	700	6.00
13:10	8.20	10.85	1.79	0.46	0.0	65	700	6.00
13:15	8.20	11.01	1.79	0.45	0.0	60	700	6.00
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.83'	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):	83.7	Estimated Purge Volume (liters):	42.0
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Sample ID: GW-26D Sample Time: 17:25 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-28S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	9.55'	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):	3.7	Estimated Purge Volume (liters):	5.0
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Sample ID: GW-28S Sample Time: 13:12 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:30	8.56	16.54	0.704	4.39	26.8	35	200	10.15
13:35	8.43	12.93	0.678	1.93	8.8	13	200	10.43
13:40	8.38	12.14	0.632	1.01	9.2	8	200	10.85
13:45	8.36	11.80	0.618	0.76	10.9	9	200	11.04
13:50	8.37	11.65	0.615	0.85	10.7	10	200	11.14
13:55	8.37	11.43	0.614	0.87	10.4	8	200	11.14
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.98'	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):	6.8	Estimated Purge Volume (liters):	8.1
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Sample ID: GW-29S Sample Time: 15:22 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-30S

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

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.82'	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):	6.3	Estimated Purge Volume (liters):	9.0
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Sample ID: GW-30S Sample Time: 9:52 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Orange particulates at start

PURGE PARAMETERS

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

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	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):	3.4	Estimated Purge Volume (liters):	6.9
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Sample ID: GW-31S Sample Time: 10:50 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: 5/18/2018 Sampling Personnel: Sean Connelly, Rob Murphy Company: URS Corporation

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

Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.10'	Depth to Well Bottom:	9.93'	Well Diameter:	2"	Screen Length:
------------------	--------------------	-------------------------	-------	-----------------------	-------	----------------	----	----------------

Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.6	Estimated Purge Volume (liters):	6.0
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Sample ID: GW-32S Sample Time: 11:47 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-33S

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

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

Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.52'	Depth to Well Bottom:	8.21'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	1.7	Estimated Purge Volume (liters):	4.5
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Sample ID: GW-33S Sample Time: 12:53 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: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

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

Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.65'	Depth to Well Bottom:	10.01'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.9	Estimated Purge Volume (liters):	7.0
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Sample ID: GW-34S Sample Time: 10:55 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-35S

Date: 5/17/2018 Sampling Personnel: Sean Connelly, Kevin McGovern Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.02'	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):	2.1	Estimated Purge Volume (liters):	5.6
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Sample ID: GW-35S Sample Time: 16:15 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. ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 16, 2018

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

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 16, 2018

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

Additional Comments: GW-7D and GW-7S were sampled for VOCs using passive diffusion bags (PDBs). GW-7D and GW-7S were then purged dry.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 17, 2018

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

Additional Comments: GW-04S was sampled for VOCs using a PDB. GW-04S was then purged dry and remaining parameters were collected after recovery. GW-07D and GW-07S were sampled for SVOCs and Metals after recharging overnight. All other wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 17, 2018

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

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: May 18, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-30S	GW-30S	6.3	9.0	9:52	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-31S	GW-31S	3.4	6.9	10:50	Groundwater		Not Applicable
GW-32S	GW-32S	3.6	6.0	11:47	Groundwater		Not Applicable
GW-33S	GW-33S	1.7	4.5	12:53	Groundwater		Not Applicable
TB-051818	—	—	—	—	Trip Blank	VOCs	Not Applicable

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

APPENDIX E

GROUNDWATER TREND ANALYSIS

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

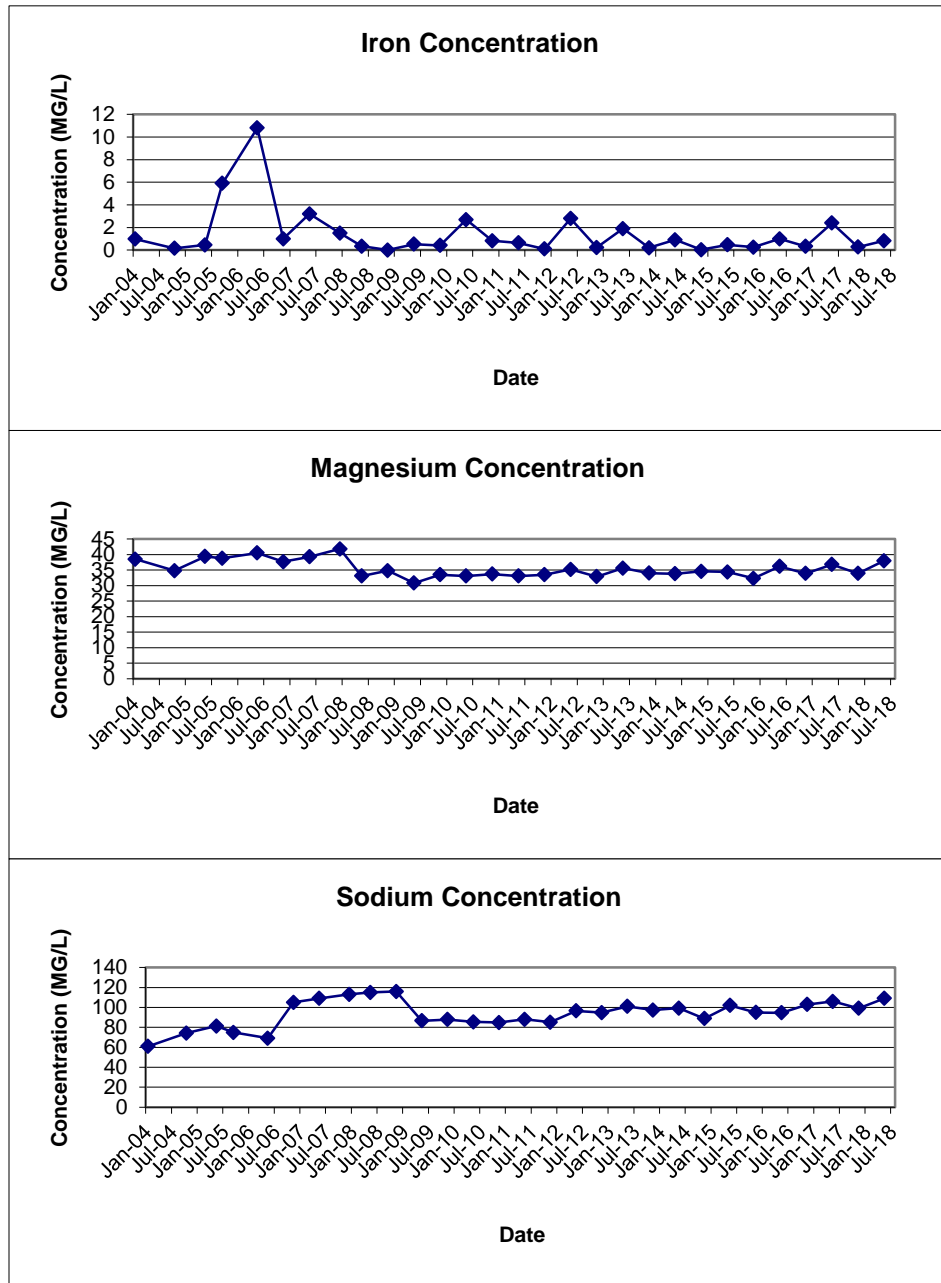


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01S

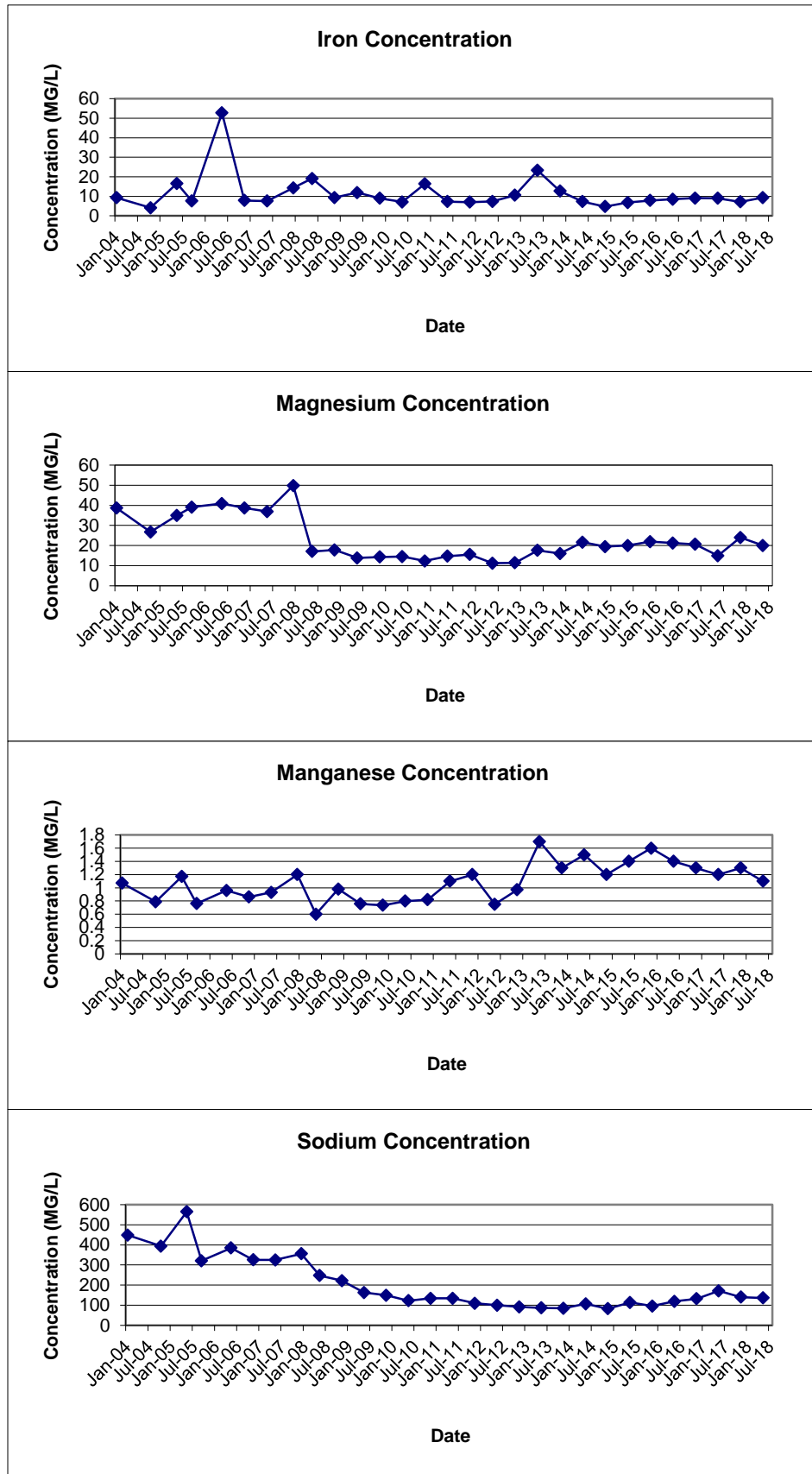


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03D

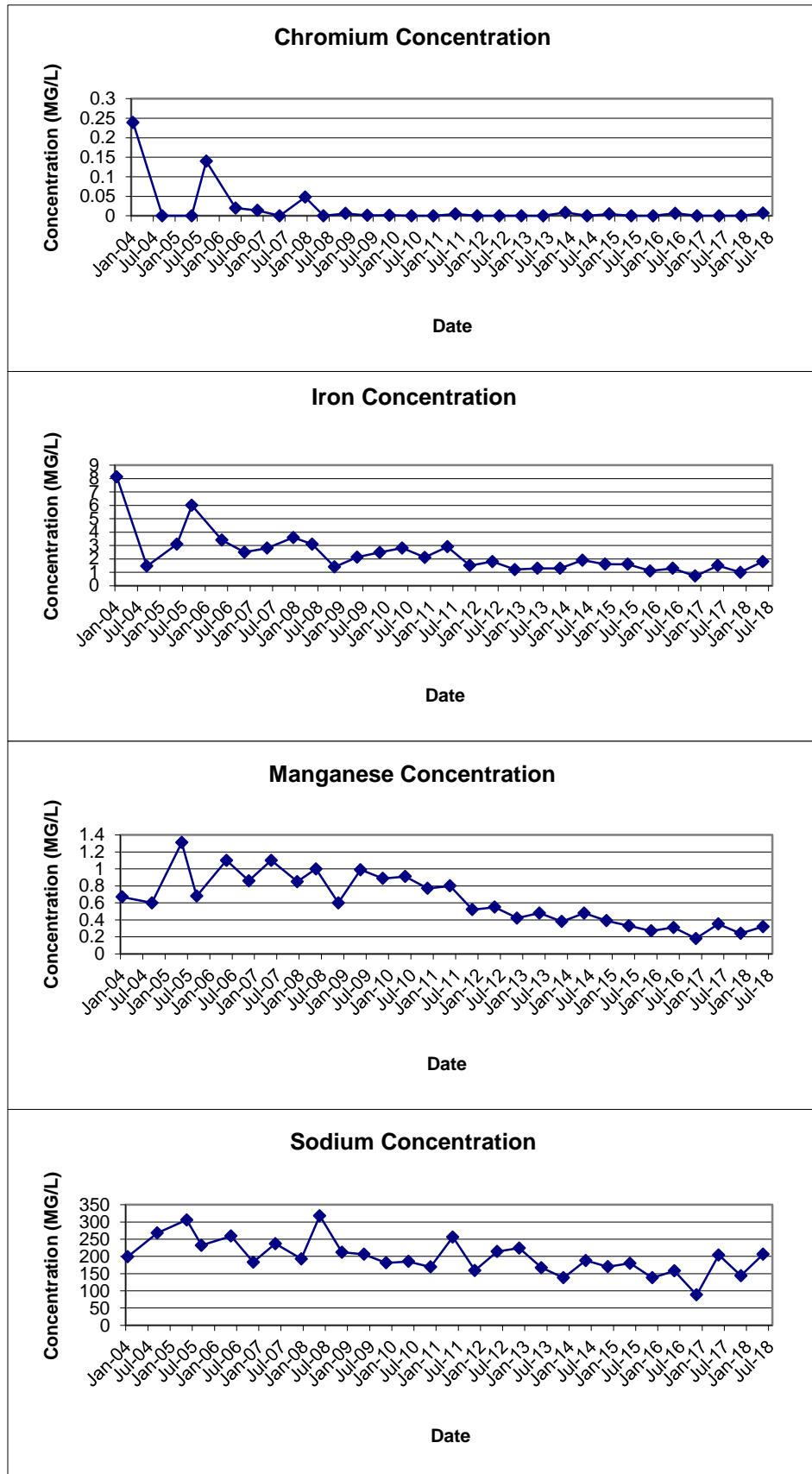
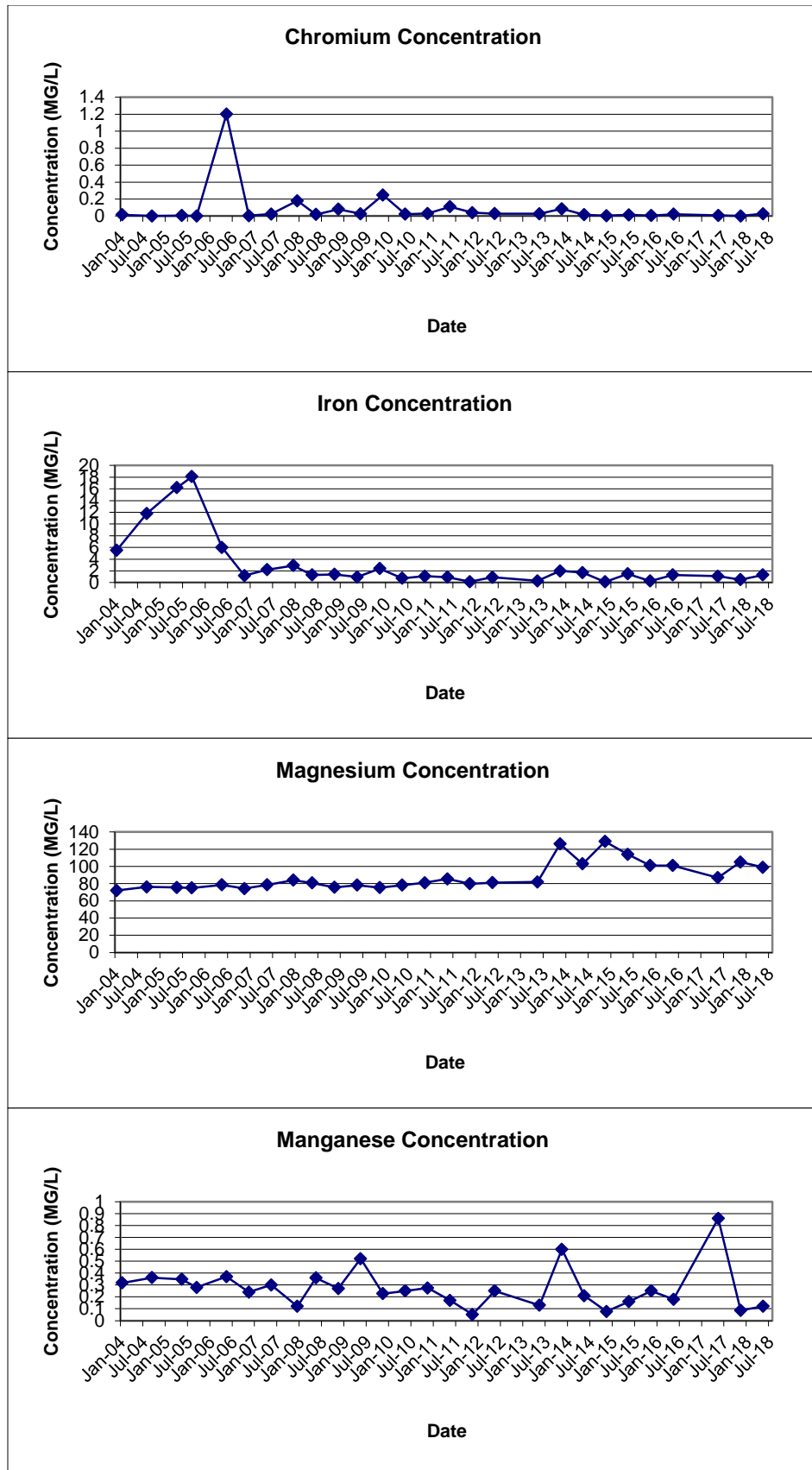
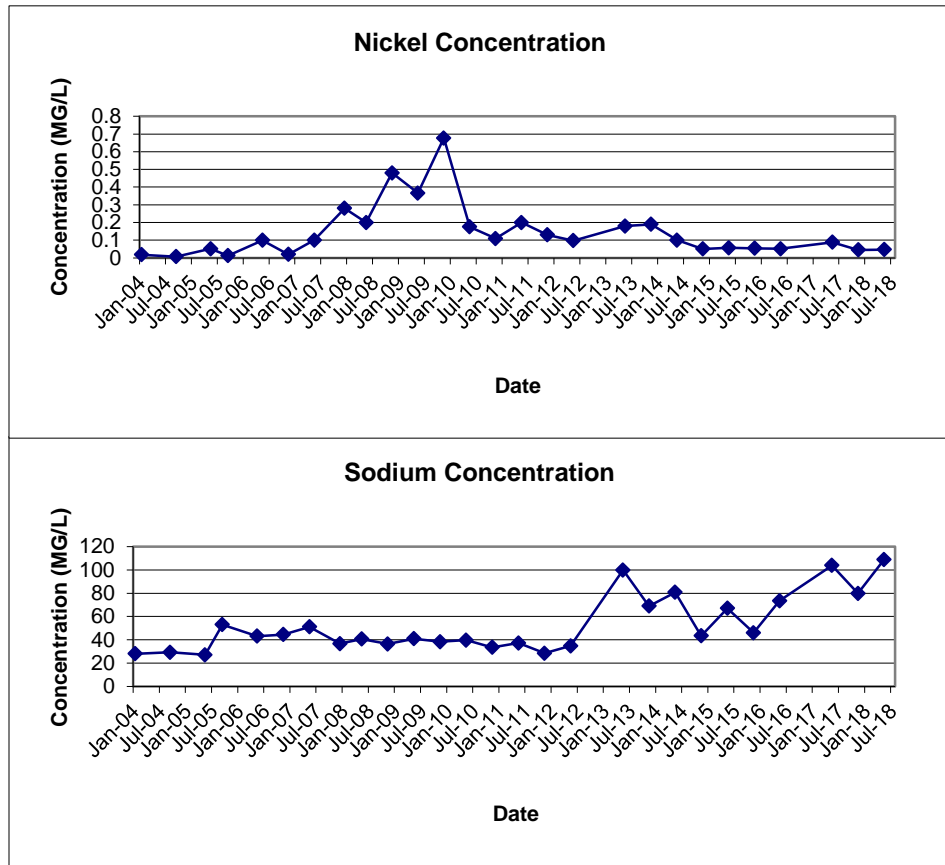


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



Well was Dry and was not sampled in November 2016

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



Well was Dry and was not sampled in November 2016

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

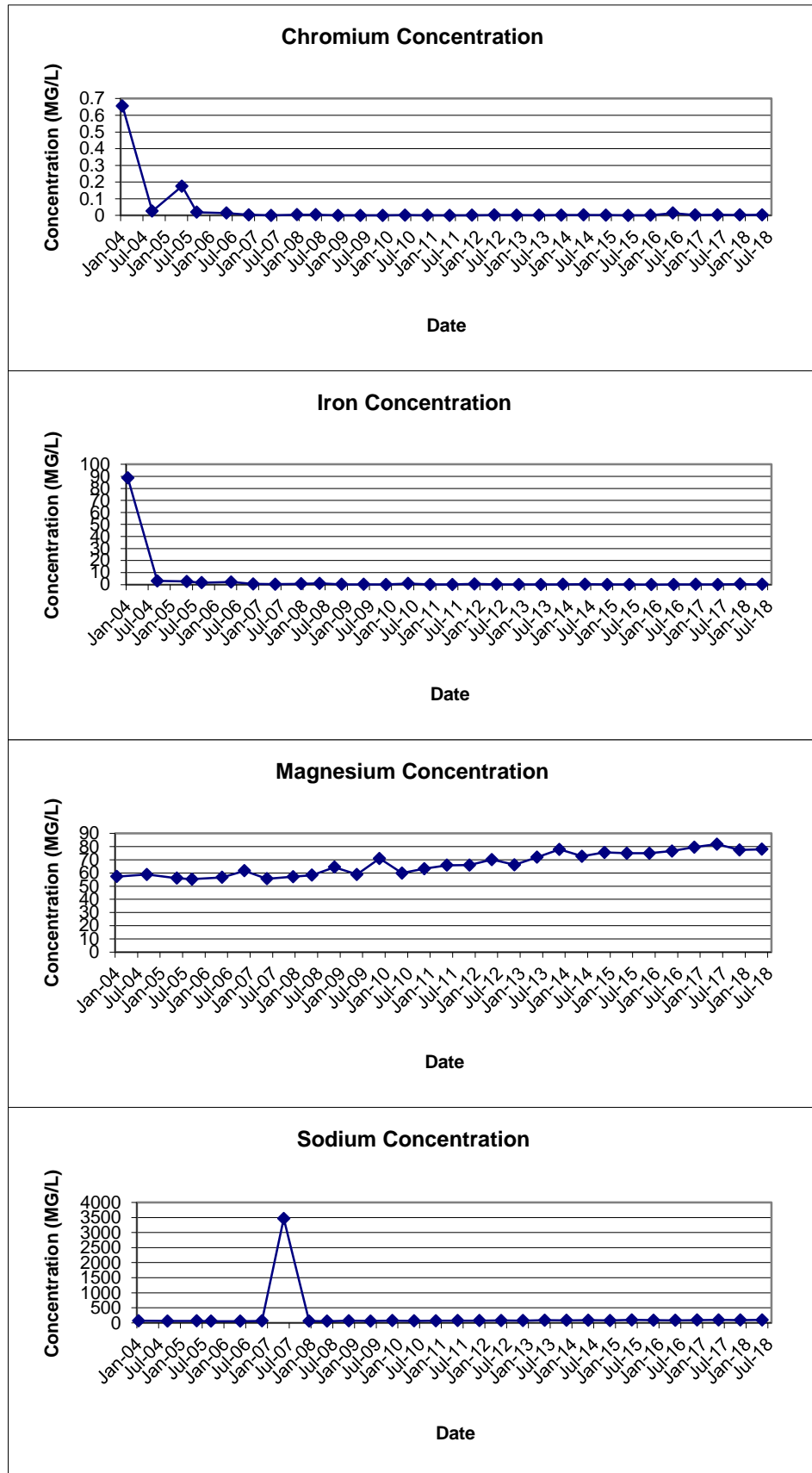


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04S

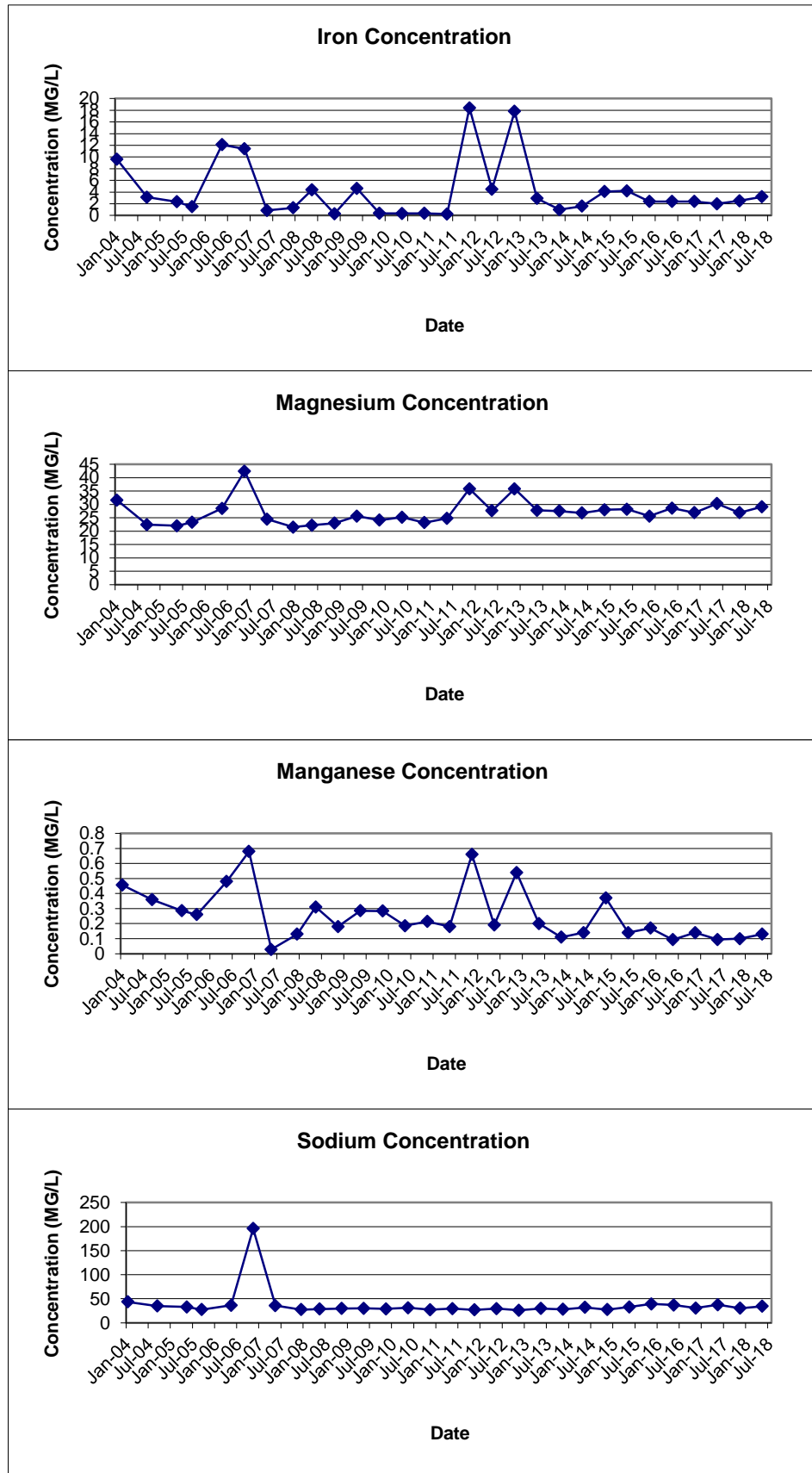


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

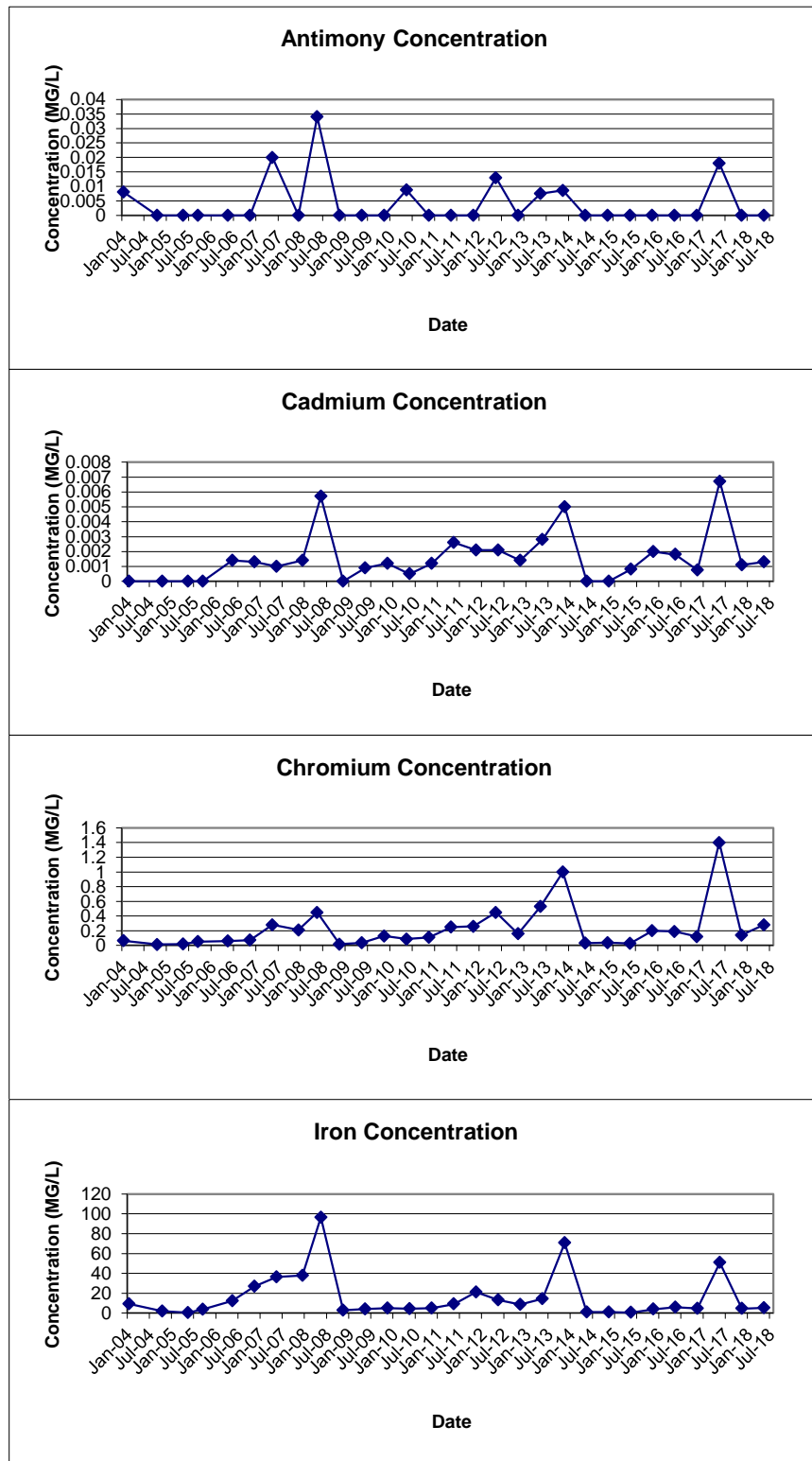


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

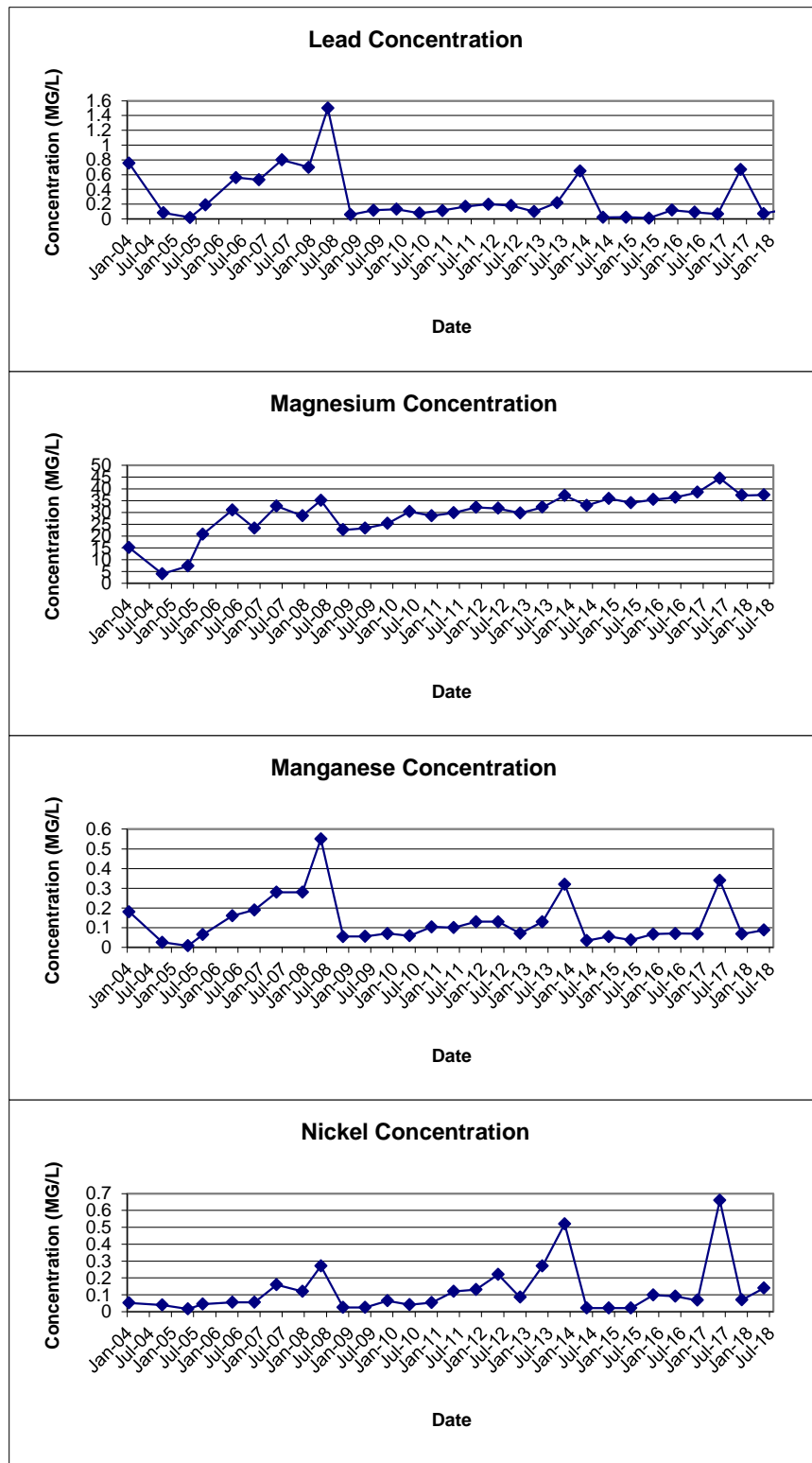


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

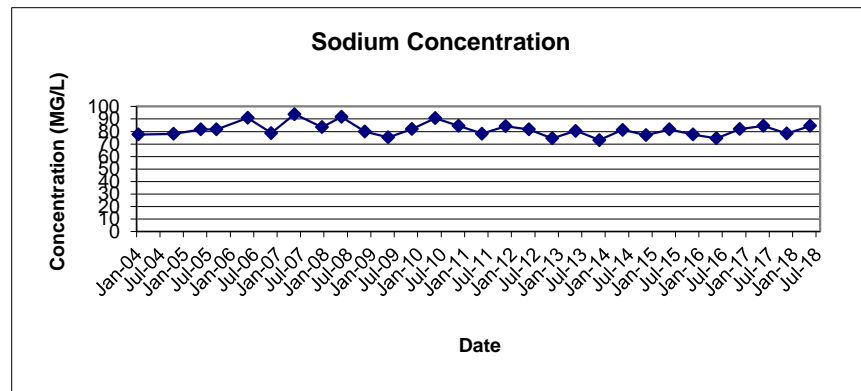


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07S

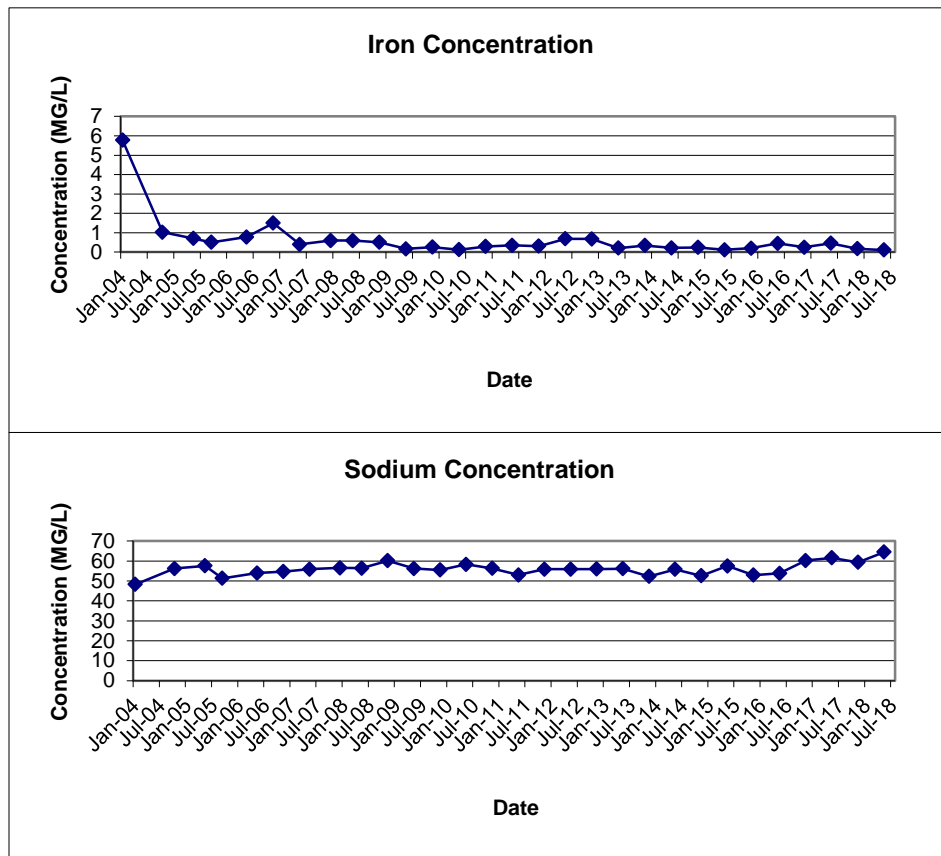


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08D

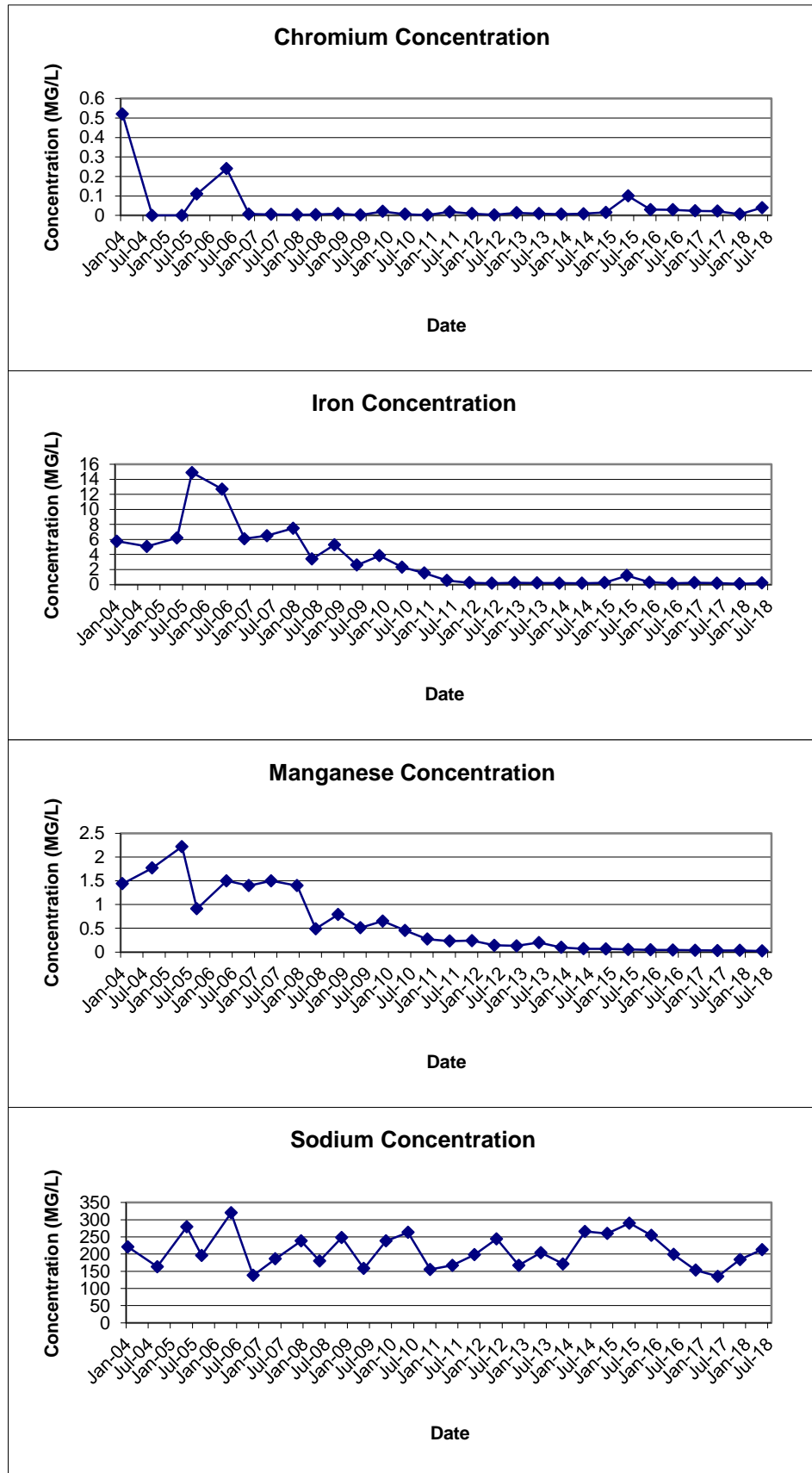


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08SR

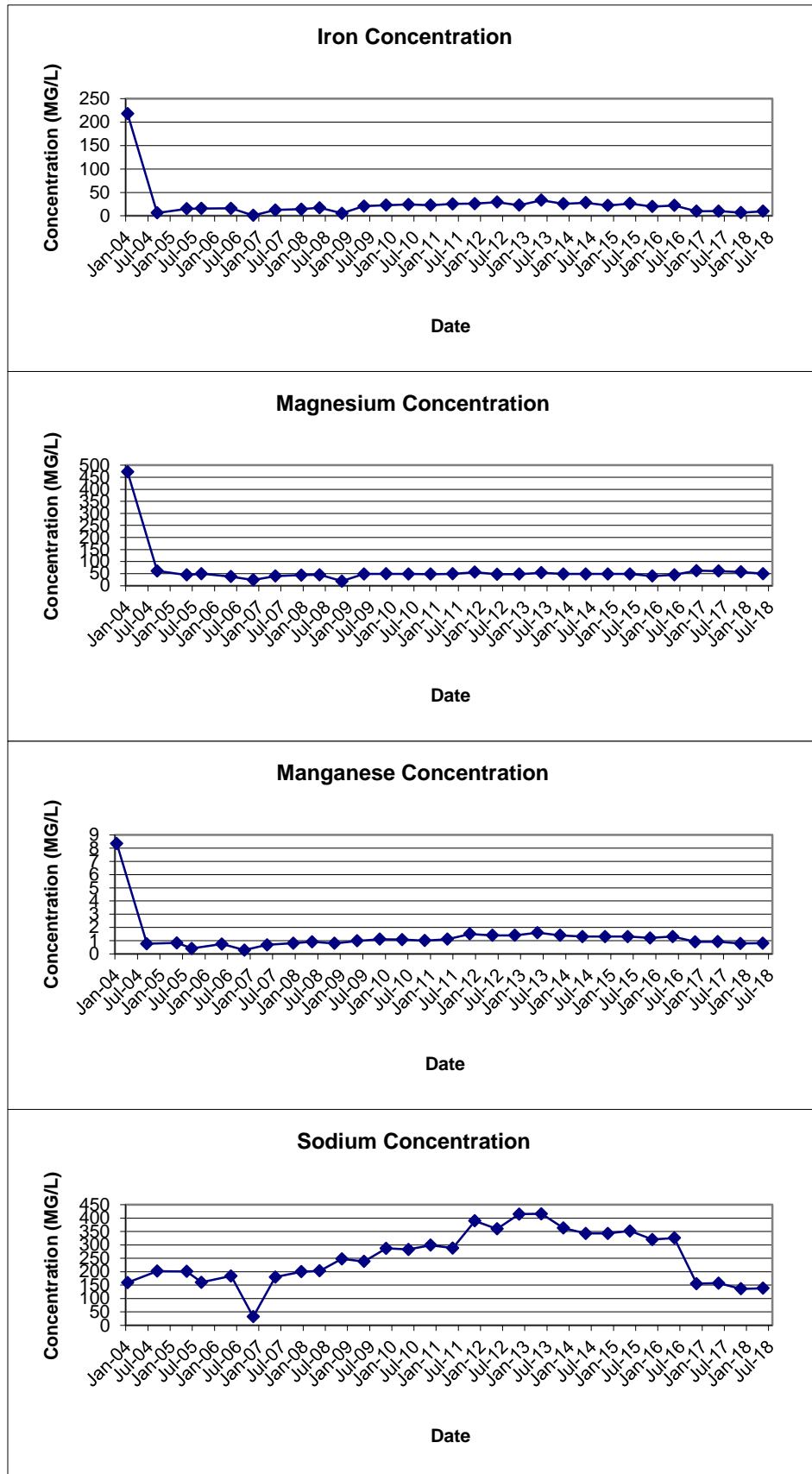


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

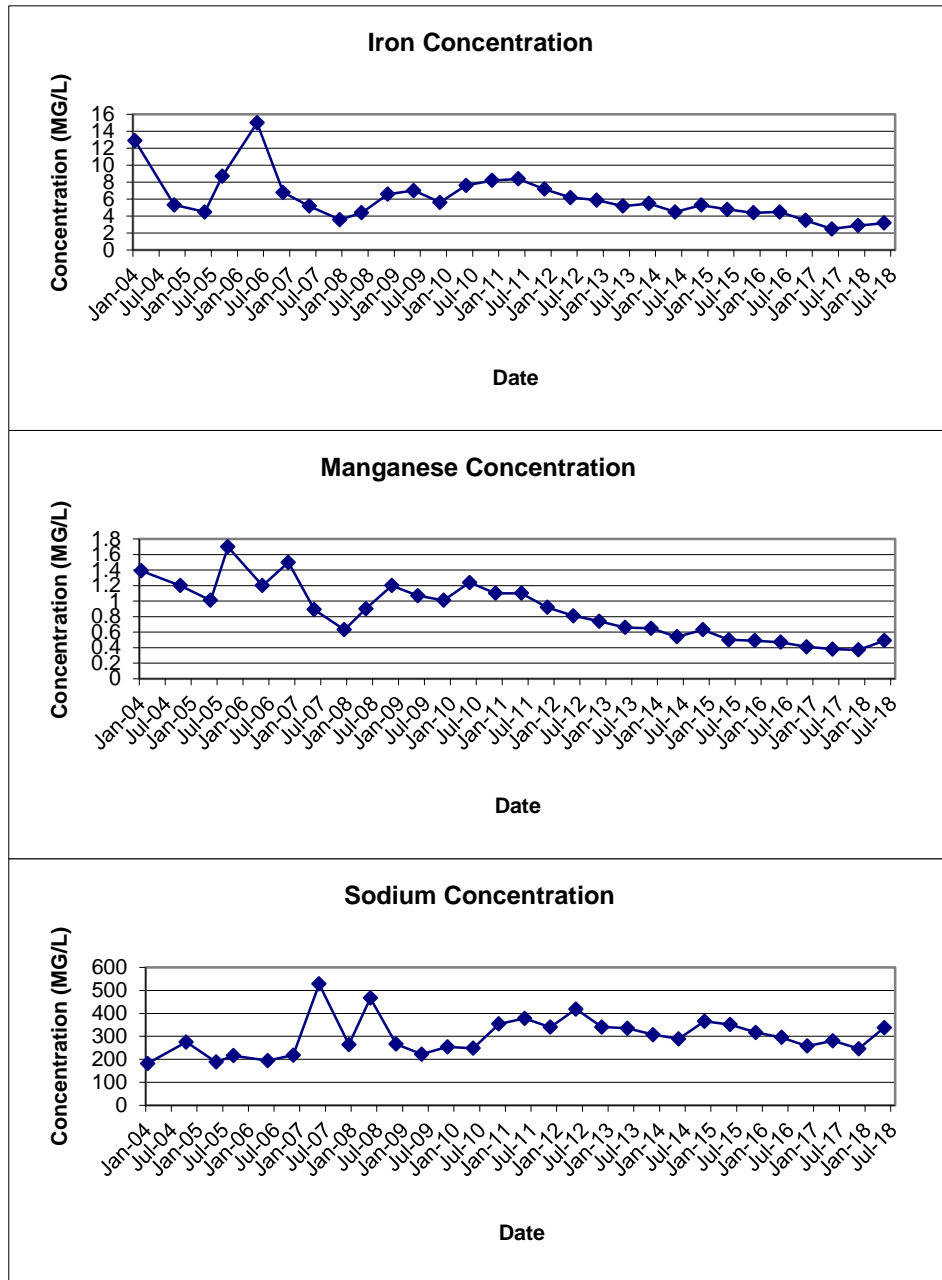


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

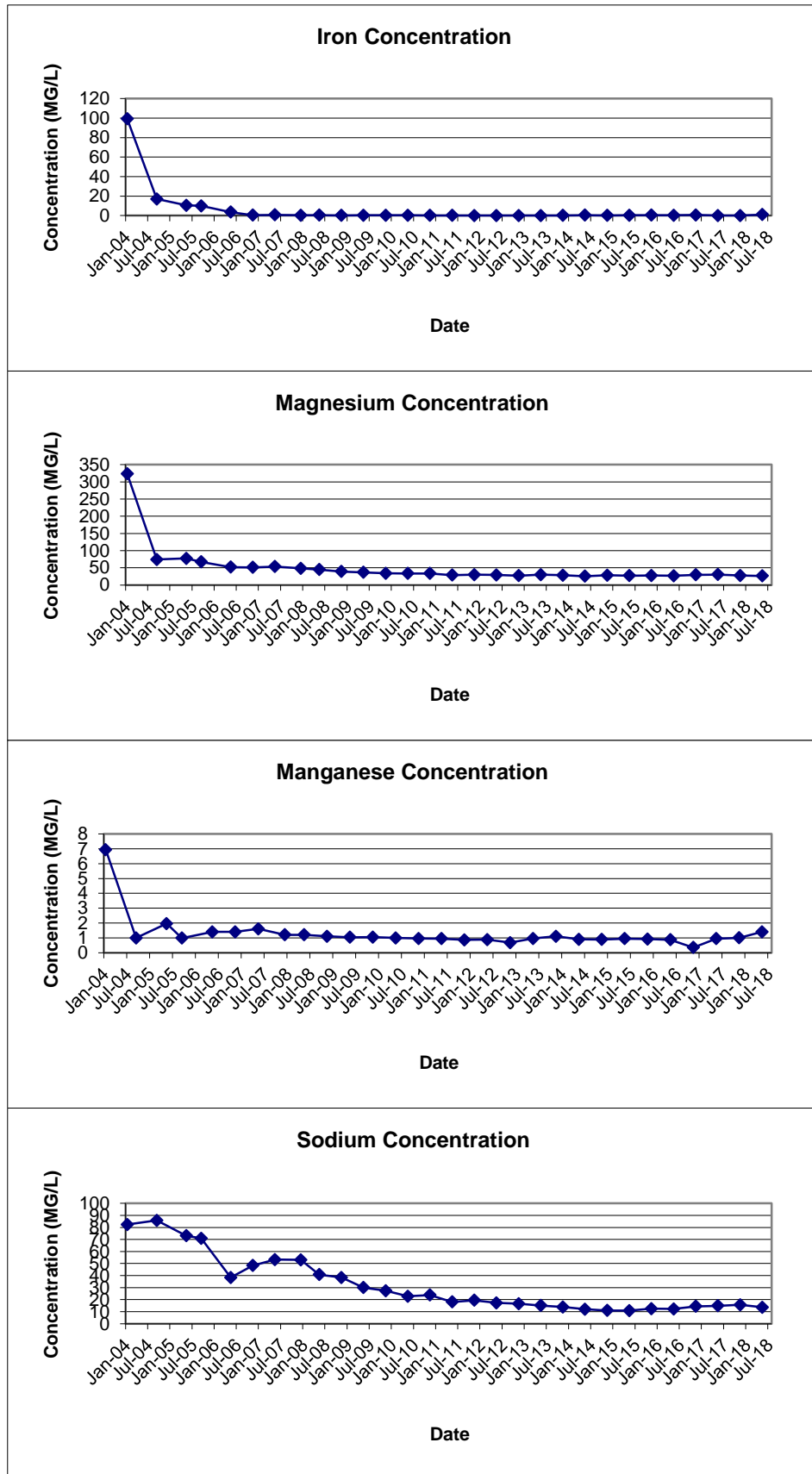


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

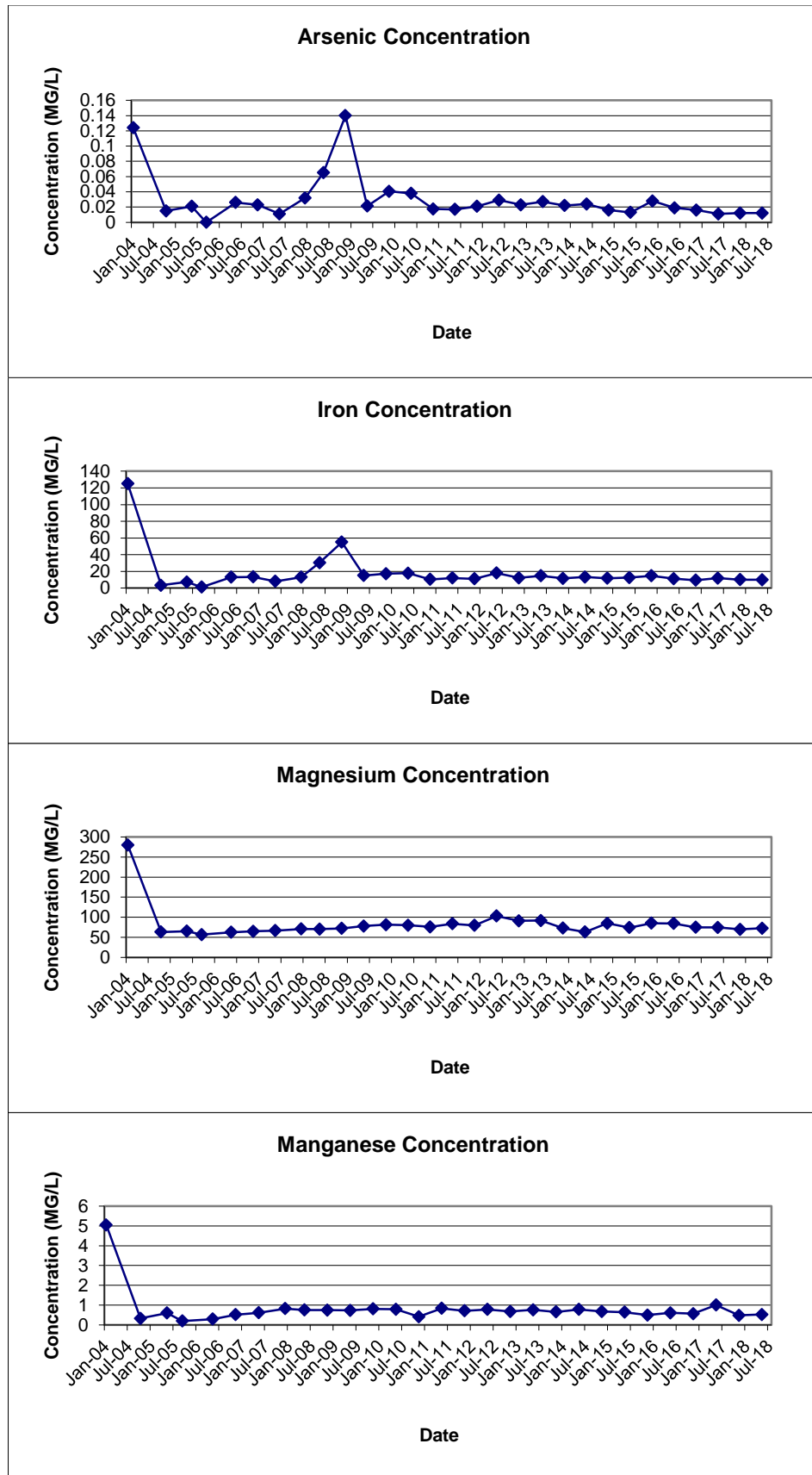


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

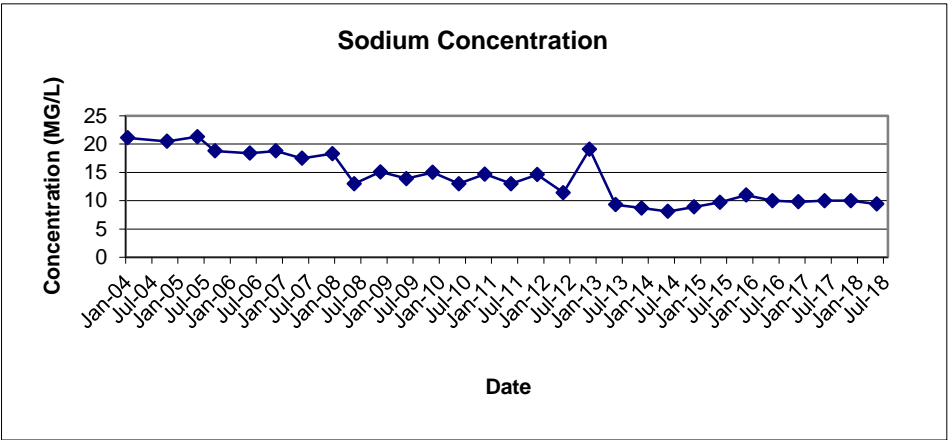


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

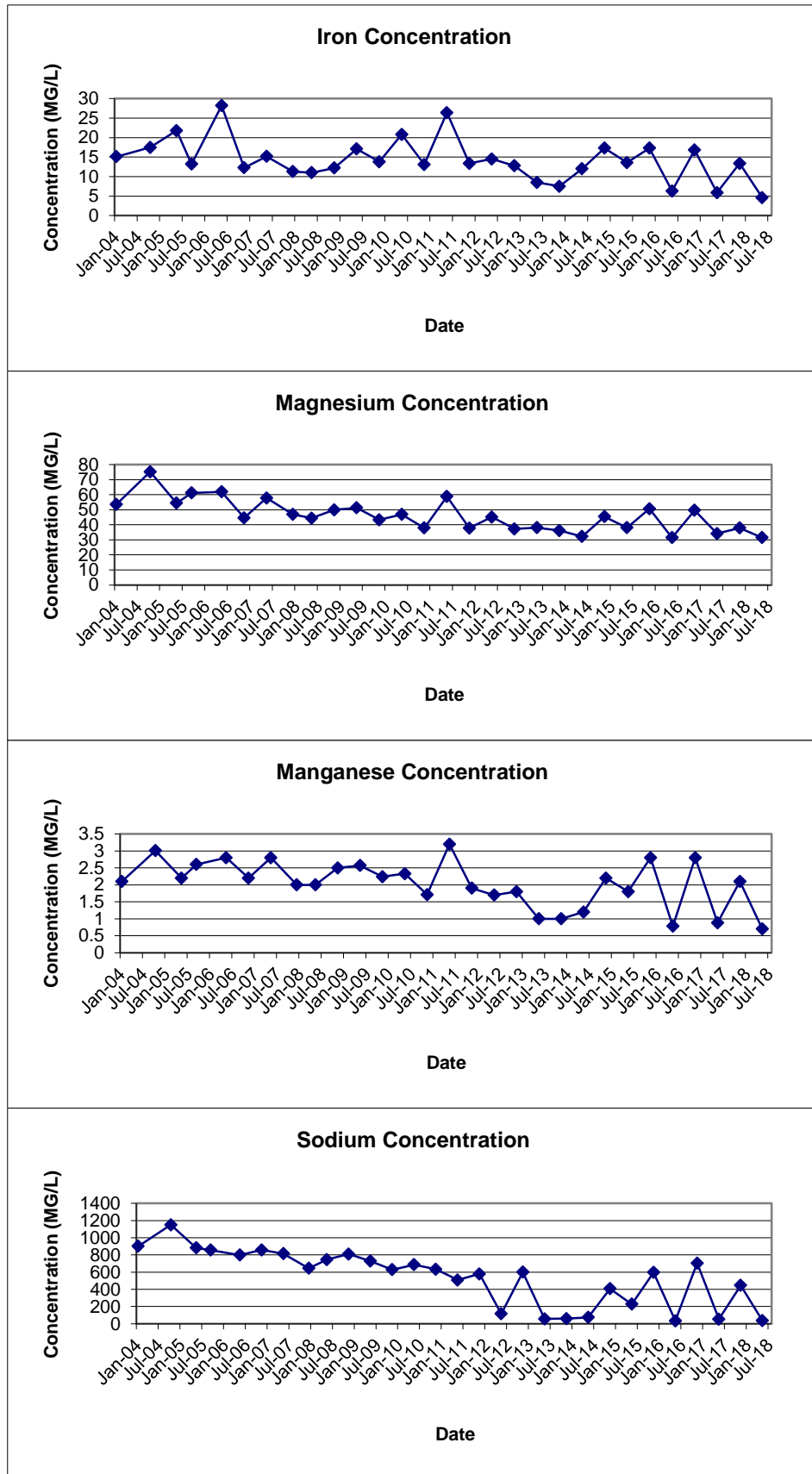


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

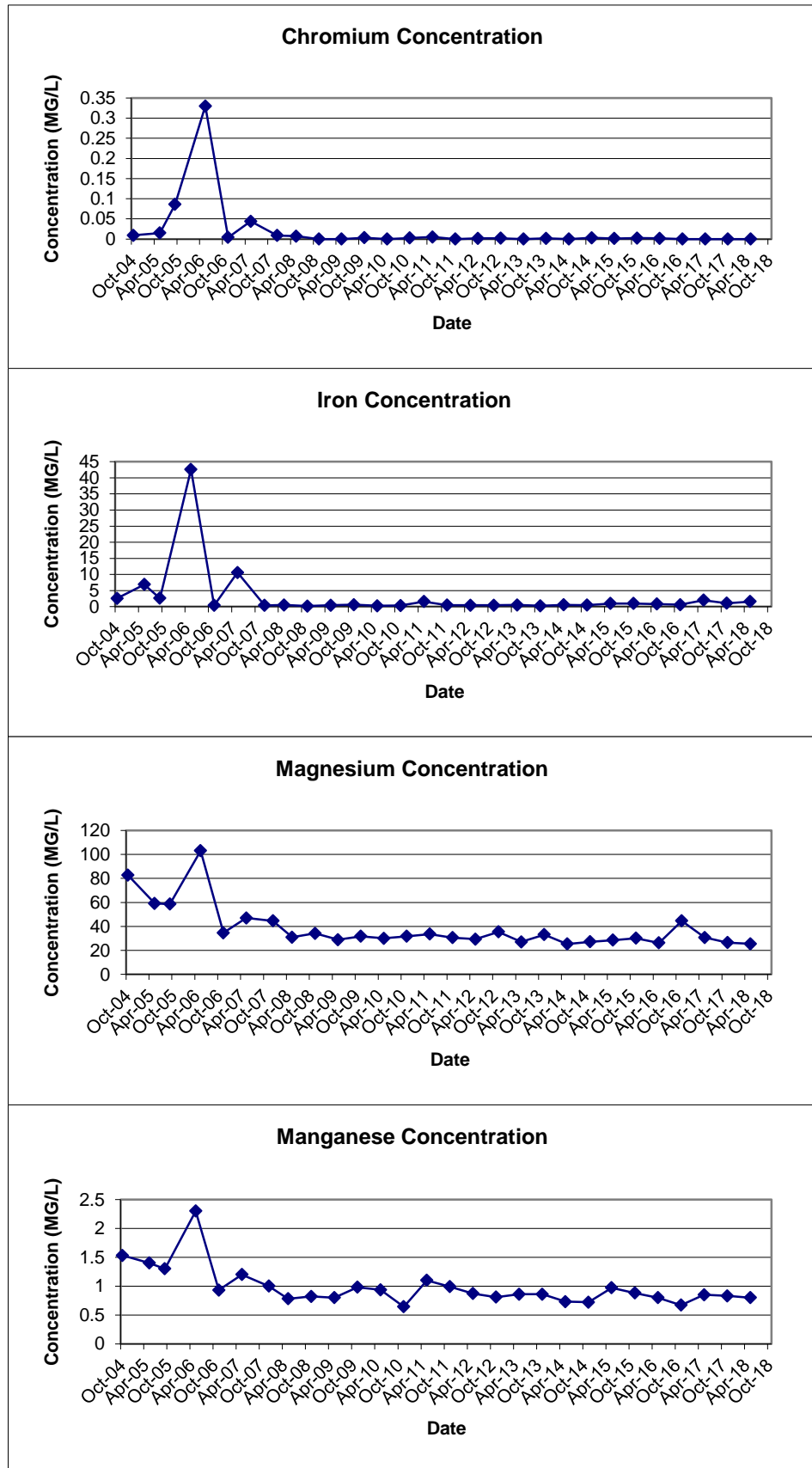


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

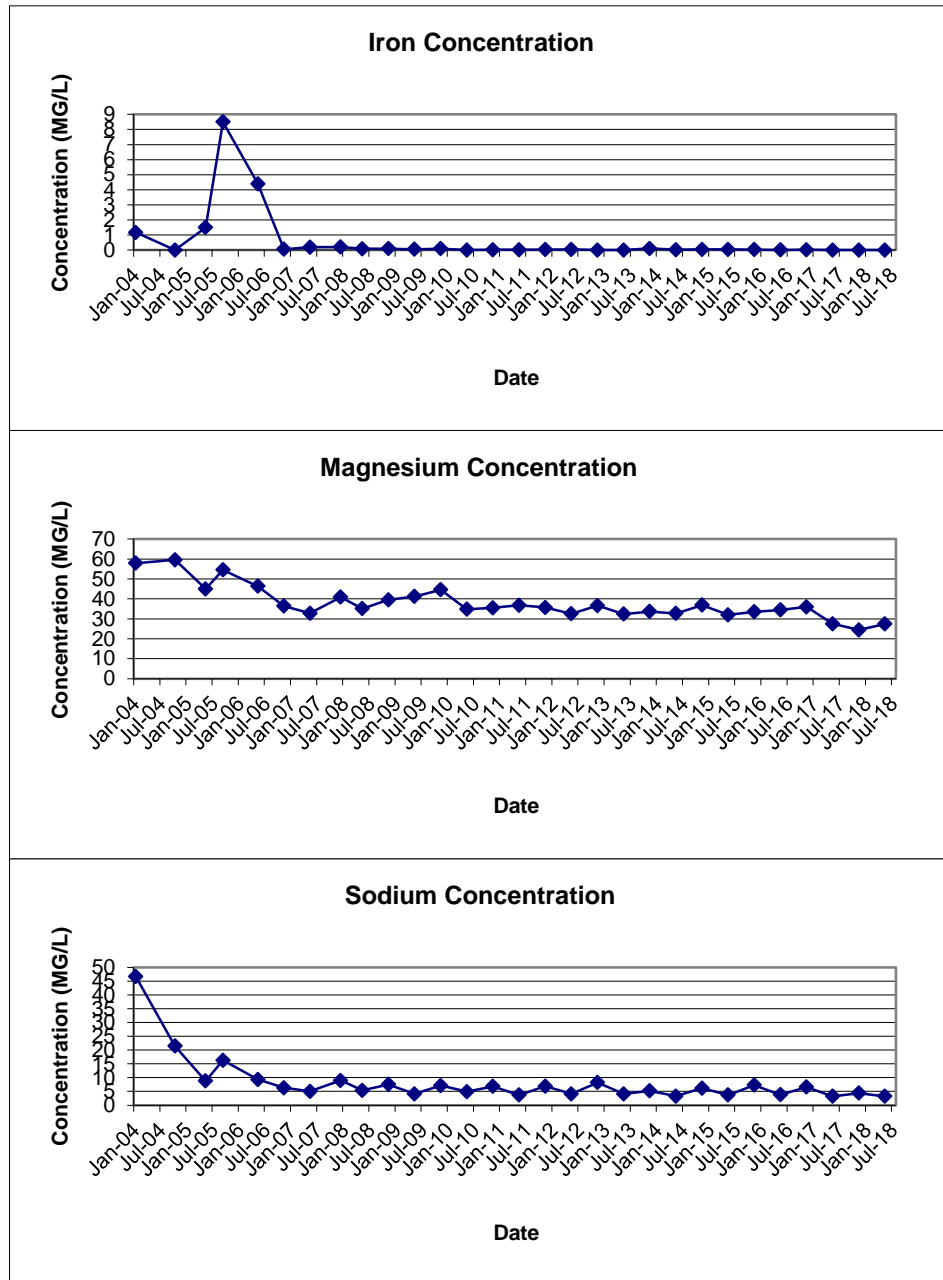


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

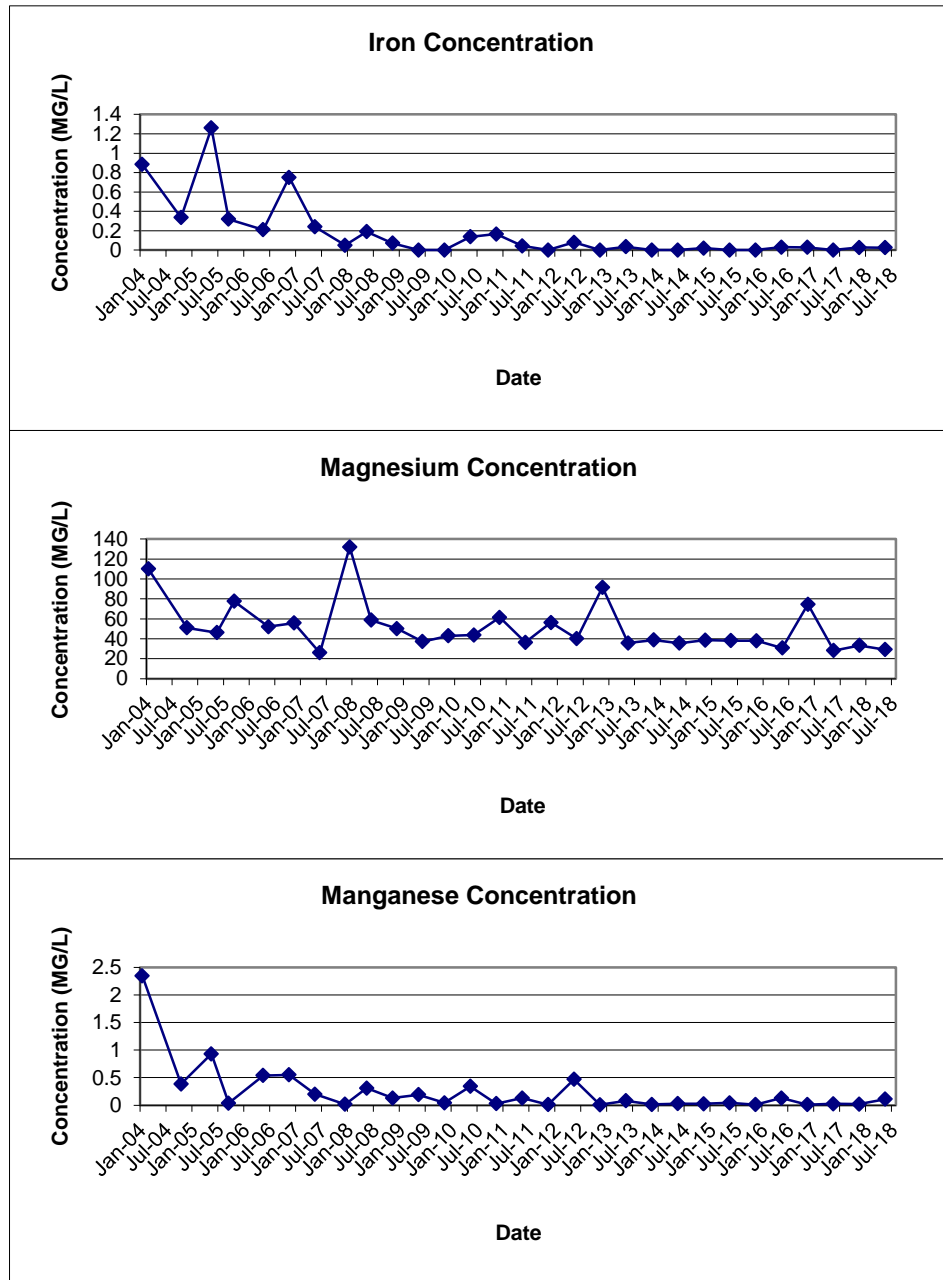


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

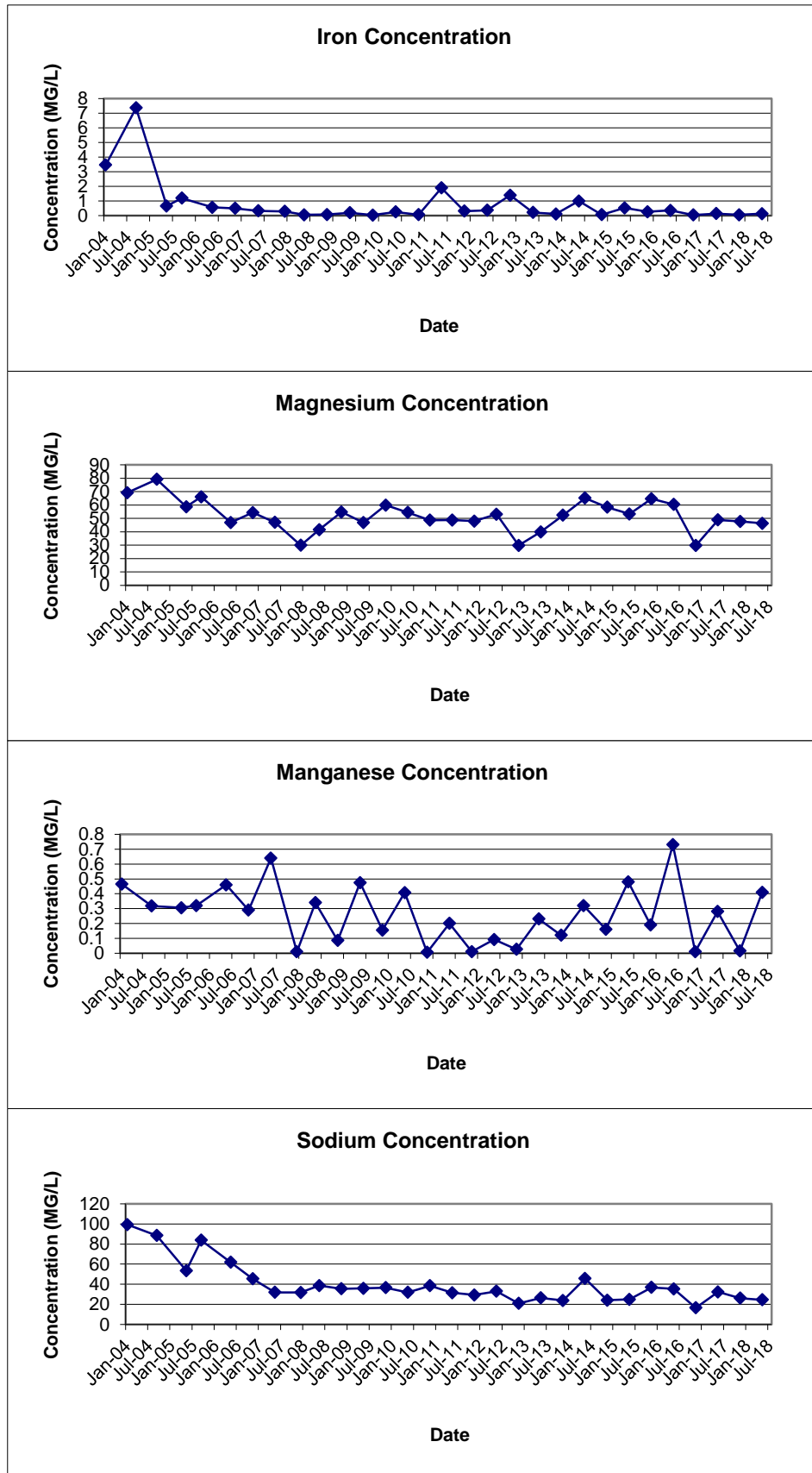
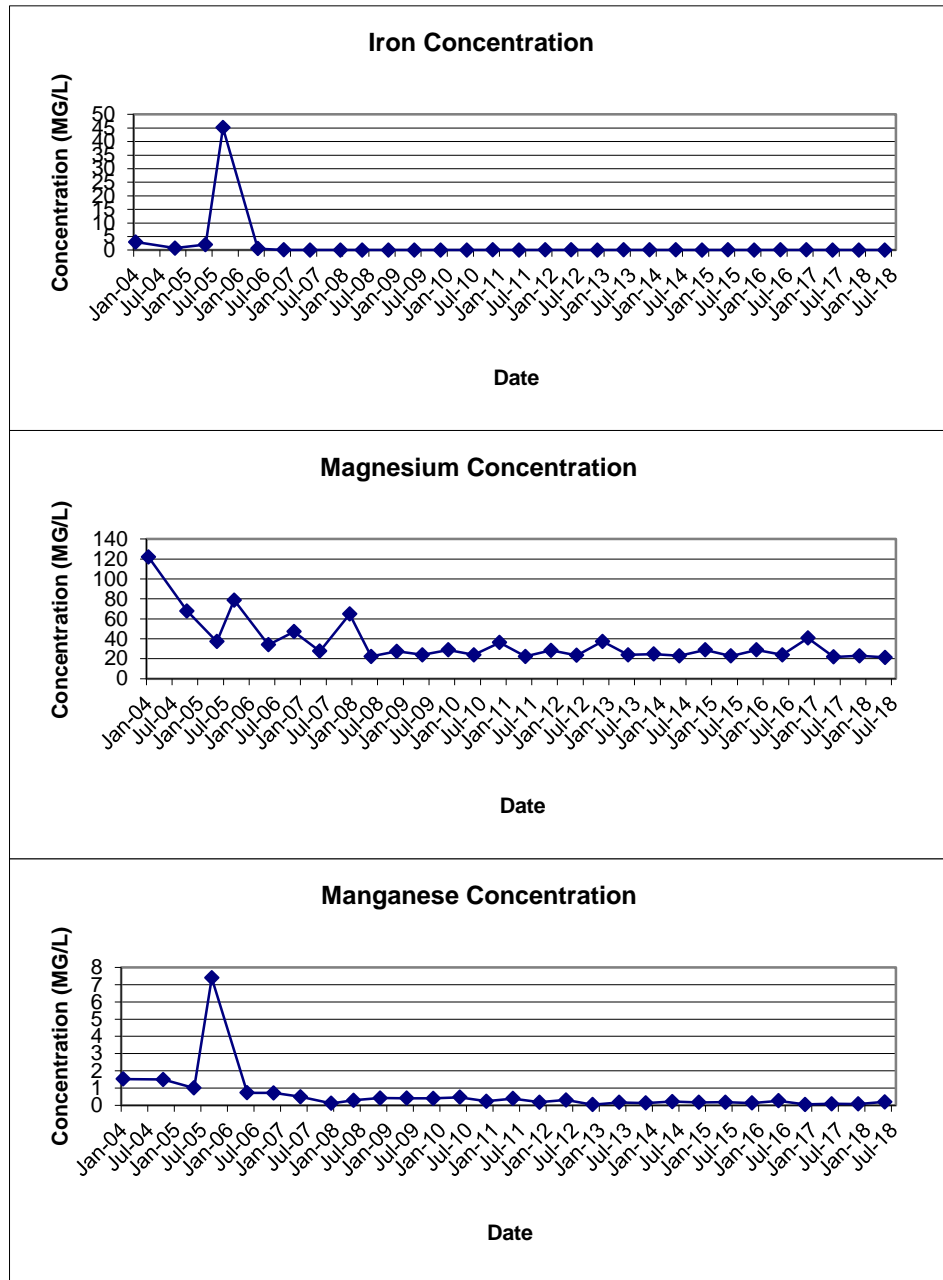


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 16-04-CH016

**AUTHORIZATION TO DISCHARGE UNDER THE BUFFALO
POLLUTANT DISCHARGE ELIMINATION SYSTEM**

PERMIT NO. 16-04-CH016
USEPA Category 40 CFR Part 403

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

THE TOWN OF CHEEKTOWAGA

to discharge wastewater from a facility located at:

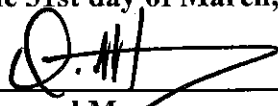
PFOHL BROTHERS LANDFILL REMEDIATION SITE
1000 AERO DRIVE
CHEEKTOWAGA, NEW YORK 14225

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

Issuance of this permit is based upon a permit application filed on **July 6, 2016** analytical data. This permit is granted in accordance with discharge limitations, monitoring requirements and other conditions set forth in Parts I and II hereof.

Effective this 1st^{day} of April, 2016

To Expire the 31st day of March, 2019



General Manager
Signed this 11th day of July, 2016

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

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

Sample Point	Parameter	Discharge Limitations ⁽¹⁾	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:

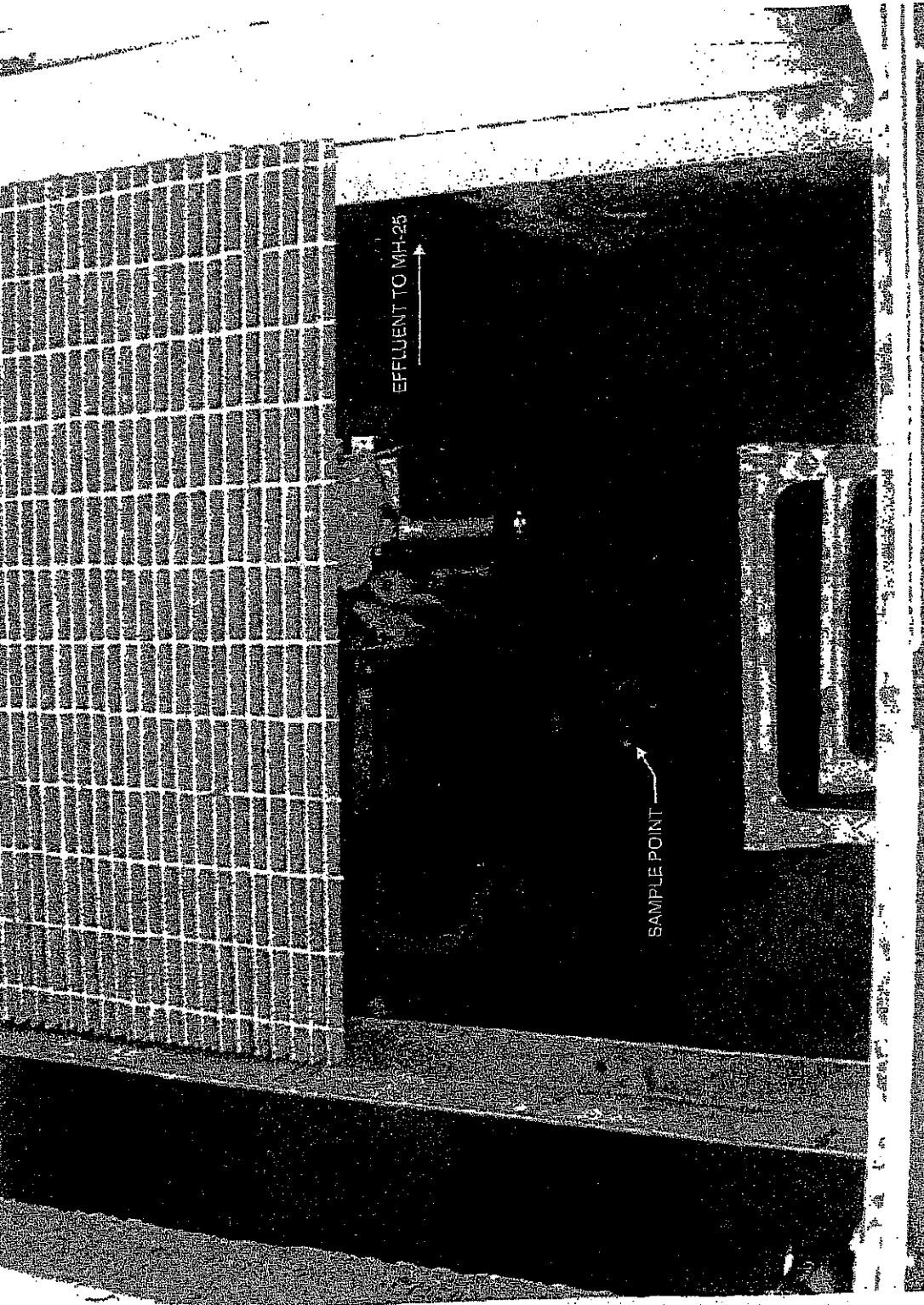
Sample Point	Parameter	Reporting Requirements	
		Initial Report	Subsequent Reports
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	June 30, 2016	Every March 31 st , June 30 th , September 30 th and December 31 st
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016	

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

Weather: 47° F, Clear

Sampling Device: NA

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

Sample Interval: NA Sample Volume: NA

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

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

Weather: 41° F, Cloudy

Time of Collection: 13:10

Field Measurements:

13:10/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 8.49

Temperature: 7.6°C

Identification: EFF-032718

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

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

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

TABLE 1

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

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

Notes:

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

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

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

Weather: 69° F, Clear

Sampling Device: NA

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

Sample Interval: NA Sample Volume: NA

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

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

Weather: 69° F, Cloudy, light rain

Time of Collection: 08:25

Field Measurements:

08:25/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 6.90

Temperature: 17.2°C

Identification: EFF-061318

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

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

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

TABLE 1

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

Sample ID	EFF-061318			
Matrix	Effluent Water			
Date Sampled	6/13/2018			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.66	0.23	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.0002	1.17	No
Total Chromium	0.0012	0.00041	1.17	No
Total Copper	0.0030	0.001	3.74	No
Total Lead	0.0071	0.002	1.17	No
Total Nickel	0.0050	0.002	3.27	No
Total Zinc	0.0230	0.008	5.84	No
Total Suspended Solids	222	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	6.9	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		40,988	140,100	No

Notes:

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

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

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date(s) of Inspection: May 16, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-01S	OK	OK	OK	Bulged	4.12	14.94	
GW-01D	OK	OK	OK	Bulged	3.07	39.65	
GW-03S	OK	OK	OK	OK	2.37	13.22	
GW-03D	OK	OK	OK	OK	1.93	35.70	
GW-04S	OK	OK	OK	OK	4.31	16.23	
GW-04D	OK	OK	OK	OK	12.08	45.57	
GW-07S	OK	OK	OK	OK	5.09	35.33	
GW-07D	OK	OK	OK	Damaged	47.05	60.83	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date(s) of Inspection: May 16, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-08SR	OK	OK	OK	OK	5.06	13.02	
GW-08D	OK	OK	OK	OK	5.89	36.54	
GW-26D	OK	OK	OK	OK	6.72	40.70	
GW-28S	OK	OK	OK	OK	5.55	15.52	
GW-29S	OK	OK	OK	OK	8.88	20.04	
GW-30S	OK	OK	OK	OK	7.71	17.97	
GW-31S	OK	OK	OK	OK	3.49	9.57	
GW-32S	OK	OK	OK	OK	3.45	9.93	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date(s) of Inspection: May 16, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-33S	OK	OK	OK	OK	4.76	8.21	
GW-34S	OK	OK	OK	OK	2.51	10.01	
GW-35S	OK	OK	OK	OK	3.71	7.46	

Additional Comments:

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:

**AECOM
257 WEST GENESEE STREET, SUITE 400
BUFFALO, NY 14202-2657**

JUNE 2018

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VII. SUMMARY	3

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 May 2018 semi-annual monitoring program at the Pfohl Brothers Landfill Site, located in Cheektowaga, NY.

II. ANALYTICAL METHODOLOGIES and DATA APPLICABILITY PROCEDURES

The data being evaluated are from the May 16-18, 2018 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 review was performed in accordance with the following USEPA guidelines:

- *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2017-002, January 2017.
- *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2017-001, January 2017.

The data applicability evaluation 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 analytical results are presented on Table 1 (groundwater) and Table 2 (field QC). Copies of the 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 5/16/18, while the SVOC/metals aliquots were collected on 5/17/18. All aliquots of sample GW-04S were collected on 5/17/18, however the VOCs were collected at 07:43 am while the SVOCs/metals were collected at 09:12 am, due to a low recharge rate.

V. NON-CONFORMANCES

The metals method blanks 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, for those samples where the sample results were greater than the RL, the 'B' qualifiers were removed during the limited data validation.

The percent recovery of the metals continuing calibration verification (CCV) exceeded the QC limit for Sodium (Na). The detected Na results in associated samples GW-04D, GW-04S, and GW-07D have been qualified 'J+'.

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-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+' (estimated, bias high) during the limited data review are considered conditionally usable. All other sample results are usable as reported. AECOM does not recommend the recollection of any samples at this time.

Prepared By: Ann Marie Kropovitch, Chemist



Date: 6/14/18

Reviewed by: George E. Kisluk, Senior Chemist



Date: 6/14/18

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-051618	GW-03D	GW-03S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/16/18	05/16/18	05/16/18	05/16/18	05/16/18
Parameter	Units			Field Duplicate (1-1)		
Volatile Organic Compounds						
1,1,2-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	1.9 J	1.7 J	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	2.7 J	2.4 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	0.084	0.15	0.099	0.096	0.11
Cadmium	MG/L	0.0010 U	0.00089 J	0.0010 U	0.0010 U	0.0030
Chromium	MG/L	0.0067	0.0027 J	0.0046	0.0069	0.026
Copper	MG/L	0.010 U	0.010 U	0.010 U	0.010 U	0.0022 J
Iron	MG/L	0.82	9.4	1.8	1.8	1.3
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	38.0	20.0	18.8	17.9	98.9
Manganese	MG/L	0.020	1.1	0.32	0.31	0.12
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	0.0052 J	0.0051 J	0.047

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

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-051618	GW-03D	GW-03S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/16/18	05/16/18	05/16/18	05/16/18	05/16/18
Parameter	Units			Field Duplicate (1-1)		
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	109	136	206	199	109
Zinc	MG/L	0.0092 J	0.0026 J	0.0037 J	0.0031 J	0.017

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Sample ID		GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/17/18	05/17/18	05/17/18	05/16/18	05/17/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-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	10 U	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	10 U
1,4-Dichlorobenzene	UG/L	10 U	NA	10 U	NA	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	NA	5.0 U	NA	5.0 U
Phenol	UG/L	5.0 U	NA	5.0 U	NA	5.0 U
Metals						
Antimony	MG/L	0.020 U	NA	0.020 U	NA	0.020 U
Arsenic	MG/L	0.010 U	NA	0.010 U	NA	0.010 U
Barium	MG/L	0.090	NA	0.13	NA	0.089
Cadmium	MG/L	0.0010 U	NA	0.0010 U	NA	0.0013
Chromium	MG/L	0.0036 J	NA	0.0050	NA	0.28
Copper	MG/L	0.010 U	NA	0.0053 J	NA	0.031
Iron	MG/L	0.17	NA	3.2	NA	5.2
Lead	MG/L	0.0050 U	NA	0.0050 U	NA	0.13
Magnesium	MG/L	78.0	NA	29.1	NA	37.4
Manganese	MG/L	0.022	NA	0.13	NA	0.088
Mercury	MG/L	0.00020 U	NA	0.00020 U	NA	0.00020 U
Nickel	MG/L	0.0016 J	NA	0.0056 J	NA	0.14

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Sample ID		GW-04D	GW-04S	GW-04S	GW-07D	GW-07D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/17/18	05/17/18	05/17/18	05/16/18	05/17/18
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	NA	0.0030 U	NA	0.0030 U
Sodium	MG/L	95.6 J+	NA	34.2 J+	NA	84.6 J+
Zinc	MG/L	0.015	NA	0.013	NA	0.082

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Sample ID		GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/16/18	05/17/18	05/17/18	05/17/18	05/17/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	1.0 U	NA	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	NA	2.0 U	2.0 U	0.82 J
Acetone	UG/L	10 U	NA	10 U	10 U	10 U
Benzene	UG/L	1.0 U	NA	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	NA	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	NA	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	NA	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	NA	5.0 U	5.0 U	5.0 U	5.0 U
Phenol	UG/L	NA	5.0 U	5.0 U	5.0 U	5.0 U
Metals						
Antimony	MG/L	NA	0.020 U	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	NA	0.010 U	0.010 U	0.010 U	0.010 U
Barium	MG/L	NA	0.46	0.070	0.10	0.14
Cadmium	MG/L	NA	0.00057 J	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	NA	0.0040 U	0.040	0.0040 U	0.0040 U
Copper	MG/L	NA	0.010 U	0.010 U	0.010 U	0.010 U
Iron	MG/L	NA	0.11	0.21	10.0	3.2
Lead	MG/L	NA	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	NA	47.0	16.4	49.4	19.9
Manganese	MG/L	NA	0.062	0.022	0.80	0.49
Mercury	MG/L	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	NA	0.016	0.0065 J	0.0016 J	0.0024 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Sample ID		GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/16/18	05/17/18	05/17/18	05/17/18	05/17/18
Parameter	Units					
Metals						
Silver	MG/L	NA	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	NA	64.5	213	138	338
Zinc	MG/L	NA	0.0059 J	0.012	0.0023 J	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Sample ID		GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/17/18	05/17/18	05/18/18	05/18/18	05/18/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-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	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	0.012	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.082	0.17	0.10	0.069	0.050
Cadmium	MG/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	0.0017 J	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	1.1	9.9	4.6	1.6	0.050 U
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	26.4	72.3	31.5	25.5	27.4
Manganese	MG/L	1.4	0.52	0.70	0.80	0.43
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.0021 J	0.010 U	0.010 U	0.0020 J	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Sample ID		GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/17/18	05/17/18	05/18/18	05/18/18	05/18/18
Parameter	Units					
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	13.6	9.4	33.9	3.2	3.2
Zinc	MG/L	0.0068 J	0.010 U	0.010 U	0.0040 J	0.0034 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-33S	GW-34S	GW-35S
Sample ID		GW-33S	GW-34S	GW-35S
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-
Date Sampled		05/18/18	05/17/18	05/17/18
Parameter	Units			
Volatile Organic Compounds				
1,1,2-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	UG/L	2.0 U	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U	10 U
Benzene	UG/L	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds				
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	UG/L	5.0 U	5.0 U	5.0 U
Phenol	UG/L	5.0 U	5.0 U	5.0 U
Metals				
Antimony	MG/L	0.020 U	0.020 U	0.020 U
Arsenic	MG/L	0.010 U	0.010 U	0.010 U
Barium	MG/L	0.037	0.12	0.079
Cadmium	MG/L	0.0010 U	0.0010 U	0.0010 U
Chromium	MG/L	0.0040 U	0.0040 U	0.0040 U
Copper	MG/L	0.010 U	0.010 U	0.010 U
Iron	MG/L	0.025 J	0.14	0.032 J
Lead	MG/L	0.0050 U	0.0050 U	0.0050 U
Magnesium	MG/L	29.1	46.3	21.2
Manganese	MG/L	0.11	0.41	0.19
Mercury	MG/L	0.00020 U	0.00020 U	0.00020 U
Nickel	MG/L	0.0013 J	0.0056 J	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-33S	GW-34S	GW-35S
Sample ID		GW-33S	GW-34S	GW-35S
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-
Date Sampled		05/18/18	05/17/18	05/17/18
Parameter	Units			
Metals				
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U
Sodium	MG/L	2.9	24.4	2.6
Zinc	MG/L	0.0031 J	0.0076 J	0.0027 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18

CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

TABLE 2
VALIDATED FIELD QC SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		FIELDQC	FIELDQC
Sample ID		TRIP BLANK	TB-051818
Matrix		Quality Control	Quality Control
Depth Interval (ft)		-	-
Date Sampled		05/16/18	05/18/18
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-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

Flags assigned during chemistry validation are shown.

MADE BY: AMK 6/12/18
 CHECKED BY: GEK 6/13/18

Detection Limits shown are PQL

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-01D

Lab Sample ID: 480-136037-1

Date Collected: 05/16/18 13:00

Matrix: Water

Date Received: 05/16/18 18:35

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			05/23/18 06:29	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/23/18 06:29	1
Acetone	ND		10	3.0	ug/L			05/23/18 06:29	1
Benzene	ND		1.0	0.41	ug/L			05/23/18 06:29	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/18 06:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		05/23/18 06:29	1
Toluene-d8 (Surr)	105		80 - 120		05/23/18 06:29	1
4-Bromofluorobenzene (Surr)	101		73 - 120		05/23/18 06:29	1
Dibromofluoromethane (Surr)	101		75 - 123		05/23/18 06:29	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		05/17/18 14:30	05/22/18 19:59	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/17/18 14:30	05/22/18 19:59	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 19:59	1
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 19:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	77		41 - 120	05/17/18 14:30	05/22/18 19:59	1
2-Fluorobiphenyl	71		48 - 120	05/17/18 14:30	05/22/18 19:59	1
2-Fluorophenol	48		35 - 120	05/17/18 14:30	05/22/18 19:59	1
Nitrobenzene-d5	66		46 - 120	05/17/18 14:30	05/22/18 19:59	1
Phenol-d5	35		22 - 120	05/17/18 14:30	05/22/18 19:59	1
p-Terphenyl-d14	99		59 - 136	05/17/18 14:30	05/22/18 19:59	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:16	1
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:16	1
Barium	0.084		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:16	1
Cadmium	ND		0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:16	1
Chromium	0.0067		0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:16	1
Copper	ND		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:16	1
Iron	0.82		0.050	0.019	mg/L		05/18/18 09:24	05/22/18 04:16	1
Lead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:16	1
Magnesium	38.0		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:16	1
Manganese	0.020		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:16	1
Nickel	ND		0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:16	1
Silver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:16	1
Sodium	109		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:16	1
Zinc	0.0092	J	0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:33	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-01S

Lab Sample ID: 480-136037-8

Date Collected: 05/16/18 14:20

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 15:30	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 15:30	1
Acetone	ND		10	3.0	ug/L			05/22/18 15:30	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 15:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 15:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		05/22/18 15:30	1
Toluene-d8 (Surr)	105		80 - 120		05/22/18 15:30	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/22/18 15:30	1
Dibromofluoromethane (Surr)	100		75 - 123		05/22/18 15:30	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		05/17/18 14:30	05/22/18 23:52	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/17/18 14:30	05/22/18 23:52	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 23:52	1
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	86		41 - 120	05/17/18 14:30	05/22/18 23:52	1
2-Fluorobiphenyl	98		48 - 120	05/17/18 14:30	05/22/18 23:52	1
2-Fluorophenol	70		35 - 120	05/17/18 14:30	05/22/18 23:52	1
Nitrobenzene-d5	90		46 - 120	05/17/18 14:30	05/22/18 23:52	1
Phenol-d5	51		22 - 120	05/17/18 14:30	05/22/18 23:52	1
p-Terphenyl-d14	101		59 - 136	05/17/18 14:30	05/22/18 23:52	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0088	mg/L		05/18/18 09:24	05/22/18 04:58	1
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:58	1
Barium	0.15		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:58	1
Cadmium	0.00089	J	0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:58	1
Chromium	0.0027	J	0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:58	1
Copper	ND		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:58	1
Iron	9.4		0.050	0.019	mg/L		05/18/18 09:24	05/22/18 04:58	1
Lead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:58	1
Magnesium	20.0		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:58	1
Manganese	1.1		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:58	1
Nickel	ND		0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:58	1
Silver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:58	1
Sodium	136		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:58	1
Zinc	0.0026	J	0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:46	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-03D

Lab Sample ID: 480-136037-3

Date Collected: 05/16/18 17:40

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 13:24	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/22/18 13:24	1
Acetone	ND		10	3.0	ug/L			05/22/18 13:24	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 13:24	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 13:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		77 - 120		05/22/18 13:24	1
Toluene-d8 (Surr)	95		80 - 120		05/22/18 13:24	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/22/18 13:24	1
Dibromofluoromethane (Surr)	90		75 - 123		05/22/18 13:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	1.7	J	10	0.48	ug/L		05/17/18 14:30	05/22/18 22:53	1
1,4-Dichlorobenzene	2.4	J	10	0.46	ug/L		05/17/18 14:30	05/22/18 22:53	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 22:53	1
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 22:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	98		41 - 120	05/17/18 14:30	05/22/18 22:53	1
2-Fluorobiphenyl	96		48 - 120	05/17/18 14:30	05/22/18 22:53	1
2-Fluorophenol	71		35 - 120	05/17/18 14:30	05/22/18 22:53	1
Nitrobenzene-d5	88		46 - 120	05/17/18 14:30	05/22/18 22:53	1
Phenol-d5	51		22 - 120	05/17/18 14:30	05/22/18 22:53	1
p-Terphenyl-d14	99		59 - 136	05/17/18 14:30	05/22/18 22:53	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:50	1
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:50	1
Barium	0.096		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:50	1
Cadmium	ND		0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:50	1
Chromium	0.0069		0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:50	1
Copper	ND		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:50	1
Iron	1.8		0.050	0.019	mg/L		05/18/18 09:24	05/22/18 04:50	1
Lead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:50	1
Magnesium	17.9		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:50	1
Manganese	0.31		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:50	1
Nickel	0.0051	J	0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:50	1
Silver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:50	1
Sodium	199		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:50	1
Zinc	0.0031	J	0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:42	1

TestAmerica Buffalo

Client Sample Results

GW-03D

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: FD-051618

Lab Sample ID: 480-136037-4

Date Collected: 05/16/18 00:00

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 13:50	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/22/18 13:50	1
Acetone	ND		10	3.0	ug/L			05/22/18 13:50	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 13:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 13:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		05/22/18 13:50	1
Toluene-d8 (Surr)	103		80 - 120		05/22/18 13:50	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/22/18 13:50	1
Dibromofluoromethane (Surr)	97		75 - 123		05/22/18 13:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,3-Dichlorobenzene	1.9	J	10	0.48	ug/L		05/17/18 14:30	05/22/18 23:23	1
1,4-Dichlorobenzene	2.7	J	10	0.46	ug/L		05/17/18 14:30	05/22/18 23:23	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 23:23	1
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 23:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	107		41 - 120	05/17/18 14:30	05/22/18 23:23	1
2-Fluorobiphenyl	106		48 - 120	05/17/18 14:30	05/22/18 23:23	1
2-Fluorophenol	81		35 - 120	05/17/18 14:30	05/22/18 23:23	1
Nitrobenzene-d5	99		46 - 120	05/17/18 14:30	05/22/18 23:23	1
Phenol-d5	58		22 - 120	05/17/18 14:30	05/22/18 23:23	1
p-Terphenyl-d14	108		59 - 136	05/17/18 14:30	05/22/18 23:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:54	1
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:54	1
Barium	0.099		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:54	1
Cadmium	ND		0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:54	1
Chromium	0.0046		0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:54	1
Copper	ND		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:54	1
Iron	1.8		0.050	0.019	mg/L		05/18/18 09:24	05/22/18 04:54	1
Lead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:54	1
Magnesium	18.8		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:54	1
Manganese	0.32		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:54	1
Nickel	0.0052	J	0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:54	1
Silver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:54	1
Sodium	206		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:54	1
Zinc	0.0037	J	0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:44	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-03S

Lab Sample ID: 480-136037-2

Date Collected: 05/16/18 16:30

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 12:59	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 12:59	1
Acetone	ND		10	3.0	ug/L			05/22/18 12:59	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 12:59	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 12:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		05/22/18 12:59	1
Toluene-d8 (Surr)	105		80 - 120		05/22/18 12:59	1
4-Bromofluorobenzene (Surr)	103		73 - 120		05/22/18 12:59	1
Dibromofluoromethane (Surr)	99		75 - 123		05/22/18 12:59	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		05/17/18 14:30	05/22/18 22:24	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/17/18 14:30	05/22/18 22:24	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 22:24	1
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 22:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	95		41 - 120	05/17/18 14:30	05/22/18 22:24	1
2-Fluorobiphenyl	94		48 - 120	05/17/18 14:30	05/22/18 22:24	1
2-Fluorophenol	73		35 - 120	05/17/18 14:30	05/22/18 22:24	1
Nitrobenzene-d5	89		48 - 120	05/17/18 14:30	05/22/18 22:24	1
Phenol-d5	55		22 - 120	05/17/18 14:30	05/22/18 22:24	1
p-Terphenyl-d14	100		59 - 136	05/17/18 14:30	05/22/18 22:24	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:46	1
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:46	1
Barium	0.11		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:46	1
Cadmium	0.0030		0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:46	1
Chromium	0.026		0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:46	1
Copper	0.0022 J		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:46	1
Iron	1.3		0.050	0.019	mg/L		05/18/18 09:24	05/22/18 04:46	1
Lead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:46	1
Magnesium	98.9		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:46	1
Manganese	0.12		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:46	1
Nickel	0.047		0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:46	1
Silver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:46	1
Sodium	109		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:46	1
Zinc	0.017		0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:40	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-04D

Lab Sample ID: 480-136147-2

Date Collected: 05/17/18 09:07

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 03:03	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 03:03	1
Acetone	ND		10	3.0	ug/L			05/24/18 03:03	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 03:03	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 03:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/24/18 03:03	1
Toluene-d8 (Surr)	86		80 - 120		05/24/18 03:03	1
4-Bromofluorobenzene (Surr)	93		73 - 120		05/24/18 03:03	1
Dibromofluoromethane (Surr)	93		75 - 123		05/24/18 03:03	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		05/21/18 14:17	05/24/18 11:55	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 11:55	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 11:55	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 11:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	83		41 - 120	05/21/18 14:17	05/24/18 11:55	1
2-Fluorobiphenyl	84		48 - 120	05/21/18 14:17	05/24/18 11:55	1
2-Fluorophenol	63		35 - 120	05/21/18 14:17	05/24/18 11:55	1
Nitrobenzene-d5	74		46 - 120	05/21/18 14:17	05/24/18 11:55	1
Phenol-d5	47		22 - 120	05/21/18 14:17	05/24/18 11:55	1
p-Terphenyl-d14	87		59 - 136	05/21/18 14:17	05/24/18 11:55	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 20:35	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 20:35	1
Barium	0.090		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 20:35	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 20:35	1
Chromium	0.0036	J	0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 20:35	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 20:35	1
Iron	0.17		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 20:35	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 20:35	1
Magnesium	78.0		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 20:35	1
Manganese	0.022	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 20:35	1
Nickel	0.0016	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 20:35	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 20:35	1
Sodium	95.6		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 20:35	1
Zinc	0.015		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 20:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:04	1

Handwritten signature and date: 6/11/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-136147-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-04S

Lab Sample ID: 480-136147-1

Date Collected: 05/17/18 07:43

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 02:35	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 02:35	1
Acetone	ND		10	3.0	ug/L			05/24/18 02:35	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 02:35	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/24/18 02:35	1
Toluene-d8 (Surr)	93		80 - 120		05/24/18 02:35	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/24/18 02:35	1
Dibromofluoromethane (Surr)	96		75 - 123		05/24/18 02:35	1

OK
6/12/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-04S

Lab Sample ID: 480-136147-3

Date Collected: 05/17/18 09:12

Matrix: Water

Date Received: 05/17/18 18:35

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		05/21/18 14:17	05/24/18 12:24	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 12:24	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 12:24	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 12:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		41 - 120	05/21/18 14:17	05/24/18 12:24	1
2-Fluorobiphenyl	97		48 - 120	05/21/18 14:17	05/24/18 12:24	1
2-Fluorophenol	75		35 - 120	05/21/18 14:17	05/24/18 12:24	1
Nitrobenzene-d5	87		46 - 120	05/21/18 14:17	05/24/18 12:24	1
Phenol-d5	55		22 - 120	05/21/18 14:17	05/24/18 12:24	1
p-Terphenyl-d14	105		59 - 136	05/21/18 14:17	05/24/18 12:24	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 20:39	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 20:39	1
Barium	0.13		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 20:39	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 20:39	1
Chromium	0.0050		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 20:39	1
Copper	0.0053	J	0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 20:39	1
Iron	3.2		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 20:39	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 20:39	1
Magnesium	29.1		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 20:39	1
Manganese	0.13	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 20:39	1
Nickel	0.0056	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 20:39	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 20:39	1
Sodium	34.2		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 20:39	1
Zinc	0.013		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 20:39	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:06	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-07D

Lab Sample ID: 480-136037-6

Date Collected: 05/16/18 09:44

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 14:40	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 14:40	1
Acetone	ND		10	3.0	ug/L			05/22/18 14:40	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 14:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/22/18 14:40	1
Toluene-d8 (Surr)	104		80 - 120		05/22/18 14:40	1
4-Bromofluorobenzene (Surr)	99		73 - 120		05/22/18 14:40	1
Dibromofluoromethane (Surr)	101		75 - 123		05/22/18 14:40	1

6

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-07D

Lab Sample ID: 480-136147-4

Date Collected: 05/17/18 09:25

Matrix: Water

Date Received: 05/17/18 18:35

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		05/21/18 14:17	05/24/18 12:54	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 12:54	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 12:54	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 12:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		41 - 120	05/21/18 14:17	05/24/18 12:54	1
2-Fluorobiphenyl	90		48 - 120	05/21/18 14:17	05/24/18 12:54	1
2-Fluorophenol	74		35 - 120	05/21/18 14:17	05/24/18 12:54	1
Nitrobenzene-d5	77		46 - 120	05/21/18 14:17	05/24/18 12:54	1
Phenol-d5	59		22 - 120	05/21/18 14:17	05/24/18 12:54	1
p-Terphenyl-d14	105		59 - 136	05/21/18 14:17	05/24/18 12:54	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 20:42	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 20:42	1
Barium	0.089		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 20:42	1
Cadmium	0.0013		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 20:42	1
Chromium	0.28		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 20:42	1
Copper	0.031		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 20:42	1
Iron	5.2		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 20:42	1
Lead	0.13		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 20:42	1
Magnesium	37.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 20:42	1
Manganese	0.088	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 20:42	1
Nickel	0.14		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 20:42	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 20:42	1
Sodium	84.6		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 20:42	1
Zinc	0.082		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 20:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:08	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: GW-07S

Lab Sample ID: 480-136037-5

Date Collected: 05/16/18 09:47

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 14:15	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 14:15	1
Acetone	ND		10	3.0	ug/L			05/22/18 14:15	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 14:15	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 14:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/22/18 14:15	1
Toluene-d8 (Surr)	107		80 - 120		05/22/18 14:15	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/22/18 14:15	1
Dibromofluoromethane (Surr)	101		75 - 123		05/22/18 14:15	1

6

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-07S

Lab Sample ID: 480-136147-5

Date Collected: 05/17/18 09:27

Matrix: Water

Date Received: 05/17/18 18:35

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		05/21/18 14:17	05/24/18 13:23	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 13:23	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 13:23	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 13:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		41 - 120	05/21/18 14:17	05/24/18 13:23	1
2-Fluorobiphenyl	94		48 - 120	05/21/18 14:17	05/24/18 13:23	1
2-Fluorophenol	77		35 - 120	05/21/18 14:17	05/24/18 13:23	1
Nitrobenzene-d5	85		46 - 120	05/21/18 14:17	05/24/18 13:23	1
Phenol-d5	56		22 - 120	05/21/18 14:17	05/24/18 13:23	1
p-Terphenyl-d14	109		59 - 136	05/21/18 14:17	05/24/18 13:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:11	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:11	1
Barium	0.46		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:11	1
Cadmium	0.00057	J	0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:11	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:11	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:11	1
Iron	0.11		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:11	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:11	1
Magnesium	47.0		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:11	1
Manganese	0.062	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:11	1
Nickel	0.016		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:11	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:11	1
Sodium	64.5		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:11	1
Zinc	0.0059	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:11	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:10	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-08D

Lab Sample ID: 480-136147-8

Date Collected: 05/17/18 13:15

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 13:22	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/24/18 13:22	1
Acetone	ND		10	3.0	ug/L			05/24/18 13:22	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 13:22	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/24/18 13:22	1
Toluene-d8 (Surr)	106		80 - 120		05/24/18 13:22	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/24/18 13:22	1
Dibromofluoromethane (Surr)	100		75 - 123		05/24/18 13:22	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		05/21/18 14:17	05/24/18 14:50	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 14:50	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 14:50	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 14:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	87		41 - 120	05/21/18 14:17	05/24/18 14:50	1
2-Fluorobiphenyl	84		48 - 120	05/21/18 14:17	05/24/18 14:50	1
2-Fluorophenol	63		35 - 120	05/21/18 14:17	05/24/18 14:50	1
Nitrobenzene-d5	72		46 - 120	05/21/18 14:17	05/24/18 14:50	1
Phenol-d5	47		22 - 120	05/21/18 14:17	05/24/18 14:50	1
p-Terphenyl-d14	110		59 - 136	05/21/18 14:17	05/24/18 14:50	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:22	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:22	1
Barium	0.070		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:22	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:22	1
Chromium	0.040		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:22	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:22	1
Iron	0.21		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:22	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:22	1
Magnesium	16.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:22	1
Manganese	0.022	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:22	1
Nickel	0.0065	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:22	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:22	1
Sodium	213		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:22	1
Zinc	0.012		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:15	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-08SR

Lab Sample ID: 480-136147-7

Date Collected: 05/17/18 12:10

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 12:57	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/24/18 12:57	1
Acetone	ND		10	3.0	ug/L			05/24/18 12:57	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 12:57	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 12:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		05/24/18 12:57	1
Toluene-d8 (Surr)	105		80 - 120		05/24/18 12:57	1
4-Bromofluorobenzene (Surr)	101		73 - 120		05/24/18 12:57	1
Dibromofluoromethane (Surr)	100		75 - 123		05/24/18 12:57	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		05/21/18 14:17	05/24/18 14:21	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 14:21	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 14:21	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	96		41 - 120	05/21/18 14:17	05/24/18 14:21	1
2-Fluorobiphenyl	92		48 - 120	05/21/18 14:17	05/24/18 14:21	1
2-Fluorophenol	72		35 - 120	05/21/18 14:17	05/24/18 14:21	1
Nitrobenzene-d5	79		46 - 120	05/21/18 14:17	05/24/18 14:21	1
Phenol-d5	54		22 - 120	05/21/18 14:17	05/24/18 14:21	1
p-Terphenyl-d14	100		59 - 136	05/21/18 14:17	05/24/18 14:21	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:19	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:19	1
Barium	0.10		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:19	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:19	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:19	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:19	1
Iron	10.0		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:19	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:19	1
Magnesium	49.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:19	1
Manganese	0.80		0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:19	1
Nickel	0.0016	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:19	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:19	1
Sodium	138		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:19	1
Zinc	0.0023	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:13	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-26D

Lab Sample ID: 480-136147-12

Date Collected: 05/17/18 17:25

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 04:52	1
1,2-Dichloroethene, Total	0.82	J	2.0	0.81	ug/L			05/24/18 04:52	1
Acetone	ND		10	3.0	ug/L			05/24/18 04:52	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 04:52	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 04:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		05/24/18 04:52	1
Toluene-d8 (Surr)	92		80 - 120		05/24/18 04:52	1
4-Bromofluorobenzene (Surr)	99		73 - 120		05/24/18 04:52	1
Dibromofluoromethane (Surr)	100		75 - 123		05/24/18 04:52	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		05/21/18 14:17	05/24/18 16:47	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 16:47	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 16:47	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		41 - 120	05/21/18 14:17	05/24/18 16:47	1
2-Fluorobiphenyl	96		48 - 120	05/21/18 14:17	05/24/18 16:47	1
2-Fluorophenol	76		35 - 120	05/21/18 14:17	05/24/18 16:47	1
Nitrobenzene-d5	82		46 - 120	05/21/18 14:17	05/24/18 16:47	1
Phenol-d5	57		22 - 120	05/21/18 14:17	05/24/18 16:47	1
p-Terphenyl-d14	113		59 - 136	05/21/18 14:17	05/24/18 16:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:48	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:48	1
Barium	0.14		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:48	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:48	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:48	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:48	1
Iron	3.2		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:48	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:48	1
Magnesium	19.9		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:48	1
Manganese	0.49	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:48	1
Nickel	0.0024	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:48	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:48	1
Sodium	338		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:48	1
Zinc	ND		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:48	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:27	1

Handwritten signature and date: 6/1/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-28S

Lab Sample ID: 480-136147-9

Date Collected: 05/17/18 13:55

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 13:47	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 13:47	1
Acetone	ND		10	3.0	ug/L			05/24/18 13:47	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 13:47	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 13:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		05/24/18 13:47	1
Toluene-d8 (Surr)	105		80 - 120		05/24/18 13:47	1
4-Bromofluorobenzene (Surr)	98		73 - 120		05/24/18 13:47	1
Dibromofluoromethane (Surr)	99		75 - 123		05/24/18 13:47	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		05/21/18 14:17	05/24/18 15:19	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 15:19	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 15:19	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	95		41 - 120	05/21/18 14:17	05/24/18 15:19	1
2-Fluorobiphenyl	96		48 - 120	05/21/18 14:17	05/24/18 15:19	1
2-Fluorophenol	72		35 - 120	05/21/18 14:17	05/24/18 15:19	1
Nitrobenzene-d5	84		46 - 120	05/21/18 14:17	05/24/18 15:19	1
Phenol-d5	52		22 - 120	05/21/18 14:17	05/24/18 15:19	1
p-Terphenyl-d14	110		59 - 136	05/21/18 14:17	05/24/18 15:19	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:26	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:26	1
Barium	0.082		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:26	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:26	1
Chromium	0.0017	J	0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:26	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:26	1
Iron	1.1		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:26	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:26	1
Magnesium	26.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:26	1
Manganese	1.4	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:26	1
Nickel	0.0021	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:26	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:26	1
Sodium	13.6		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:26	1
Zinc	0.0068	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:21	1

Quay
05/21/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-29S

Date Collected: 05/17/18 15:22

Date Received: 05/17/18 18:35

Lab Sample ID: 480-136147-10

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			05/24/18 03:57	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/24/18 03:57	1
Acetone	ND		10	3.0	ug/L			05/24/18 03:57	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 03:57	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		05/24/18 03:57	1
Toluene-d8 (Surr)	92		80 - 120		05/24/18 03:57	1
4-Bromofluorobenzene (Surr)	100		73 - 120		05/24/18 03:57	1
Dibromofluoromethane (Surr)	97		75 - 123		05/24/18 03:57	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		05/21/18 14:17	05/24/18 15:49	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 15:49	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 15:49	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	91		41 - 120	05/21/18 14:17	05/24/18 15:49	1
2-Fluorobiphenyl	89		48 - 120	05/21/18 14:17	05/24/18 15:49	1
2-Fluorophenol	68		35 - 120	05/21/18 14:17	05/24/18 15:49	1
Nitrobenzene-d5	78		46 - 120	05/21/18 14:17	05/24/18 15:49	1
Phenol-d5	50		22 - 120	05/21/18 14:17	05/24/18 15:49	1
p-Terphenyl-d14	98		59 - 136	05/21/18 14:17	05/24/18 15:49	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:30	1
Arsenic	0.012		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:30	1
Barium	0.17		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:30	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:30	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:30	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:30	1
Iron	9.9		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:30	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:30	1
Magnesium	72.3		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:30	1
Manganese	0.52		0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:30	1
Nickel	ND		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:30	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:30	1
Sodium	9.4		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:30	1
Zinc	ND		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:30	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:23	1

Handwritten signature and date: 6/12/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Client Sample ID: GW-30S

Lab Sample ID: 480-136184-1

Date Collected: 05/18/18 09:52

Matrix: Water

Date Received: 05/18/18 14:30

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			05/25/18 01:06	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 01:06	1
Acetone	ND		10	3.0	ug/L			05/25/18 01:06	1
Benzene	ND		1.0	0.41	ug/L			05/25/18 01:06	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/25/18 01:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	117		77 - 120		05/25/18 01:06	1
Toluene-d8 (Surr)	105		80 - 120		05/25/18 01:06	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/25/18 01:06	1
Dibromofluoromethane (Surr)	112		75 - 123		05/25/18 01:06	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		05/22/18 14:15	05/24/18 04:10	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 04:10	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 04:10	1
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 04:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	96		41 - 120	05/22/18 14:15	05/24/18 04:10	1
2-Fluorobiphenyl	93		48 - 120	05/22/18 14:15	05/24/18 04:10	1
2-Fluorophenol	76		35 - 120	05/22/18 14:15	05/24/18 04:10	1
Nitrobenzene-d5	85		46 - 120	05/22/18 14:15	05/24/18 04:10	1
Phenol-d5	57		22 - 120	05/22/18 14:15	05/24/18 04:10	1
p-Terphenyl-d14	93		59 - 136	05/22/18 14:15	05/24/18 04:10	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:59	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:59	1
Barium	0.10		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:59	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:59	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:59	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:59	1
Iron	4.6		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:59	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:59	1
Magnesium	31.5		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:59	1
Manganese	0.70		0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:59	1
Nickel	ND		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:59	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:59	1
Sodium	33.9		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:59	1
Zinc	ND		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/18 13:45	05/26/18 17:50	1

Handwritten signature and date: 6/12/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Client Sample ID: GW-31S

Lab Sample ID: 480-136184-2

Date Collected: 05/18/18 10:50

Matrix: Water

Date Received: 05/18/18 14:30

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			05/25/18 01:29	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 01:29	1
Acetone	ND		10	3.0	ug/L			05/25/18 01:29	1
Benzene	ND		1.0	0.41	ug/L			05/25/18 01:29	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/25/18 01:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	114		77 - 120		05/25/18 01:29	1
Toluene-d8 (Surr)	104		80 - 120		05/25/18 01:29	1
4-Bromofluorobenzene (Surr)	104		73 - 120		05/25/18 01:29	1
Dibromofluoromethane (Surr)	114		75 - 123		05/25/18 01:29	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		05/22/18 14:15	05/24/18 06:35	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 06:35	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 06:35	1
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 06:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	94		41 - 120	05/22/18 14:15	05/24/18 06:35	1
2-Fluorobiphenyl	92		48 - 120	05/22/18 14:15	05/24/18 06:35	1
2-Fluorophenol	73		35 - 120	05/22/18 14:15	05/24/18 06:35	1
Nitrobenzene-d5	85		46 - 120	05/22/18 14:15	05/24/18 06:35	1
Phenol-d5	54		22 - 120	05/22/18 14:15	05/24/18 06:35	1
p-Terphenyl-d14	99		59 - 136	05/22/18 14:15	05/24/18 06:35	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/23/18 10:42	05/30/18 03:29	1
Arsenic	ND		0.010	0.0056	mg/L		05/23/18 10:42	05/30/18 03:29	1
Barium	0.069		0.0020	0.00070	mg/L		05/23/18 10:42	05/30/18 03:29	1
Cadmium	ND		0.0010	0.00050	mg/L		05/23/18 10:42	05/30/18 03:29	1
Chromium	ND		0.0040	0.0010	mg/L		05/23/18 10:42	05/30/18 03:29	1
Copper	ND		0.010	0.0016	mg/L		05/23/18 10:42	05/30/18 03:29	1
Iron	1.6		0.050	0.019	mg/L		05/23/18 10:42	05/30/18 03:29	1
Lead	ND		0.0050	0.0030	mg/L		05/23/18 10:42	05/30/18 03:29	1
Magnesium	25.5		0.20	0.043	mg/L		05/23/18 10:42	05/30/18 03:29	1
Manganese	0.80		0.0030	0.00040	mg/L		05/23/18 10:42	05/30/18 03:29	1
Nickel	0.0020	J	0.010	0.0013	mg/L		05/23/18 10:42	05/30/18 03:29	1
Silver	ND		0.0030	0.0017	mg/L		05/23/18 10:42	05/30/18 03:29	1
Sodium	3.2		1.0	0.32	mg/L		05/23/18 10:42	05/30/18 03:29	1
Zinc	0.0040	J	0.010	0.0015	mg/L		05/23/18 10:42	05/30/18 03:29	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/18 13:45	05/26/18 17:52	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Client Sample ID: GW-32S

Lab Sample ID: 480-136184-3

Date Collected: 05/18/18 11:47

Matrix: Water

Date Received: 05/18/18 14:30

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			05/25/18 01:52	1
1,2-Dichloroethane, Total	ND		2.0	0.81	ug/L			05/25/18 01:52	1
Acetone	ND		10	3.0	ug/L			05/25/18 01:52	1
Benzene	ND		1.0	0.41	ug/L			05/25/18 01:52	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/25/18 01:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	115		77 - 120		05/25/18 01:52	1
Toluene-d8 (Surr)	107		80 - 120		05/25/18 01:52	1
4-Bromofluorobenzene (Surr)	103		73 - 120		05/25/18 01:52	1
Dibromofluoromethane (Surr)	111		75 - 123		05/25/18 01:52	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		05/22/18 14:15	05/24/18 07:04	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 07:04	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 07:04	1
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 07:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	91		41 - 120	05/22/18 14:15	05/24/18 07:04	1
2-Fluorobiphenyl	98		48 - 120	05/22/18 14:15	05/24/18 07:04	1
2-Fluorophenol	76		35 - 120	05/22/18 14:15	05/24/18 07:04	1
Nitrobenzene-d5	88		46 - 120	05/22/18 14:15	05/24/18 07:04	1
Phenol-d5	59		22 - 120	05/22/18 14:15	05/24/18 07:04	1
p-Terphenyl-d14	104		59 - 136	05/22/18 14:15	05/24/18 07:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 22:03	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 22:03	1
Barium	0.050		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 22:03	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 22:03	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 22:03	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 22:03	1
Iron	ND		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 22:03	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 22:03	1
Magnesium	27.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 22:03	1
Manganese	0.43		0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 22:03	1
Nickel	ND		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 22:03	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 22:03	1
Sodium	3.2		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 22:03	1
Zinc	0.0034	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 22:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/18 13:45	05/26/18 17:54	1

Handwritten signature and date 6/12/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Client Sample ID: GW-33S

Lab Sample ID: 480-136184-4

Date Collected: 05/18/18 12:53

Matrix: Water

Date Received: 05/18/18 14:30

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			05/25/18 02:16	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 02:16	1
Acetone	ND		10	3.0	ug/L			05/25/18 02:16	1
Benzene	ND		1.0	0.41	ug/L			05/25/18 02:16	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/25/18 02:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	113		77 - 120		05/25/18 02:16	1
Toluene-d8 (Surr)	109		80 - 120		05/25/18 02:16	1
4-Bromofluorobenzene (Surr)	103		73 - 120		05/25/18 02:16	1
Dibromofluoromethane (Surr)	110		75 - 123		05/25/18 02:16	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		05/22/18 14:15	05/24/18 07:33	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 07:33	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 07:33	1
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 07:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	87		41 - 120	05/22/18 14:15	05/24/18 07:33	1
2-Fluorobiphenyl	95		48 - 120	05/22/18 14:15	05/24/18 07:33	1
2-Fluorophenol	73		35 - 120	05/22/18 14:15	05/24/18 07:33	1
Nitrobenzene-d5	85		46 - 120	05/22/18 14:15	05/24/18 07:33	1
Phenol-d5	55		22 - 120	05/22/18 14:15	05/24/18 07:33	1
p-Terphenyl-d14	104		59 - 136	05/22/18 14:15	05/24/18 07:33	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 22:07	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 22:07	1
Barium	0.037		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 22:07	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 22:07	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 22:07	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 22:07	1
Iron	0.025	J	0.050	0.019	mg/L		05/21/18 18:49	05/25/18 22:07	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 22:07	1
Magnesium	29.1		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 22:07	1
Manganese	0.11	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 22:07	1
Nickel	0.0013	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 22:07	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 22:07	1
Sodium	2.9		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 22:07	1
Zinc	0.0031	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 22:07	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/26/18 13:45	05/26/18 17:56	1

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-34S

Lab Sample ID: 480-136147-6

Date Collected: 05/17/18 10:55

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 03:30	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 03:30	1
Acetone	ND		10	3.0	ug/L			05/24/18 03:30	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 03:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		05/24/18 03:30	1
Toluene-d8 (Surr)	88		80 - 120		05/24/18 03:30	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/24/18 03:30	1
Dibromofluoromethane (Surr)	96		75 - 123		05/24/18 03:30	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		05/21/18 14:17	05/24/18 13:52	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 13:52	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 13:52	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 13:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	DII Fac
2,4,6-Tribromophenol	82		41 - 120	05/21/18 14:17	05/24/18 13:52	1
2-Fluorobiphenyl	83		48 - 120	05/21/18 14:17	05/24/18 13:52	1
2-Fluorophenol	64		35 - 120	05/21/18 14:17	05/24/18 13:52	1
Nitrobenzene-d5	73		46 - 120	05/21/18 14:17	05/24/18 13:52	1
Phenol-d5	47		22 - 120	05/21/18 14:17	05/24/18 13:52	1
p-Terphenyl-d14	102		59 - 136	05/21/18 14:17	05/24/18 13:52	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:15	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:15	1
Barium	0.12		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:15	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:15	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:15	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:15	1
Iron	0.14		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:15	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:15	1
Magnesium	46.3		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:15	1
Manganese	0.41		0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:15	1
Nickel	0.0056	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:15	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:15	1
Sodium	24.4		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:15	1
Zinc	0.0076	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:15	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:11	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Client Sample ID: GW-35S

Lab Sample ID: 480-136147-11

Date Collected: 05/17/18 16:15

Matrix: Water

Date Received: 05/17/18 18:35

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			05/24/18 04:24	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 04:24	1
Acetone	ND		10	3.0	ug/L			05/24/18 04:24	1
Benzene	ND		1.0	0.41	ug/L			05/24/18 04:24	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 04:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		05/24/18 04:24	1
Toluene-d8 (Surr)	87		80 - 120		05/24/18 04:24	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/24/18 04:24	1
Dibromofluoromethane (Surr)	92		75 - 123		05/24/18 04:24	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		05/21/18 14:17	05/24/18 16:18	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 16:18	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 16:18	1
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	76		41 - 120	05/21/18 14:17	05/24/18 16:18	1
2-Fluorobiphenyl	84		48 - 120	05/21/18 14:17	05/24/18 16:18	1
2-Fluorophenol	66		35 - 120	05/21/18 14:17	05/24/18 16:18	1
Nitrobenzene-d5	74		46 - 120	05/21/18 14:17	05/24/18 16:18	1
Phenol-d5	51		22 - 120	05/21/18 14:17	05/24/18 16:18	1
p-Terphenyl-d14	95		59 - 136	05/21/18 14:17	05/24/18 16:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:34	1
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:34	1
Barium	0.079		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:34	1
Cadmium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:34	1
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:34	1
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:34	1
Iron	0.032	J	0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:34	1
Lead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:34	1
Magnesium	21.2		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:34	1
Manganese	0.19	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:34	1
Nickel	ND		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:34	1
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:34	1
Sodium	2.6		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:34	1
Zinc	0.0027	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:25	1

Handwritten signature and date: 6/1/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-136037-7

Date Collected: 05/16/18 00:00

Matrix: Water

Date Received: 05/16/18 18:35

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			05/22/18 15:05	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 15:05	1
Acetone	ND		10	3.0	ug/L			05/22/18 15:05	1
Benzene	ND		1.0	0.41	ug/L			05/22/18 15:05	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 15:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		77 - 120		05/22/18 15:05	1
Toluene-d8 (Surr)	102		80 - 120		05/22/18 15:05	1
4-Bromofluorobenzene (Surr)	100		73 - 120		05/22/18 15:05	1
Dibromofluoromethane (Surr)	99		75 - 123		05/22/18 15:05	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Client Sample ID: TB-051818

Lab Sample ID: 480-136184-5

Date Collected: 05/18/18 00:00

Matrix: Water

Date Received: 05/18/18 14:30

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			05/25/18 02:39	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 02:39	1
Acetone	ND		10	3.0	ug/L			05/25/18 02:39	1
Benzene	ND		1.0	0.41	ug/L			05/25/18 02:39	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/25/18 02:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		77 - 120		05/25/18 02:39	1
Toluene-d8 (Surr)	105		80 - 120		05/25/18 02:39	1
4-Bromofluorobenzene (Surr)	103		73 - 120		05/25/18 02:39	1
Dibromofluoromethane (Surr)	117		75 - 123		05/25/18 02:39	1

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TestAmerica Buffalo

APPENDIX B

SUPPORT DOCUMENTATION

TestAmerica Buffalo

10 Hazelwood Drive
 Anherst, NY 14228-2298
 Phone (716) 691-2800 Fax (716) 691-7981

Chain of Custody Record

TestAn



480-136037 COC

480-113248-13273
 Page 1 of 1

Job #

Analysis Requested

Due Date Requested:

TAT Requested (days):

City:

State Zip:

Phone:

PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

Phone:

PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

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PO #:

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Project #:

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City:

State Zip:

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PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

Phone:

PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

Phone:

PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

Phone:

PO #:

WO #:

Email:

Project Name:

Project #:

SSOW#

Address:

City:

State Zip:

Phone:

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136037-1

Job ID: 480-136037-1

Laboratory: TestAmerica Buffalo



Narrative

Job Narrative 480-136037-1

Receipt

The samples were received on 5/16/2018 6:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5° 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.

CHAIN OF CUSTODY RECORD

PROJECT NO. 60411174
 SITE NAME PFCHL BROTHERS LANDFILL
 SAMPLERS (PRINT SIGNATURE) *Don Murphy / Anthony San P Company / Bill*

DELIVERY SERVICE: *Door Off* AIRBILL NO.:

LOCATION IDENTIFIER	DATE	TIME	COMP. GRAB	SAMPLE ID	MATRIX
GW-305	5/18/18	1452	G	GW-305	WC
GW-315	5/18/18	1050	G	GW-315	WC
GW-325	5/18/18	1147	G	GW-325	WC
GW-335	5/18/18	1253	G	GW-335	WC
Trip Blank	5/18/18	—	G	TB-057818	WC

TOTAL NO # OF CONTAINERS

TESTS

VC's
 Metals
 SVOC's
 480-136184 COI

BOTTLE TYPE AND PRESERVATIVE

400-614
 17C
 250ml Plastic
 HVO's
 352ml Plastic
 352ml Plastic
 352ml Plastic

AECOM

LAB *Test Analytical*
 COOLER 1 of 1
 PAGE 1 of 1

REMARKS

Trip Blank

SAMPLE TYPE
 BEGINNING DEPTH (IN FEET)
 ENDING DEPTH (IN FEET)
 FIELD LOT NO #

N.
 N.
 N.
 N.
 TB 1

LH - HAZARDOUS LIQUID WASTE
 LF - FLOATING FREE PRODUCT ON GW TABLE

WO - OCEAN WATER
 WS - SURFACE WATER
 WO - WATER FIELD QC

WL LEACHATE
 GS SOIL GAS
 WC DRILLING WATER

WG GROUND WATER
 SO SOIL
 DC DRILL CUTTINGS

SL SLUDGE
 WP - DRINKING WATER
 WW WASTE WATER

AA - AMBIENT AIR
 SE - SEDIMENT
 SH - HAZARDOUS SOLID WASTE

TS# TRIP BLANK
 SD# MATRIX SPIKE DUPLICATE

TS# TRIP BLANK
 SD# MATRIX SPIKE

TS# TRIP BLANK
 SD# MATRIX SPIKE

RECEIVED BY (SIGNATURE)
M. H. H.

DATE 5/18/18

RELINQUISHED BY (SIGNATURE)
Don Murphy

DATE 5/18/18

RECEIVED FOR LAB BY (SIGNATURE)

DATE

RELINQUISHED BY (SIGNATURE)

DATE

SPECIAL INSTRUCTIONS

Any Questions contact Ann Marie Kropf at 716-876-5636

Distribution: Original accompanies shipment, copy to coordinator field files

#1 10.0

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136184-1

Job ID: 480-136184-1

Laboratory: TestAmerica Buffalo

4

Narrative

Job Narrative 480-136184-1

Receipt

The samples were received on 5/18/2018 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 10.0° 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.

TestAmerica

Vér. 08/04/2016

TestAmerica Buffalo

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

Chain of Custody Record

TestAmerica

Client Information Client Contact: Ms. Ann Marie Kropovitch Company: AECOM Address: 257 West Genesee Street Suite 400 City: Buffalo State: NY Zip: 14202-2657 Phone: 716-923-1137 (Tel) Email: ann.marie.kropovitch@aecom.com Project Name: Pfohl Brothers Landfill GW Monitoring Site: 55CWA		Sampler Name: Sean Connolly Phone: 716-792-0870 Lab P.M.: Devo, Melissa L. E-Mail: melissa.devo@testamericainc.com		Camera Tracking Info(s) Lab No: 480-113249-13273 3 Page: 2 of 2 Job #: 2	
Analysis Requested Due Date Requested: TAT Requested (days): PO #: 60411174 Task11175616 00000 WO #: ann.marie.kropovitch@aecom.com Project #: 48002609 Site: 55CWA					
Sample Identification Sample ID: GW-260 Sample Date: 5/7/18 Sample Time: 17:25 Sample Type: C Matrix: Water Preservation Code: Water		6010C, 7470A 6270D - Semi-volatile Compounds by GC/MS 6280C - Volatile Organic Compounds (GC/MS)			
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> No Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> No		Total Number of Containers: 6			
Special Instructions/Note: Special Instructions/Note:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Possible Hazard Identification <input 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 Deliverable Requested I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months					
Special Instructions/QC Requirements					
Reinquinshed by: Sean P. Connolly / J.P. Kelly Date/Time: 5/13/18 15:25 Company: AECOM		Received by: [Signature] Date/Time: 5/17/18 18:35 Company: AECOM			
Reinquinshed by: [Signature] Date/Time: 5/13/18 15:25 Company: AECOM		Received by: [Signature] Date/Time: 5/17/18 18:35 Company: AECOM			
Custody Seals Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Cooler Temperature(s) °C and Other Remarks:			

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-136147-1

Job ID: 480-136147-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-136147-1

4

Receipt

The samples were received on 5/17/2018 6:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3° C.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-416084 recovered above the upper control limit for Acetone. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: GW-04S (480-136147-1), GW-04D (480-136147-2), GW-34S (480-136147-6), GW-29S (480-136147-10), GW-35S (480-136147-11) and GW-26D (480-136147-12).

Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 480-416084 recovered outside control limits for the following analytes: Acetone. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. The following samples are impacted: GW-04S (480-136147-1), GW-04D (480-136147-2), GW-34S (480-136147-6), GW-29S (480-136147-10), GW-35S (480-136147-11) and GW-26D (480-136147-12).

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

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-416786/19) contained Total Sodium above the reporting limit (RL). All reported samples GW-04D (480-136147-2), GW-04S (480-136147-3), GW-07D (480-136147-4), (480-136147-C-4-A PDS) and (480-136147-C-4-A SD) associated with this CCVL were either ND 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.

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.

ATTACHMENT B

July 2018 – December 2018

Semi Annual Report

And

Data Applicability Report

**SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JULY 2018 TO DECEMBER 2018
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY**

Submitted to:

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

Prepared by:

**URS CORPORATION
257 WEST GENESEE STREET, SUITE 400
BUFFALO, NEW YORK 14202-2657**

Prepared for:

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

**APRIL
2019**

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FIGURES

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APPENDICES

Appendix A	Example Daily Inspection Sheets
Appendix B	Monthly Flow Summaries (July 2018 – December 2018)
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 July 2018 through December 2018 included the following actions:

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet for this reporting period are attached in Appendix A.
- Total cumulative effluent flow rates and volumes were summarized on a monthly basis. The monthly totals for the period, 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 in Appendix B as previously requested by NYSDEC.
- Plowed snow to access the Control Building when necessary.
- Cleaned/replaced check valves as necessary at all six (6) wet wells and replaced surge suppressors and fuses as needed for pump station instrumentation equipment.
- Cleaned upper level equipment and applied corrosion inhibitor fluid.
- Inspected wet wells for excessive corrosion to critical equipment.
- Tabulated annual flow totals and reset totalizer equipment
- Repaired network cabling at the Control Building.
- Repaired faulty electrical terminations for the wet well WW-04 flow meter.
- Replaced flexible discharge hose in wet well WW-05.

- Replaced the 1.5 HP pump in wet well WW-05.
- Investigated inhibited flows in wet well WW-05 and determined that the primary discharge lines require cleaning.
- Mowed the cap and trimmed vegetation along perimeter chain link fence, as needed.
- Inspected and maintained perimeter security fencing. Iroquois Fence replaced/repared 135' of fence on the southern fence line.

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. In Appendix C, Table C-1 lists the measured elevations and 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 with only one exception. The water elevation in WW-6 was higher (1.78') than the nearest monitoring well GW-34S on September 12, 2018. Therefore, these data demonstrate that the collection system is largely operating as designed.

3.2 Groundwater Quality Monitoring

This semi-annual round of groundwater sampling was conducted between November 13 and 15, 2018. All overburden and bedrock 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 with the exceptions noted below.

Passive diffusion bags (PDBs) were placed in three monitoring wells with low recharge rates (GW-04S, GW-07S, and GW-07D) on September 12, 2018. The PDBs were removed from the wells during the sampling event, poured into the appropriate sample containers for analysis of

volatile organic compounds (VOCs). Following removal of the PDBs, the three wells were purged dry and sampled for field water quality parameters. The other required analytical parameters (i.e., semivolatile organic compounds [SVOCs] and metals) were collected after water levels recovered (the next day for GW-07D and GW-07S and later the same day for GW-04S).

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 included in Appendix D. Following collection, the samples were packed with ice in coolers and transported under chain-of-custody (CoC) control to Test America Laboratories of Amherst, New York.

Groundwater samples were analyzed for the parameters listed in Table 3.2 of the O&M plan as revised in accordance with Table 3-6 in the Semi Annual Report dated September 2007 (January through June 2007) and as approved by the December 6, 2006 and November 29, 2007 correspondence from the NYSDEC authorizing a reduction in the parameters list (included as Table 3-1 in this report). Table 3-2 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.

Emerging Contaminants

In a letter dated June 12, 2018, the NYSDEC requested analysis of groundwater for the presence of the emerging contaminants 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). A work plan was prepared by URS and submitted to the NYSDEC and approved on November 7, 2018. The November 2018 sampling event included sampling and analysis for 1,4-dioxane and PFAS at four wells (GW-08D, GW-08SR, GW-26D, and GW-35S) in accordance with the approved work plan.

Laboratory Report

The groundwater analytical data package was prepared by Test America in accordance with NYSDEC Category A deliverable requirements. It was reviewed for compliance with analytical method requirements and the following guidelines: *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2017-002, January 2017; and *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2017-001, January

2017. Qualifications applied to the data include “J/UJ” (estimated concentration/estimated quantitation limit), “J+” (estimated concentration with possible high bias), 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 February 2019 is submitted separately from this report.

Results

No VOCs were detected at concentrations above the Class GA water quality standards at any location. Two SVOCs were detected at concentrations above the Class GA water quality standards. 1,4-Dichlorobenzene was detected in well GW-03D at an estimated concentration of 4.2 micrograms per liter ($\mu\text{g/L}$), slightly exceeding its standard of 3.0 $\mu\text{g/L}$. Bis(2-Ethylhexyl)phthalate was detected in well GW-07D at an estimated concentration of 5.4 $\mu\text{g/L}$, slightly exceeding its standard of 5.0 $\mu\text{g/L}$.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. In addition, chromium was detected at concentrations exceeding its respective Class GA standard in wells GW-07D and GW-08D. Antimony, nickel, and lead were also detected at concentrations exceeding their respective Class GA standards in well GW-07D.

Results from the emerging contaminants sampling are shown on Table 3-3. Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) were compared to the USEPA Drinking Water Health Advisory (USEPA, May 2016) of 70 nanograms per liter (ng/L) (individually or combined). There is currently no state criteria or guidance for 1,4-dioxane, however, it was not detected in the four wells sampled. One or more PFAS were detected in each of the wells sampled. Concentrations of PFOA and PFOS were well below the USEPA Drinking Water Health Advisory of 70 ng/L.

Comparison to Historical Results

Organics

Results are consistent with historical results; there have been very few and infrequent detections of VOCs/SVOCs.

Metals

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

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

Trend Analysis

Organics

There is an insufficient number and frequency of detections to define trends.

Metals

A trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards was performed and is presented in Figures E-1 through E-19 of Appendix E. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters exceeding groundwater standards have occurred over the semi-annual sampling events except as described below. Figure E-1 for GW-01D, indicates an upward trend in sodium concentrations since monitoring began. Figure E-2 for GW-01S, indicates an upward trend in manganese concentrations and a downward trend in sodium concentration since monitoring began. Figure E-3 for GW-03D indicates downward trends for iron, manganese, and sodium. Figure E-4 indicates upward trends for magnesium and sodium and a downward trend for manganese in GW-03S since monitoring began. Figure E-5 for GW-04D, indicates a slight

increasing trend for magnesium. Figure E-6 for GW-04S, indicates an upward trend for magnesium and a downward trend for manganese. Figures E-7 and E-8 indicate magnesium has trended upward since sampling began at locations GW-07D and GW-07S. 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 variations. Figure E-16 shows an apparent seasonal variation in sodium concentration in monitoring well GW-32S, and magnesium appears to be decreasing. Figure E-18 for GW-34S indicates an apparent seasonal fluctuation in manganese concentration and decreasing trends for magnesium and sodium.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (September 2018 and December 2018) of the groundwater collection system discharge since the previous semi-annual report. The sampling was performed in accordance with the requirements of Discharge Permit No. 16-04-CH016 between the Buffalo Sewer Authority (BSA) and the Town of Cheektowaga. A copy of the permit, which shows the monitoring parameters and associated discharge limits, is included as Appendix F.

During the sampling events in September 2018 and December 2018, each regulated parameter was below the limits set by the permit. Copies of the data summary tables that were included with the monitoring reports submitted to the BSA are included as Appendix G.

3.4 Monitoring Well Inspections

During the November 2018 groundwater sampling event, a well inspection was performed. All wells appeared to be in good condition with the exception of previously existing damage to the risers on GW-07D, GW-01S, and GW-01D. The monitoring well inspection logs may be found in Appendix H.

4.0 SUMMARY AND RECOMMENDATIONS

General Maintenance: The Town will continue to maintain mechanical equipment at the landfill on an as-needed basis and operate the groundwater collection and discharge system as designed. The Town will also continue regular inspections, mow the cap once per year, and plow snow to access the Control Building, 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, as designed. Continued quarterly monitoring is recommended.

Groundwater Quality Monitoring: Groundwater sample results indicate that only low levels of SVOCs and metals are present. Similar concentrations of most parameters were found during previous sampling events. Sampling for emerging contaminants was conducted in accordance with NYSDEC request; the results do not indicate any issues and no further sampling for emerging contaminants is recommended. The next round of groundwater sampling will be conducted in May 2019. 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 when using low flow sampling.

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

TABLES

TABLE 3-1

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 3-1 (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

TABLE 3-2
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-01D	GW-01S	GW-03D	GW-04D	GW-04S
Sample ID			GW-01D	GW-01S	GW-03D	GW-04D	GW-04S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/14/18	11/14/18	11/15/18	11/14/18	11/14/18
Parameter	Units	*					
Volatile Organic Compounds							
Acetone	UG/L	50					5.0 J
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3			2.9 J		
1,4-Dichlorobenzene	UG/L	3			4.2 J		
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.085	0.18	0.084	0.093	0.13
Cadmium	MG/L	0.005		0.00065 J		0.00064 J	
Chromium	MG/L	0.05	0.0090	0.0012 J		0.0067	0.0024 J
Copper	MG/L	0.2				0.0016 J	0.0019 J
Iron	MG/L	0.3	0.047 J	7.3	1.1	0.20	1.7
Lead	MG/L	0.025					
Magnesium	MG/L	35	38.2	22.4	17.9	79.0	29.0
Manganese	MG/L	0.3	0.019	1.0	0.26	0.022	0.13
Nickel	MG/L	0.1	0.0018 J		0.0040 J	0.0039 J	0.0041 J
Sodium	MG/L	20	110	134	164	93.8	29.6
Zinc	MG/L	2	0.0033 J	0.0024 J		0.0057 J	0.0096 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.

 Concentration Exceeds

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

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

NA - Not Analyzed.


Only Detected Results Reported.

TABLE 3-2
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Sample ID			GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/13/18	11/14/18	11/13/18	11/14/18	11/14/18
Parameter	Units	*					
Volatile Organic Compounds							
Acetone	UG/L	50	4.7 J	NA	4.5 J	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	5.4	NA		
Metals							
Antimony	MG/L	0.003	NA	0.014 J	NA		
Arsenic	MG/L	0.025	NA	0.0061 J	NA		
Barium	MG/L	1	NA	0.12	NA	0.37	0.080
Cadmium	MG/L	0.005	NA	0.0042	NA	0.00054 J	
Chromium	MG/L	0.05	NA	0.66	NA	0.0014 J	0.11
Copper	MG/L	0.2	NA	0.099	NA		0.0043 J
Iron	MG/L	0.3	NA	41.9	NA	0.17	0.95
Lead	MG/L	0.025	NA	0.50	NA		
Magnesium	MG/L	35	NA	40.3	NA	43.1	17.6
Manganese	MG/L	0.3	NA	0.26	NA	0.032	0.054
Nickel	MG/L	0.1	NA	0.34	NA	0.013	0.012
Sodium	MG/L	20	NA	80.6	NA	61.8	234
Zinc	MG/L	2	NA	0.31	NA	0.0051 J	0.0082 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.

 Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-2
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-08SR	GW-26D	GW-26D	GW-28S	GW-29S
Sample ID			GW-08SR	FD-111418	GW-26D	GW-28S	GW-29S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/14/18	11/14/18	11/14/18	11/15/18	11/15/18
Parameter	Units	*		Field Duplicate (1-1)			
Volatile Organic Compounds							
Acetone	UG/L	50					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025		0.0075 J	0.0065 J		0.012
Barium	MG/L	1	0.13	0.13	0.13	0.092	0.20
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05					
Copper	MG/L	0.2				0.0029 J	
Iron	MG/L	0.3	8.2	3.7	3.7	0.38	10.8
Lead	MG/L	0.025					0.0036 J
Magnesium	MG/L	35	55.9	17.3	17.9	27.4	78.3
Manganese	MG/L	0.3	0.69	0.37	0.38	1.3	0.59
Nickel	MG/L	0.1	0.0015 J	0.0037 J	0.0037 J	0.0023 J	
Sodium	MG/L	20	165	332	340	16.8 J+	10.3
Zinc	MG/L	2	0.0019 J	0.0023 J	0.0057 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.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-2
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Sample ID			GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/15/18	11/15/18	11/15/18	11/15/18	11/15/18
Parameter	Units	*					
Volatile Organic Compounds							
Acetone	UG/L	50					
Semivolatile Organic Compounds							
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
bis(2-Ethylhexyl)phthalate	UG/L	5					
Metals							
Antimony	MG/L	0.003					
Arsenic	MG/L	0.025					
Barium	MG/L	1	0.36	0.15	0.060	0.059	0.12
Cadmium	MG/L	0.005					
Chromium	MG/L	0.05			0.0010 J	0.0021 J	0.0077
Copper	MG/L	0.2					
Iron	MG/L	0.3	15.2	3.0		0.075	0.042 J
Lead	MG/L	0.025					
Magnesium	MG/L	35	46.2	40.8	31.9	56.1	28.9
Manganese	MG/L	0.3	2.4	0.95	0.18	0.041	0.011
Nickel	MG/L	0.1		0.0040 J	0.0013 J	0.0017 J	0.0036 J
Sodium	MG/L	20	593	4.4	5.9	3.1	11.6
Zinc	MG/L	2		0.011			

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

Flags assigned during chemistry validation are shown.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-2
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-35S
Sample ID			GW-35S
Matrix			Groundwater
Depth Interval (ft)			-
Date Sampled			11/14/18
Parameter	Units	*	
Volatile Organic Compounds			
Acetone	UG/L	50	
Semivolatile Organic Compounds			
1,3-Dichlorobenzene	UG/L	3	
1,4-Dichlorobenzene	UG/L	3	
bis(2-Ethylhexyl)phthalate	UG/L	5	
Metals			
Antimony	MG/L	0.003	
Arsenic	MG/L	0.025	
Barium	MG/L	1	0.14
Cadmium	MG/L	0.005	
Chromium	MG/L	0.05	
Copper	MG/L	0.2	
Iron	MG/L	0.3	
Lead	MG/L	0.025	
Magnesium	MG/L	35	36.0
Manganese	MG/L	0.3	0.012
Nickel	MG/L	0.1	
Sodium	MG/L	20	4.2
Zinc	MG/L	2	0.0025 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.



Concentration Exceeds

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

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

NA - Not Analyzed.

Only Detected Results Reported.

TABLE 3-3
EMERGING CONTAMINANTS GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			FIELDQC	FIELDQC	GW-08D	GW-08SR	GW-26D
Sample ID			EB-111418	FB-111418	GW-08D	GW-08SR	FD-111418
Matrix			Quality Control	Quality Control	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/14/18	11/14/18	11/14/18	11/14/18	11/14/18
Parameter	Units	*	Equipment Blank (1-1)	Field Blank (1-1)			Field Duplicate (1-1)
Semivolatile Organic Compounds							
1,4-Dioxane	UG/L	-	0.26 J	NA	0.29 UJ	0.34 UJ	0.32 UJ
Per- and Polyfluoroalkyl Substances							
Perfluorobutanoic acid (PFBA)	NG/L	-	0.41 U	0.37 U	0.37 U	19	10
Perfluoropentanoic acid (PFPeA)	NG/L	-	0.75 U	0.68 U	1.3 J	1.9	6.3
Perfluorohexanoic acid (PFHxA)	NG/L	-	0.24 U	0.22 U	1.1 J	1.7 J	5.9
Perfluoroheptanoic acid (PFHpA)	NG/L	-	0.32 U	0.29 U	1.1 J	1.6 J	2.0
Perfluorooctanoic acid (PFOA)	NG/L	70	0.32 U	0.29 U	5.6	5.3	4.2
Perfluorononanoic acid (PFNA)	NG/L	-	0.38 U	0.35 U	0.36 J	0.36 U	0.35 U
Perfluorodecanoic acid (PFDA)	NG/L	-	0.38 U	0.35 U	0.35 U	0.36 U	0.35 U
Perfluoroundecanoic acid (PFUnA)	NG/L	-	0.25 U	0.23 U	0.23 U	0.24 U	0.23 U
Perfluorododecanoic acid (PFDoA)	NG/L	-	0.35 U	0.32 U	0.32 U	0.33 U	0.32 U
Perfluorotridecanoic acid (PFTriA)	NG/L	-	0.24 U	0.22 U	0.22 U	0.23 U	0.22 U
Perfluorotetradecanoic acid (PFTeA)	NG/L	-	0.45 U	0.41 U	0.41 U	0.43 U	0.42 U
Perfluorobutanesulfonic acid (PFBS)	NG/L	-	0.44 U	0.40 U	4.5	0.98 J	3.8
Perfluorohexanesulfonic acid (PFHxS)	NG/L	-	0.26 U	0.24 U	1.5 J	0.30 J	1.2 J
Perfluoroheptanesulfonic acid (PFHpS)	NG/L	-	0.82 U	0.75 U	0.75 U	0.78 U	0.76 U
Perfluorooctanesulfonic acid (PFOS)	NG/L	70	0.76 U	0.69 U	13	0.85 J	8.5
Perfluorodecane sulfonate (PFDS)	NG/L	-	0.53 U	0.48 U	0.48 U	0.50 U	0.49 U
Perfluorooctane sulfonamide (PFOSA)	NG/L	-	0.56 U	0.51 U	0.51 U	0.53 U	0.52 U
N-Methyl perfluorooctanesulfonamidoacetic acid	NG/L	-	0.45 U	0.41 U	0.41 U	0.43 U	0.42 U
N-Ethyl perfluorooctanesulfonamidoacetic acid	NG/L	-	0.70 U	0.64 U	0.64 U	0.66 U	0.65 U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2)	NG/L	-	1.0 U	0.91 U	0.91 U	0.95 U	0.93 U

*- USEPA Drinking Water Health Advisory (USEPA, May 2016)

Flags assigned during chemistry validation are shown.



Concentration Exceeds

Detection Limits shown are MDL

TABLE 3-3
EMERGING CONTAMINANTS GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			FIELDQC	FIELDQC	GW-08D	GW-08SR	GW-26D
Sample ID			EB-111418	FB-111418	GW-08D	GW-08SR	FD-111418
Matrix			Quality Control	Quality Control	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			11/14/18	11/14/18	11/14/18	11/14/18	11/14/18
Parameter	Units	*	Equipment Blank (1-1)	Field Blank (1-1)			Field Duplicate (1-1)
Per- and Polyfluoroalkyl Substances							
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2)	NG/L	-	0.56 U	0.51 U	0.51 U	0.53 U	0.52 U
Total PFOA and PFOS	NG/L	70	ND	ND	18.6	6.15	12.7

*- USEPA Drinking Water Health Advisory (USEPA, May 2016)

Flags assigned during chemistry validation are shown.



Concentration Exceeds

Detection Limits shown are MDL

TABLE 3-3
EMERGING CONTAMINANTS GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-26D	GW-35S
Sample ID			GW-26D	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			11/14/18	11/14/18
Parameter	Units	*		
Semivolatile Organic Compounds				
1,4-Dioxane	UG/L	-	0.30 UJ	0.26 UJ
Per- and Polyfluoroalkyl Substances				
Perfluorobutanoic acid (PFBA)	NG/L	-	10	0.41 J
Perfluoropentanoic acid (PFPeA)	NG/L	-	7.8	0.71 U
Perfluorohexanoic acid (PFHxA)	NG/L	-	6.1	0.23 U
Perfluoroheptanoic acid (PFHpA)	NG/L	-	2.1	0.30 U
Perfluorooctanoic acid (PFOA)	NG/L	70	4.4	1.9 U
Perfluorononanoic acid (PFNA)	NG/L	-	0.34 U	0.36 U
Perfluorodecanoic acid (PFDA)	NG/L	-	0.34 U	0.36 U
Perfluoroundecanoic acid (PFUnA)	NG/L	-	0.22 J	0.27 J
Perfluorododecanoic acid (PFDoA)	NG/L	-	0.31 U	0.33 U
Perfluorotridecanoic acid (PFTriA)	NG/L	-	0.21 U	0.23 U
Perfluorotetradecanoic acid (PFTeA)	NG/L	-	0.40 U	0.43 U
Perfluorobutanesulfonic acid (PFBS)	NG/L	-	3.7	0.42 U
Perfluorohexanesulfonic acid (PFHxS)	NG/L	-	1.3 J	0.25 U
Perfluoroheptanesulfonic acid (PFHpS)	NG/L	-	0.73 U	0.78 U
Perfluorooctanesulfonic acid (PFOS)	NG/L	70	7.9	0.72 U
Perfluorodecane sulfonate (PFDS)	NG/L	-	0.47 U	0.51 U
Perfluorooctane sulfonamide (PFOSA)	NG/L	-	0.50 U	0.53 U
N-Methyl perfluorooctanesulfonamidoacetic acid	NG/L	-	0.40 U	0.43 U
N-Ethyl perfluorooctanesulfonamidoacetic acid	NG/L	-	0.62 U	0.67 U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2)	NG/L	-	0.89 U	0.95 U

*- USEPA Drinking Water Health Advisory (USEPA, May 2016)

Flags assigned during chemistry validation are shown.



Concentration Exceeds

Detection Limits shown are MDL

TABLE 3-3
EMERGING CONTAMINANTS GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
NOVEMBER 2018

Location ID			GW-26D	GW-35S
Sample ID			GW-26D	GW-35S
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			11/14/18	11/14/18
Parameter	Units	*		
Per- and Polyfluoroalkyl Substances				
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2)	NG/L	-	0.50 U	0.53 U
Total PFOA and PFOS	NG/L	70	12.3	ND

*- USEPA Drinking Water Health Advisory (USEPA, May 2016)

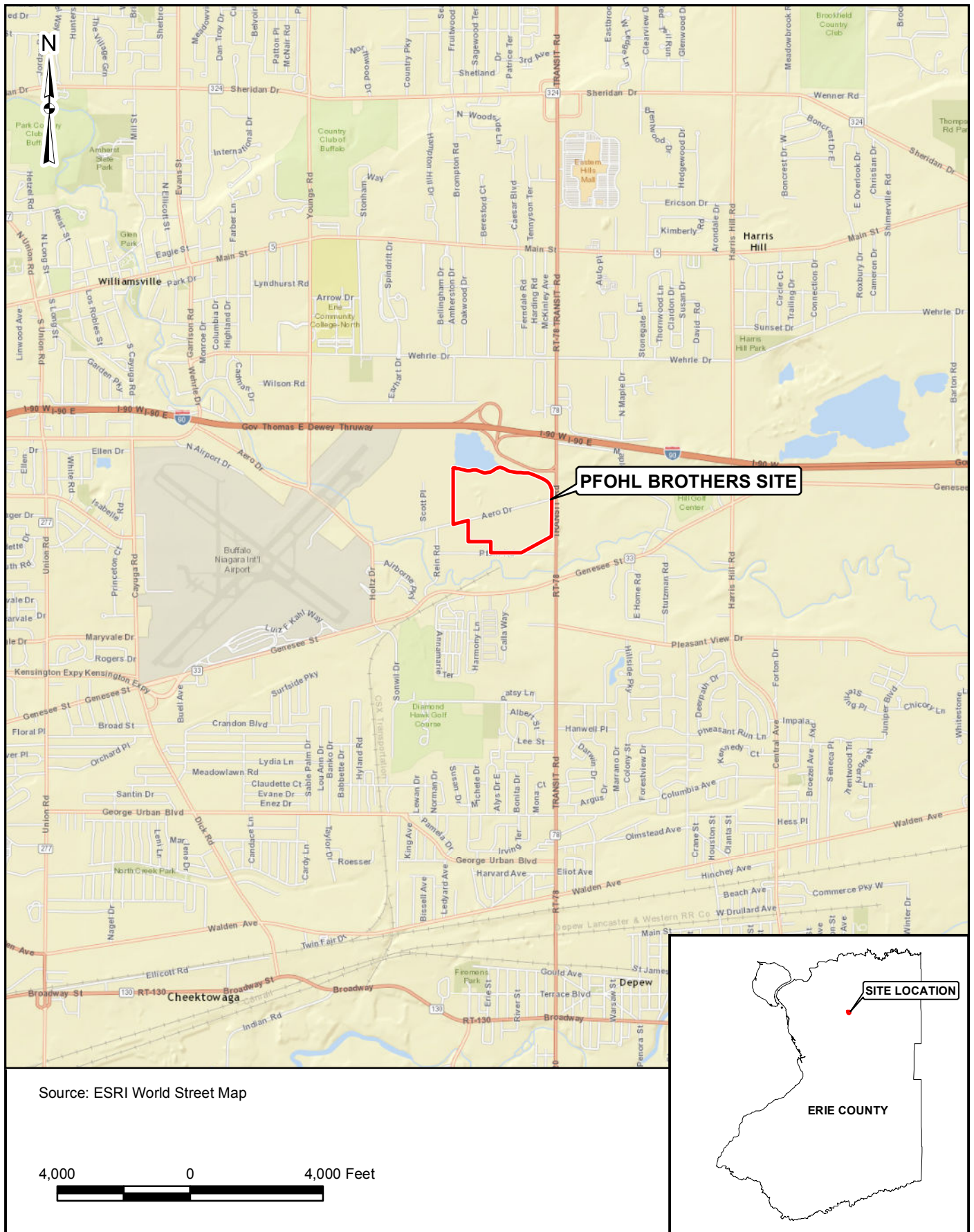
Flags assigned during chemistry validation are shown.



Concentration Exceeds

Detection Limits shown are MDL

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 07/02/18
Time 0938

Weather conditions clear HOT
Read by: TWN

	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>1138</u>	<u>2792</u>
WW-2	<u>4.7</u>	<u>0</u>	<u>-4613</u>	<u>162</u>
WW-1	<u>4.8</u>	<u>0</u>	<u>1787884</u>	<u>6587</u>
WW-6	<u>7.5</u>	<u>0</u>	<u>5052172</u>	<u>16012</u>
WW-4	<u>7.6</u>	<u>0</u>	<u>-116620</u>	<u>7751</u>
WW-5	<u>8.0</u>	<u>0</u>	<u>5486389</u>	<u>21348</u>

Flow Totalizer at Meter chamber

124145410

Heat Trace

Outside temp T = 94
Current A = 2

Set point SP = 40

Surge Suppressor events

417144

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

Annual Flow Reset

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date

9/26/18

Weather conditions

1st Rain

Time

1200

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	2792
WW-2	4.6	0	0	162
WW-1	4.5	0	150864	10652
WW-6	7.2	0	349646	11605
WW-4	6.8	0	36991	7767
WW-5	10.7	0	815151	21836

Flow Totalizer at Meter chamber

1352190

Heat Trace

Outside temp T =

70

Set point SP =

40

Current A =

0

Surge Suppressor events

417378

Motor Control Center

Volts

480

volts

Which WW was running?

Amps

5

amps

1 2 3 4 5 6

Filter

Checked

Changed

Comments and/or Current Conditions

Daily Logsheet

Town of Cheektowaga

Date 11/15/18
Time 0700

Weather conditions 30°F, breezy, cloudy
Read by: T. U.

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	99.0 (aborn)	0.0	0	2792
WW-2	4.7 46	0.0	0	162
WW-1	4.3	0.0	366276	6749
WW-6	7.3	0.0	1369283	16381
WW-4	6.9	0.0	36991	7767
WW-5	5.6	25.2	1469731	22244

Flow Totalizer at Meter chamber

23.4 gpm - 3241313

Heat Trace

Outside temp $T = 25^{\circ}F$
Current $A = 1.8$

Set point SP = 40°F

Surge Suppressor events

417 433

Motor Control Center

Volts	480	volts
Amps	5	amps

Which WW was running?

1 2 3 4 5 6

Filter	Checked	Changed
--------	---------	---------

Comments and/or Current Conditions

APPENDIX B

MONTHLY FLOW SUMMARIES
JULY 2018 – DECEMBER 2018

August 14, 2018

Mr. Pat Bowen, P.E.
Town Engineer
Town of Cheektowaga
Re: Pfohl Bros. Flow Data

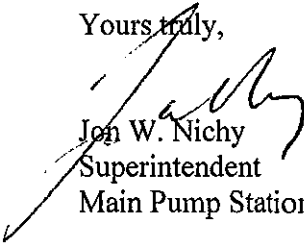
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the July 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

On July 2, 2018, the Flow Totalizers were reset to zero.

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

Yours truly,



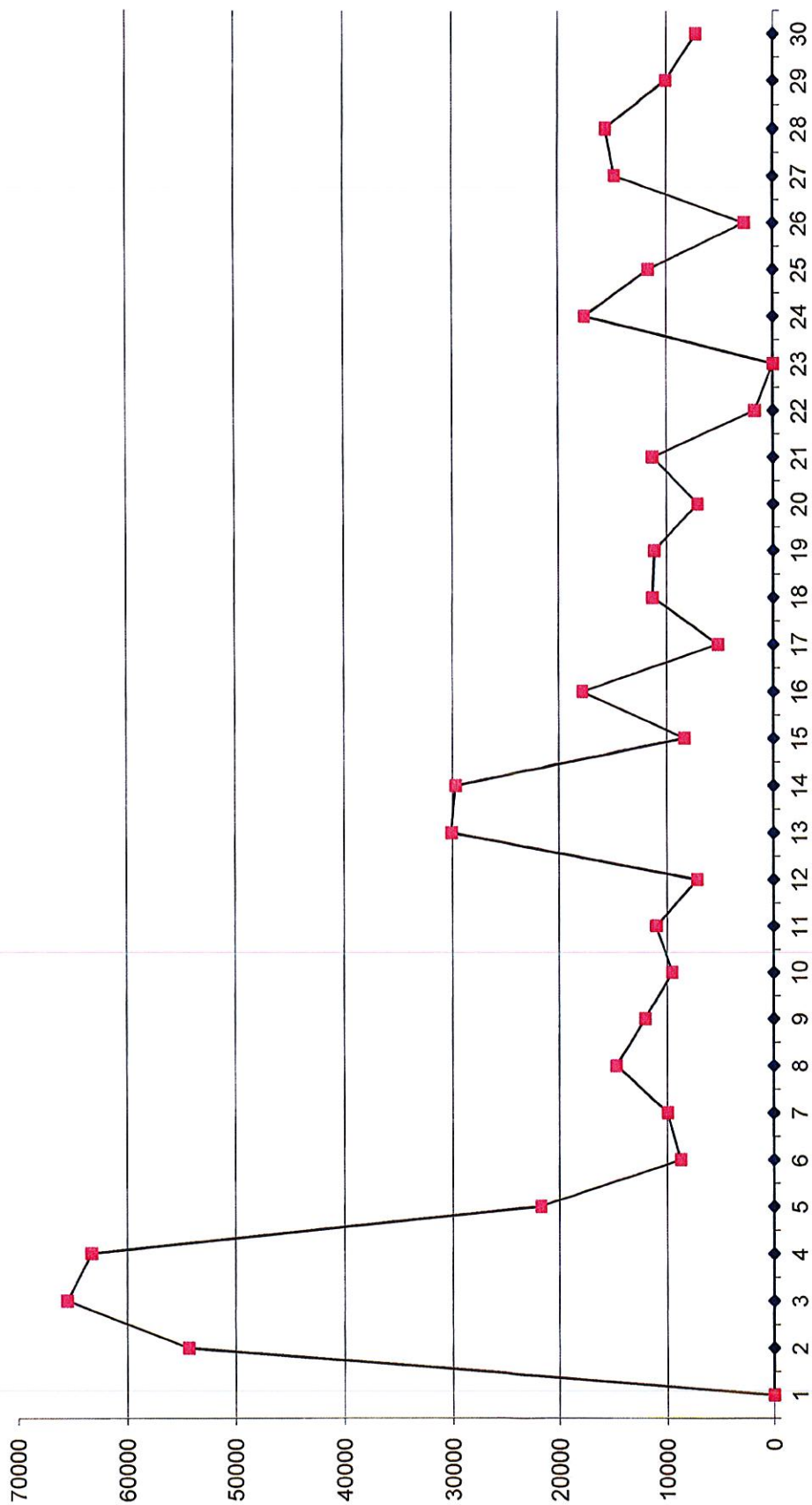
Jon W. Nichy
Superintendent
Main Pump Station

Direct Discharge Flow Data

6/30/2018

6/30/2018		12414546	0	
Jul-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		12,414,546	0	
2		54,343	54,343	Annual Reset / 23:42 inhibit
3		119,878	65,534	07:15 enable
4		183,168	63,290	
5		204,923	21,754	
6		213,615	8,691	
7		223,556	9,940	
8		238,249	14,693	
9		250,260	12,011	
10		259,773	9,513	
11		270,785	11,011	
12		277,922	7,137	
13		308,047	30,124	
14		337,784	29,737	
15		346,111	8,326	
16		363,973	17,862	
17		369,120	5,146	04:37 inhibit / 07:30 enable
18		380,391	11,271	
19		391,490	11,099	
20		398,531	7,040	
21		409,808	11,277	
22		411,515	1,706	05:53 inhibit
23		411,515	0	
24		429,102	17,587	12:56 enable / 23:40 inhibit
25		440,751	11,649	10:16 enable
26		443,396	2,644	
27		458,167	14,771	
28		473,794	15,626	
29		483,819	10,025	
30		491,013	7,193	
31		580,828	89814	
		580,828	580,814	

July
2018



Direct Discharge Flow Data

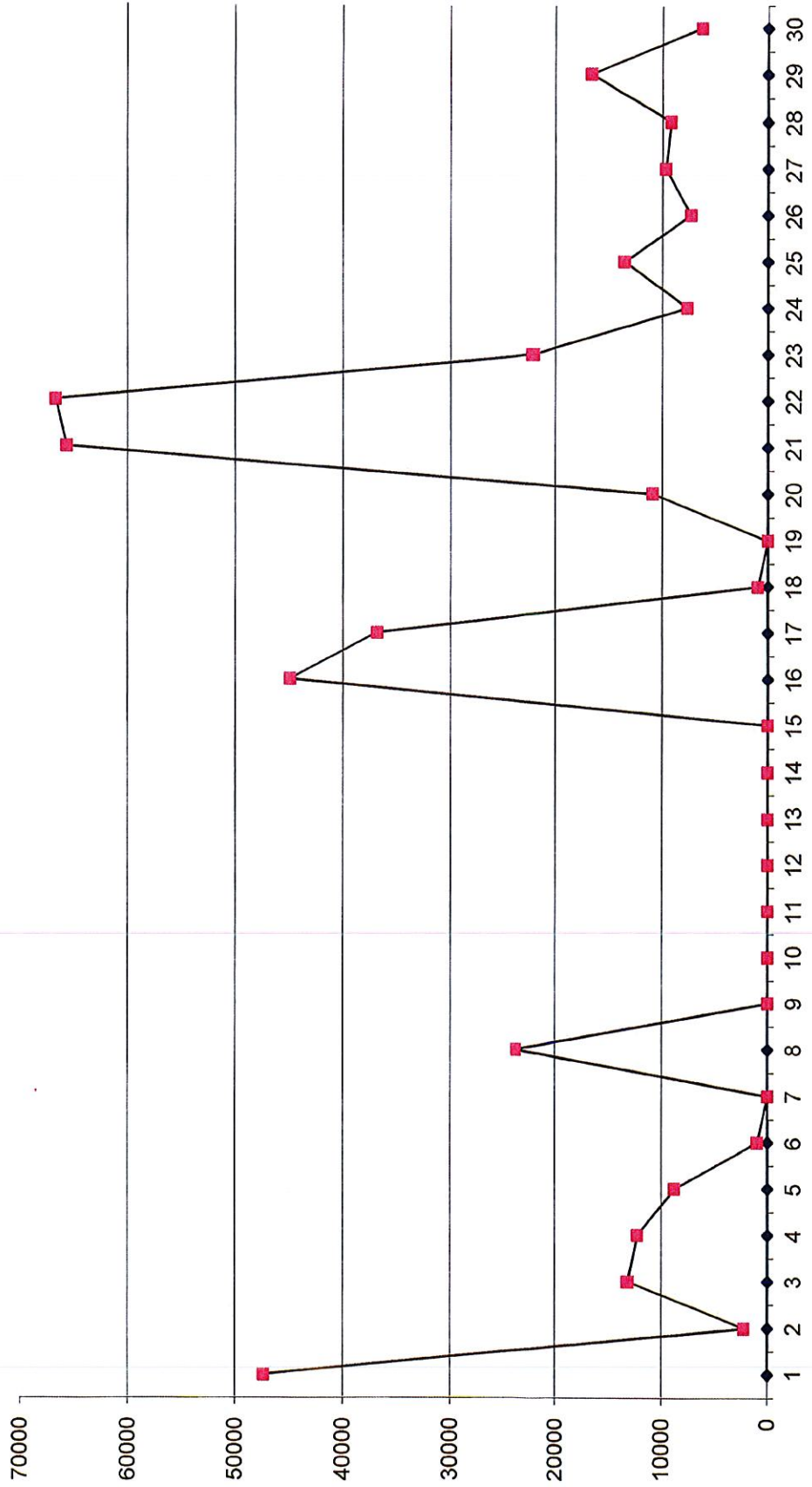
7/31/2018

580828

89,814

Aug-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		628,171	47,343	
2		630,340	2,168	
3		643,501	13,160	
4		655,751	12,249	
5		664,521	8,770	
6		665,459	938	
7		665,459	0	00:04 inhibit
8		689,219	23,759	14:44 enable
9		689,219	0	
10		689,219	0	
11		689,219	0	
12		689,219	0	
13		689,219	0	
14		689,219	0	
15		689,219	0	
16		734,143	44,923	
17		770,943	36,800	
18		771,884	940	01:50 inhibit 13:04 enable
19		771,884	0	
20		782,758	10,874	
21		848,394	65,635	
22		915,030	66,636	00:11 inhibit 10:17 enable
23		937,152	22,121	
24		944,772	7,620	
25		958,315	13,543	
26		965,593	7,277	
27		975,281	9,687	
28		984,461	9,180	
29		1,001,103	16,642	
30		1,007,339	6,235	
31		1,015,233	7894	
		434,405	434,394	

August
2018

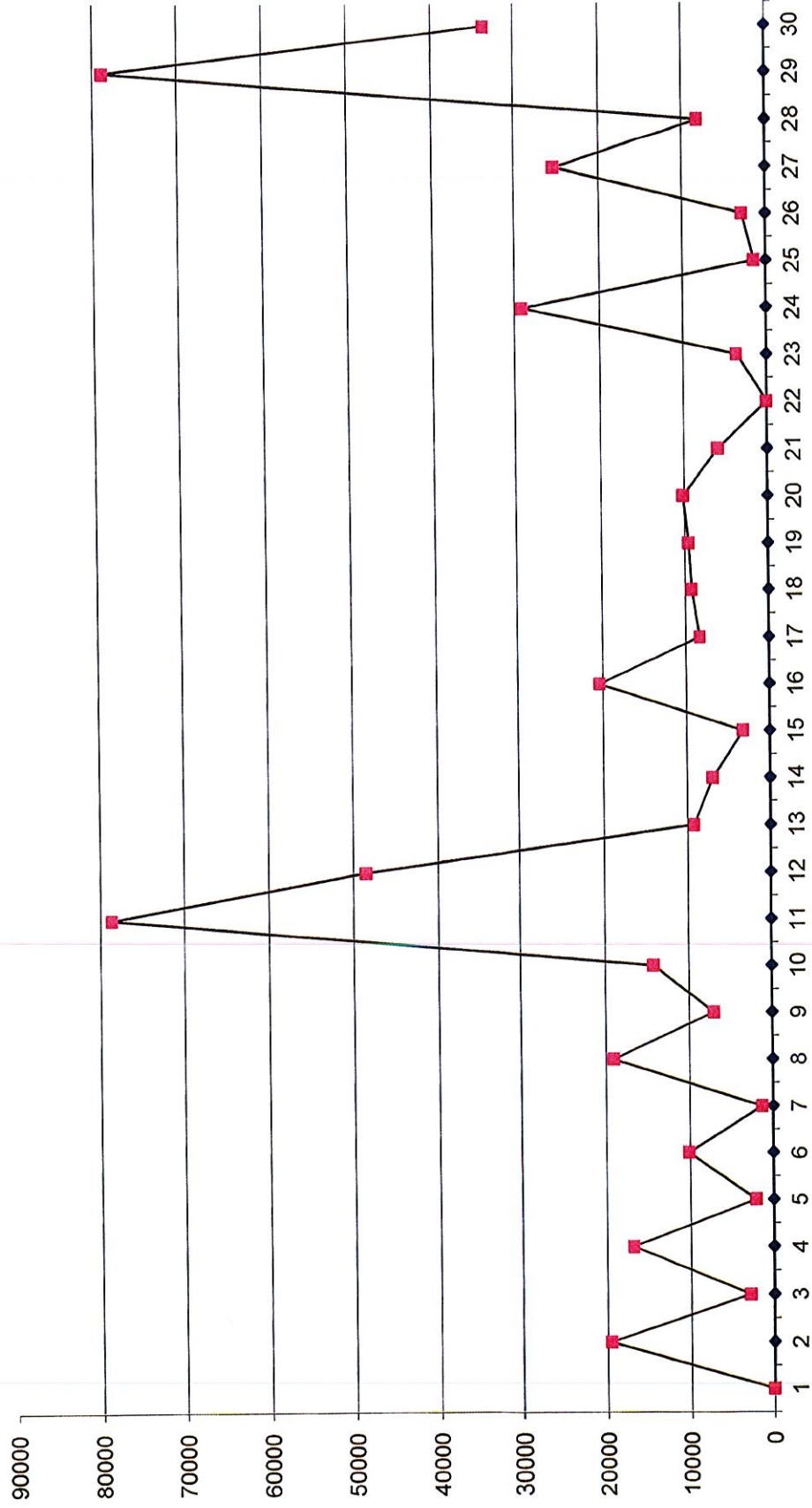


Direct Discharge Flow Data

8/31/2018

		1015233	89,814	
Sep-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		1,015,233	0	
2		1,034,771	19,538	
3		1,037,539	2,768	
4		1,054,345	16,805	
5		1,056,420	2,074	
6		1,066,520	10,100	
7		1,067,819	1,299	
8		1,086,883	19,064	
9		1,093,873	6,989	23:20 inhibit
10		1,108,081	14,207	15:56 enable
11		1,186,690	78,609	
12		1,235,229	48,538	
13		1,244,401	9,171	
14		1,251,258	6,857	
15		1,254,433	3,175	
16		1,274,846	20,412	
17		1,283,139	8,292	
18		1,292,386	9,247	
19		1,301,954	9,567	
20		1,312,110	10,156	
21		1,318,022	5,912	
22		1,318,022	0	
23		1,321,578	3,556	
24		1,350,792	29,214	
25		1,352,189	1,396	00:14 inhibit
26		1,354,983	2,794	22:21 enable
27		1,380,334	25,350	
28		1,388,523	8,189	
29		1,467,387	78,863	
30		1,501,144	33,757	
31				
		485,911	485,899	

September
2018



Direct Discharge Flow Data

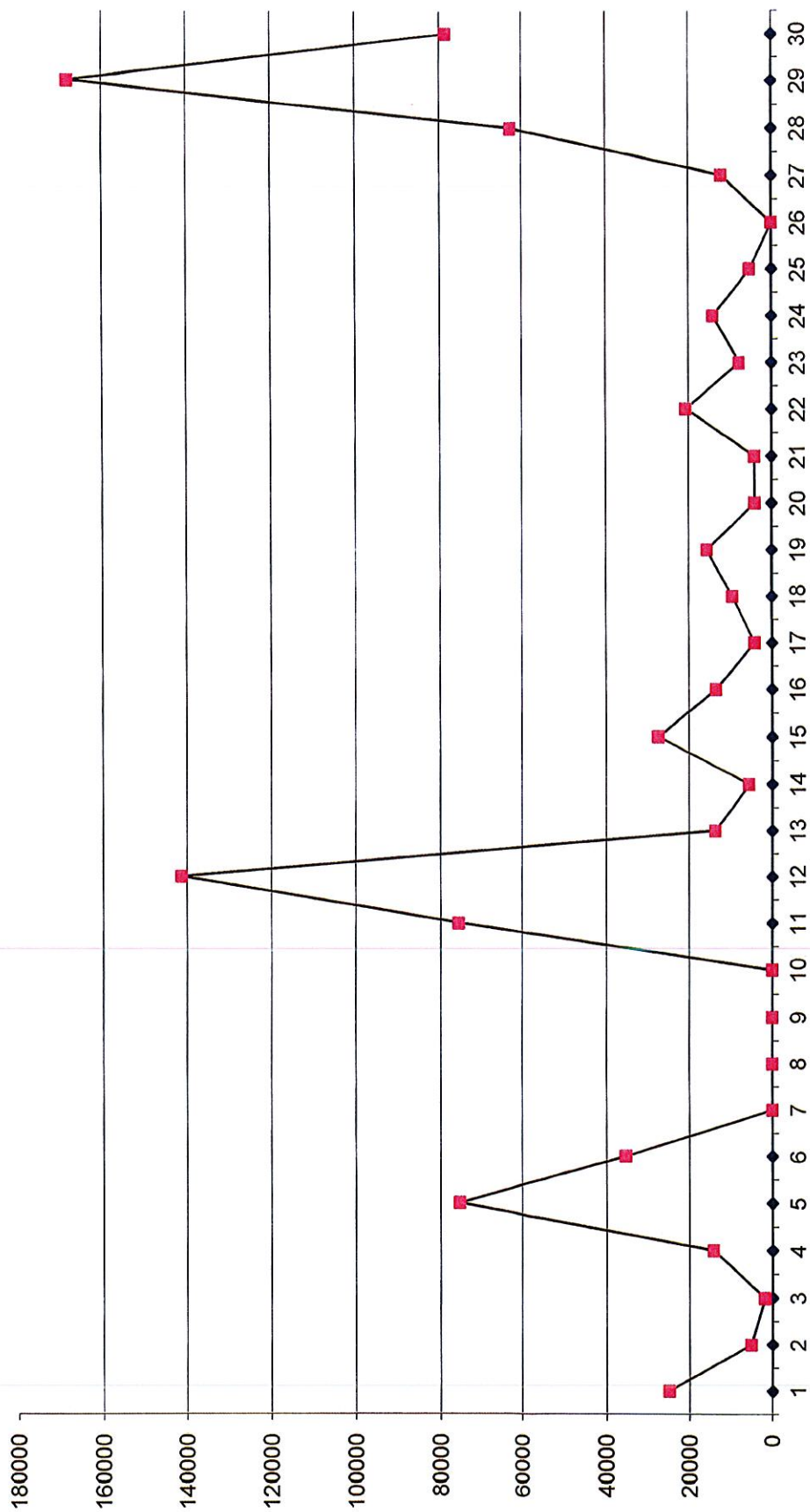
9/30/2018

1501144

33,757

Oct-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		1,525,951	24,807	
2		1,530,937	4,985	07:05 inhibit
3		1,532,709	1,771	22:56 enable
4		1,546,780	14,071	08:10 inhibit
5		1,622,222	75,441	09:50 enable
6		1,657,473	35,251	08:43 inhibit
7		1,657,473	0	
8		1,657,473	0	
9		1,657,473	0	
10		1,657,473	0	
11		1,733,199	75,725	13:14 enable
12		1,874,470	141,271	
13		1,888,058	13,588	
14		1,893,475	5,416	
15		1,920,818	27,343	
16		1,934,296	13,478	
17		1,938,359	4,063	
18		1,947,912	9,552	
19		1,963,572	15,660	
20		1,967,574	4,001	21:46 inhibit
21		1,971,648	4,074	21:32 enable
22		1,992,301	20,652	
23		2,000,087	7,786	
24		2,014,151	14,063	
25		2,019,350	5,199	
26		2,019,350	0	
27		2,031,431	12,080	05:21 inhibit
28		2,094,394	62,963	15:13 enable
29		2,262,440	168,046	
30		2,341,049	78,608	
31		2,355,318	14269	13:40 inhibit 22:35 enable
		854,174	854,163	

October
2018



Direct Discharge Flow Data

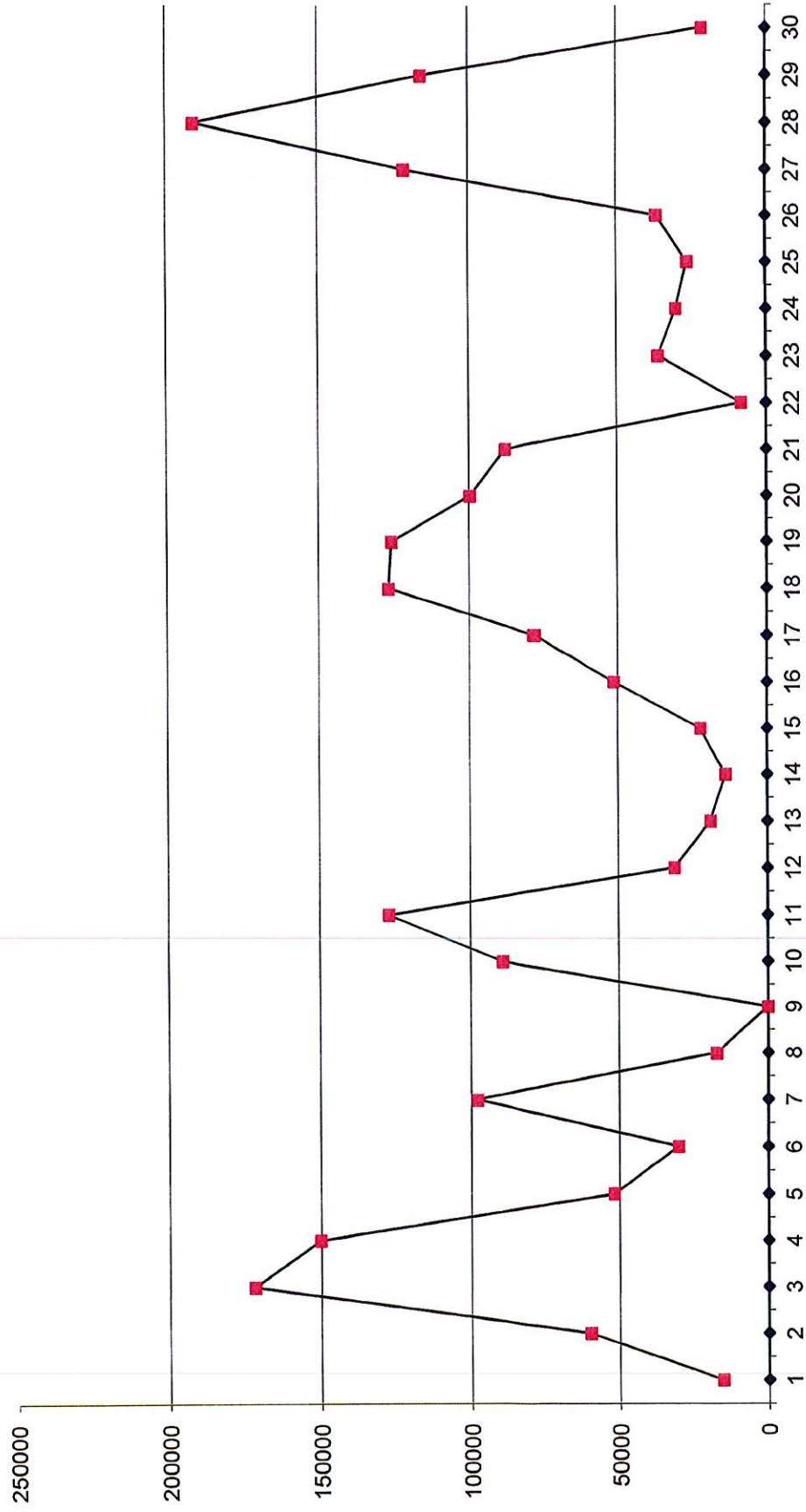
10/31/2018

2355318

14,269

Nov-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		2,370,761	15,442	08:59 inhibit
2		2,430,595	59,834	14:47 enable
3		2,602,516	171,921	
4		2,752,675	150,158	
5		2,804,466	51,790	
6		2,834,604	30,138	07:07 inhibit 11:49 enable
7		2,932,582	97,977	
8		2,949,805	17,222	
9		2,949,805	0	19:53 inhibit
10		3,039,175	89,370	06:58 enable
11		3,166,382	127,206	
12		3,197,704	31,322	
13		3,216,749	19,044	
14		3,230,662	13,913	
15		3,253,035	22,372	
16		3,304,411	51,376	13:20 inhibit
17		3,382,304	77,893	07:14 enable
18		3,509,142	126,837	
19		3,634,891	125,749	
20		3,734,579	99,688	
21		3,822,538	87,959	
22		3,930,899	8,361	
23		3,867,097	36,197	
24		3,897,232	30,134	
25		3,923,614	26,382	
26		3,960,321	36,707	09:05 inhibit
27		4,081,631	121,310	07:06 enable
28		4,272,559	190,928	
29		4,388,222	115,663	
30		4,409,623	21,400	
		2,054,305	2,054,293	

November
2018

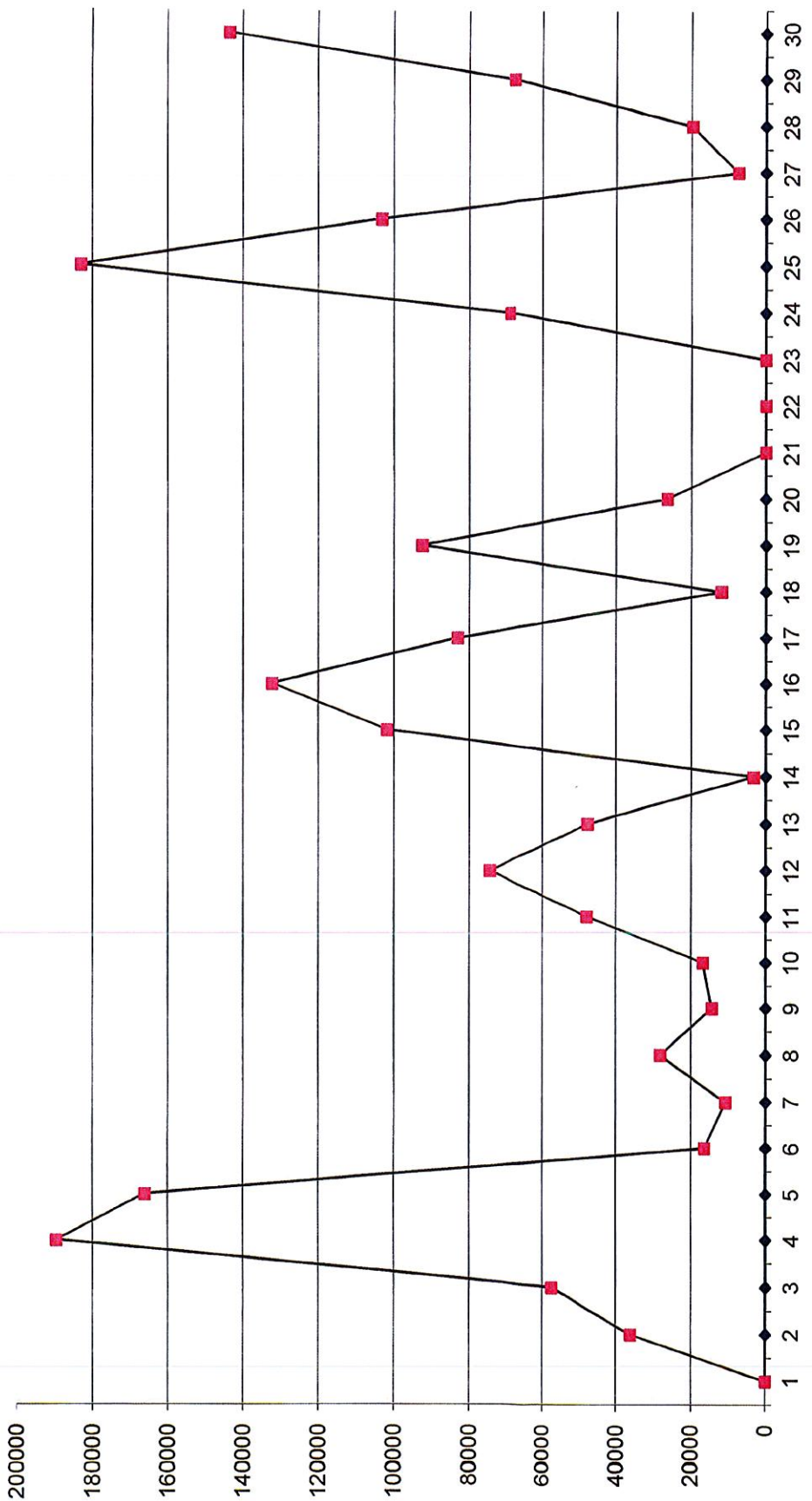


Direct Discharge Flow Data

11/30/2018

		4409623	14,269	
Dec-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		4,409,623	0	21:44 inhibit
2		4,445,843	36,220	17:10 enable 21:57 inhibit
3		4,503,167	57,324	126:35 enable
4		4,692,710	189,542	
5		4,858,799	166,089	
6		4,875,040	16,240	
7		4,885,795	10,755	
8		4,913,994	28,199	
9		4,928,333	14,338	
10		4,945,013	16,680	
11		4,992,920	47,906	
12		5,067,382	74,462	
13		5,114,964	47,582	
14		5,118,106	3,142	
15		5,219,835	101,729	
16		5,352,103	132,267	
17		5,435,217	83,114	
18		5,447,070	11,853	
19		5,539,623	92,553	
20		5,565,951	26,327	23:18 inhibit
21		5,565,951	0	
22		5,565,951	0	
23		5,565,951	0	
24		5,634,674	68,723	14:55 enable
25		5,817,623	182,949	
26		5,920,739	103,116	
27		5,928,076	7,337	
28		5,947,792	19,716	
29		6,015,161	67,368	
30		6,158,762	143,601	
31		6,174,052	15289	18:22 inhibit
		1,764,429	1,764,421	

December
2018



APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-01D	1073088.634	1117968.213	694.41	NM	696.12	D	1						
MNW								9/12/2018 1709	3.76	692.36	0.00	692.36	
MNW								11/13/2018 1038	2.67	693.45	0.00	693.45	
MNW								12/20/2018 1225	2.83	693.29	0.00	693.29	
GW-01S	1073087.779	1117961.500	694.53	NM	696.19	S	1						
MNW								9/12/2018 1708	6.48	689.71	0.00	689.71	
MNW								11/13/2018 1037	3.55	692.64	0.00	692.64	
MNW								12/20/2018 1224	3.81	692.38	0.00	692.38	
GW-03D	1073819.106	1114602.426	692.35	NM	693.88	D	1						
MNW								9/12/2018 1533	1.97	691.91	0.00	691.91	
MNW								11/13/2018 0914	1.78	692.10	0.00	692.10	
MNW								12/20/2018 1120	1.82	692.06	0.00	692.06	
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								9/12/2018 1532	13.27	680.53	0.00	680.53	
MNW								11/13/2018 0913	DRY		NM		
MNW								12/20/2018 1120	3.73	690.07	0.00	690.07	
GW-04D	1072289.432	1114685.625	690.89	NM	692.75	D	1						
MNW								9/12/2018 1721	13.25	679.50	0.00	679.50	
MNW								11/13/2018 1014	12.65	680.10	0.00	680.10	
MNW								12/20/2018 1232	11.95	680.80	0.00	680.80	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								9/12/2018 1720	6.71	686.01	0.00	686.01	
MNW								11/13/2018 1015	4.27	688.45	0.00	688.45	
MNW								12/20/2018 1231	4.27	688.45	0.00	688.45	

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 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-07D	1071242.458	1117669.925	697.15	NM	699.94	D	1						
MNW								9/12/2018 1636	50.05	649.89	0.00	649.89	
MNW								11/13/2018 1334	45.54	654.40	0.00	654.40	
MNW								12/20/2018 1218	56.68	643.26	0.00	643.26	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								9/12/2018 1635	7.20	692.31	0.00	692.31	
MNW								11/13/2018 1335	5.20	694.31	0.00	694.31	
MNW								12/20/2018 1219	4.82	694.69	0.00	694.69	
GW-08D	1073713.617	1116795.328	695.28	NM	697.79	D	1						
MNW								9/12/2018 1541	5.98	691.81	0.00	691.81	
MNW								11/13/2018 0929	5.73	692.06	0.00	692.06	
MNW								12/20/2018 1138	5.78	692.01	0.00	692.01	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								9/12/2018 1540	5.31	692.19	0.00	692.19	
MNW								11/13/2018 0929	5.10	692.40	0.00	692.40	
MNW								12/20/2018 1139	5.14	692.36	0.00	692.36	
GW-26D	1071698.573	1115997.470	696.01	NM	698.50	D	1						
MNW								9/12/2018 1621	6.82	691.68	0.00	691.68	
MNW								11/13/2018 1005	6.58	691.92	0.00	691.92	
MNW								12/20/2018 1210	6.61	691.89	0.00	691.89	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								9/12/2018 1553	11.15	689.80	0.00	689.80	
MNW								11/13/2018 0936	8.51	692.44	0.00	692.44	
MNW								12/20/2018 1143	8.68	692.27	0.00	692.27	

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-29S	1072552.638	1117761.993	697.50	NM	699.63	S	1						
MNW								9/12/2018 1608	10.39	689.24	0.00	689.24	
MNW								11/13/2018 0952	6.71	692.92	0.00	692.92	
MNW								12/20/2018 1155	7.36	692.27	0.00	692.27	
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								9/12/2018 1611	8.13	688.45	0.00	688.45	
MNW								11/13/2018 0954	7.82	688.76	0.00	688.76	
MNW								12/20/2018 1202	7.77	688.81	0.00	688.81	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								9/12/2018 1615	8.27	690.35	0.00	690.35	
MNW								11/13/2018 0958	2.68	695.94	0.00	695.94	
MNW								12/20/2018 1203	2.60	696.02	0.00	696.02	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								9/12/2018 1617	7.29	691.08	0.00	691.08	
MNW								11/13/2018 1001	2.65	695.72	0.00	695.72	
MNW								12/20/2018 1206	2.54	695.83	0.00	695.83	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								9/12/2018 1624	DRY		NM		Dry at 8.20'
MNW								11/13/2018 1008	3.95	694.29	0.00	694.29	
MNW								12/20/2018 1212	4.05	694.19	0.00	694.19	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								9/12/2018 1530	8.86	685.91	0.00	685.91	
MNW								11/13/2018 0902	2.50	692.27	0.00	692.27	
MNW								12/20/2018 1113	2.41	692.36	0.00	692.36	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-35S	1071701.925	1115985.585	696.19	NM	697.39	S	1						
MNW								9/12/2018 1620	6.80	690.59	0.00	690.59	
MNW								11/13/2018 1005	4.41	692.98	0.00	692.98	
MNW								12/20/2018 1209	3.28	694.11	0.00	694.11	
MH-01	1073806.665	1114810.501	698.62	NM	698.62	NA	1						
MH								9/12/2018 1531	11.17	687.45	0.00	687.45	
MH								11/13/2018 0907	10.42	688.20	0.00	688.20	
MH								12/20/2018 1118	11.32	687.30	0.00	687.30	
MH-03	1073736.789	1115259.334	699.40	NM	699.40	NA	1						
MH								9/12/2018 1537	11.23	688.17	0.00	688.17	
MH								11/13/2018 0923	11.25	688.15	0.00	688.15	
MH								12/20/2018 1133	11.26	688.14	0.00	688.14	
MH-07	1073838.229	1116243.757	696.82	NM	696.82	NA	1						
MH								9/12/2018 1538	9.46	687.36	0.00	687.36	
MH								11/13/2018 0925	9.47	687.35	0.00	687.35	
MH								12/20/2018 1136	9.95	686.87	0.00	686.87	
MH-10	1073540.729	1117381.524	703.01	NM	703.01	NA	1						
MH								9/12/2018 1550	14.53	688.48	0.00	688.48	
MH								11/13/2018 0933	14.49	688.52	0.00	688.52	
MH								12/20/2018 1141	14.45	688.56	0.00	688.56	
MH-15	1072531.567	1117761.125	699.02	NM	699.02	NA	1						
MH								9/12/2018 1607	14.81	684.21	0.00	684.21	
MH								11/13/2018 0951	14.93	684.09	0.00	684.09	
MH								12/20/2018 1156	14.98	684.04	0.00	684.04	

NM - No Measurement

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Type:

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MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-16	1072133.714	1117748.238	698.57	NM	698.57	NA	1						
MH								9/12/2018 1610	14.55	684.02	0.00	684.02	
MH								11/13/2018 0954	14.55	684.02	0.00	684.02	
MH								12/20/2018 1200	14.65	683.92	0.00	683.92	
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA	1						
MH								9/12/2018 1614	18.16	684.00	0.00	684.00	
MH								11/13/2018 0957	18.15	684.01	0.00	684.01	
MH								12/20/2018 1203	18.22	683.94	0.00	683.94	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA	1						
MH								9/12/2018 1619	19.72	686.48	0.00	686.48	
MH								11/13/2018 1004	19.75	686.45	0.00	686.45	
MH								12/20/2018 1208	19.75	686.45	0.00	686.45	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA	1						
MH								9/12/2018 1623	9.01	689.04	0.00	689.04	
MH								11/13/2018 1008	9.00	689.05	0.00	689.05	
MH								12/20/2018 1212	9.00	689.05	0.00	689.05	
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA	1						
MH								9/12/2018 1525	10.76	687.41	0.00	687.41	
MH								11/13/2018 0859	10.05	688.12	0.00	688.12	
MH								12/20/2018 1108	10.85	687.32	0.00	687.32	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
SG								9/12/2018 1532	Dry		NM		Dry at 0.75
SG								11/13/2018 0907	-0.66	690.66	0.00	690.66	
SG								12/20/2018 1118	-0.72	690.72	0.00	690.72	

NM - No Measurement

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Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE C-1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
SG-02	1073738.27	1116805.85	NM	NM	690.00	NA	1						
SG								9/12/2018 1545	-3.10	693.10	0.00	693.10	
SG								11/13/2018 0931	-3.26	693.26	0.00	693.26	
SG								12/20/2018 1140	-3.24	693.24	0.00	693.24	
WW-01	1073676.903	1115710.476	NM	NM	684.02	NA	1						
MH								9/12/2018 1440	-4.0	688.02	0.00	688.02	
MH								11/13/2018 0700	-4.0	688.02	0.00	688.02	
MH								12/20/2018 1030	-4.0	688.02	0.00	688.02	
WW-02	1073684.724	1116792.311	NM	NM	684.18	NA	1						
MH								9/12/2018 1440	-4.6	688.78	0.00	688.78	
MH								11/13/2018 0700	-4.7	688.88	0.00	688.88	
MH								12/20/2018 1030	-4.7	688.88	0.00	688.88	
WW-03	1073140.339	1117618.499	NM	NM	683.80	NA	1						
MH								9/12/2018 1554	-4.75	688.55	0.00	688.55	
MH								11/13/2018 0700	-4.85	688.65	0.00	688.65	
MH								12/20/2018 1030	-4.97	688.77	0.00	688.77	
WW-04	1072057.563	1117610.508	NM	NM	676.62	NA	1						
MH								9/12/2018 1440	-6.9	683.52	0.00	683.52	
MH								11/13/2018 0700	-6.9	683.52	0.00	683.52	
MH								12/20/2018 1030	-6.6	683.22	0.00	683.22	
WW-05	1071661.368	1116370.876	NM	NM	676.14	NA	1						
MH								9/12/2018 1440	-6.3	682.44	0.00	682.44	
MH								11/13/2018 0700	-5.8	681.94	0.00	681.94	
MH								12/20/2018 1030	-7.2	683.34	0.00	683.34	

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
JULY - DECEMBER 2018

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
WW-06	1072988.420	1114811.518	NM	NM	681.89	NA	1						
MH								9/12/2018 1440	-5.8	687.69	0.00	687.69	
MH								11/13/2018 0700	-6.8	688.69	0.00	688.69	
MH								12/20/2018 1030	-6.1	687.99	0.00	687.99	

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)
9/12/2018	688.02	---	---	688.78	692.19	3.41	693.10	4.32
11/13/2018	688.02	---	---	688.88	692.40	3.52	693.26	4.38
12/20/2018	688.02	---	---	688.88	692.36	3.48	693.24	4.36

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)
9/12/2018	688.55	689.80	1.25	683.52	---	---
11/13/2018	688.65	692.44	3.79	683.52	---	---
12/20/2018	688.77	692.27	3.50	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)
9/12/2018	682.44	691.08	8.64	687.69	685.91	-1.78
11/13/2018	681.94	695.72	13.78	688.69	692.27	3.58
12/20/2018	683.34	695.83	12.49	687.99	692.36	4.37

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)
9/12/2018	687.45	DRY	NA	684.21	689.24	5.03
11/13/2018	688.20	690.66	2.46	684.09	692.92	8.83
12/20/2018	687.30	690.72	3.42	684.04	692.27	8.23

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)
9/12/2018	684.02	688.45	4.43	684.00	690.35	6.35
11/13/2018	684.02	688.76	4.74	684.01	695.94	11.93
12/20/2018	683.92	688.81	4.89	683.94	696.02	12.08

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)
9/12/2018	686.48	690.59	4.11	689.04	DRY	NA
11/13/2018	686.45	692.98	6.53	689.05	694.29	5.24
12/20/2018	686.45	694.11	7.66	689.05	694.19	5.14

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: 11/13/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.55'	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):	7.0	Estimated Purge Volume (liters):	11.3
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Sample ID: GW-01S Sample Time: 11:28 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

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

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:43	6.83	11.52	1.12	3.36	484	-93	350	3.55
10:48	6.77	11.55	1.12	3.01	352	-84	300	4.65
10:53	6.84	11.33	1.12	1.42	223	-81	230	4.60
10:58	6.76	11.33	1.12	1.17	178	-90	230	4.58
11:03	6.65	11.44	1.13	0.97	128	-96	230	4.61
11:08	6.58	11.47	1.12	0.88	107	-95	230	4.60
11:13	6.53	11.41	1.13	0.82	77.6	-95	230	4.60
11:18	6.48	11.42	1.14	0.76	51.6	-95	230	4.67
11:23	6.48	11.48	1.14	0.72	36.9	-95	230	4.68
11:28	6.48	11.41	1.13	0.70	21.1	-96	230	4.70
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/13/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.67'	Depth to Well Bottom:	39.65'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	91.3		Estimated Purge Volume (liters):	80.0	

Sample ID: GW-01D Sample Time: 13:00 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: _____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:40	7.17	10.74	1.11	5.25	0.5	-85	1000	2.67
11:45	7.07	10.84	1.11	2.09	0.1	-90	1000	2.72
11:50	7.01	10.94	1.11	0.70	0.0	-96	1000	2.72
11:55	7.03	11.00	1.11	0.62	0.0	-100	1000	2.72
12:00	7.06	11.05	1.11	0.57	0.0	-108	1000	2.72
12:05	7.10	11.08	1.11	0.54	0.0	-114	1000	2.72
12:10	7.14	11.16	1.11	0.53	0.0	-124	1000	2.73
12:15	7.14	11.25	1.11	0.51	0.0	-144	1000	2.74
12:20	7.14	11.29	1.11	0.50	0.0	-164	1000	2.75
12:25	7.17	11.34	1.11	0.49	0.0	-184	1000	2.75
12:30	7.15	11.37	1.11	0.49	0.0	-191	1000	2.75
12:35	7.20	11.35	1.11	0.50	0.0	-199	1000	2.75
12:40	7.25	11.38	1.11	0.49	0.0	-210	1000	2.75
12:45	7.30	11.42	1.11	0.49	0.0	-219	1000	2.75
12:50	7.31	11.39	1.11	0.48	0.0	-227	1000	2.75
12:55	7.33	11.37	1.11	0.47	0.0	-232	1000	2.75
13:00	7.34	11.39	1.11	0.46	0.0	-237	1000	2.75
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. ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	Dry	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):	Estimated Purge Volume (liters):

Sample ID: GW-03S Sample Time: N/A QA/QC:

Sample Parameters:

Other Information: Well was dry and could not be sampled.

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-03D

Date: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.93'	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):	83.4	Estimated Purge Volume (liters):	60.0
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Sample ID: GW-03D Sample Time: 9:50 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-04S

Date: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2		Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.45'	Depth to Well Bottom:	16.23'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainless Steel		Volume in 1 Well Casing (liters):	7.3		Estimated Purge Volume (liters):	9.5	

Sample ID: GW-04S Sample Time: 1525 (VOCs) & 1705 (VOCs & metals) QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Placed passive diffusion bag (PDB) in well 9/12/18, sampled VOCs from PDB at 1525 on 11/14/18
Well historically goes dry at very low purge rates (<75ml/min). Bailed dry and sampled for SVOCs and Metals after recovery at 1705

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)
15:35	8.92	8.15	0.497	8.85	29.0	-10	initial	
15:37	8.97	9.50	0.489	7.43	60.9	-12	0.5 gal	
15:38	8.91	10.38	0.489	6.81	98.6	-12	1.0 gal	
15:40	8.85	10.86	0.477	7.45	195	-12	1.5 gal	
15:41	8.82	11.05	0.474	14.20	344	-37	2.0 gal	
15:42	8.68	11.27	0.471	6.95	643	-94	2.5 gal	dry
17:05	8.32	9.00	0.520	3.23	111.0	-246		12.29
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: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2		Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	13.08'	Depth to Well Bottom:	45.57'	Well Diameter:	4"	Screen Length:
Casing Type:	Stainless Steel		Volume in 1 Well Casing (liters):	80.3		Estimated Purge Volume (liters):	12.0	

Sample ID: GW-04D Sample Time: 16:55 QA/QC:

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:55	8.08	8.53	1.96	3.57	0.0	-163	200	13.08
16:00	7.55	9.22	1.98	1.75	0.0	-208	200	13.42
16:05	7.63	9.29	1.98	1.21	0.0	-250	200	13.80
16:10	7.60	9.17	2.00	1.00	0.0	-262	200	14.00
16:15	7.60	9.15	1.98	0.87	0.0	-271	200	14.17
16:20	7.57	9.12	1.96	0.76	0.0	-276	200	14.36
16:25	7.57	9.24	1.96	0.72	0.0	-282	200	14.48
16:30	7.57	9.38	1.96	0.68	0.0	-292	200	14.60
16:35	7.56	9.07	1.96	0.65	0.0	-296	200	14.70
16:40	7.57	9.43	1.94	0.62	0.0	-300	200	14.78
16:45	7.57	9.62	1.93	0.59	0.0	-303	200	14.84
16:50	7.52	9.38	1.94	0.57	0.0	-305	200	14.96
16:55	7.55	9.34	1.95	0.56	0.0	-310	200	15.03
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

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

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-07S
PROJECT NO.:	60411174		
STAFF:	Rob Murphy, Tom Urban		
DATE(S):	11/13/18, 11/14/18		

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.33	1"	0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.20	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	30.13	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)	=	5.12	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	2	4	6	8	Sample					
pH	8.14	7.88	8.14	8.08	8.11	7.92					
SPEC. COND. (mS/cm)	0.686	0.672	0.671	0.667	0.661	0.746					
DO (mg/l)	6.56	10.21	12.31	8.26	6.84	13.73					
TEMPERATURE (°C)	8.67	10.36	10.60	10.05	9.74	9.31					
TURBIDITY (NTU)	0.0	0.0	5.0	50.8	313	4.0					
ORP (millivolts)	-77	-68	-65	-42	-50	-4					
TIME	14:58	15:05	15:08	15:15	15:20	11/14/18 14:50					

COMMENTS: 13:50 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 9/12/18
 - Begin hand bailing well.
 - Well dry after removing 7 gallons.
 11/14/2018 14:48 - Return to well, depth to water = 5.45 feet.
 14:50 - 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):	11/13/18, 11/14/18		

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	60.83	1" 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	45.54	2" 0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.29	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)	=	10.09	5" 1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=		6" 1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8" 2.60

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

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Init	2.5	5	7	10.1	Sample				
pH	7.70	7.73	7.80	7.98	8.24	N/A				
SPEC. COND. (mS/cm)	0.790	0.766	0.820	0.822	0.857	N/A				
DO (mg/l)	1.91	4.61	12.10	7.26	7.69	N/A				
TEMPERATURE (°C)	9.70	9.71	10.16	9.47	8.22	N/A				
TURBIDITY (NTU)	47.1	9.4	11.7	38.6	157.0	N/A				
ORP (millivolts)	-210	-177	-199	-183	-121	N/A				
TIME	14:10	14:18	14:26	14:40	14:48	11/14/18 14:30				

COMMENTS: 13:45 - Fill VOCs from passive diffusion bag (PDB), PDB was installed on 9/12/18

- Begin hand bailing well.

- Well dry after removing 10.1 gallons

11/14/2018 14:25 - return to well, depth to water = 60.15 feet.

14:30 - Collect sample for SVOCs and Metals.

Strong Sulfur Odor

Not enough water to get parameters (well dry after grabbing samples)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2			Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.16'	Depth to Well Bottom:	13.02'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	4.8		Estimated Purge Volume (liters):	15.0	

Sample ID: GW-8SR Sample Time: 9:25 QA/QC:

Sample Parameters: VOCs, SVOCs, TAL Metals, PFCs, and 1,4-Dioxane

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: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Waterra, Geopump 2			Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.85'	Depth to Well Bottom:	36.54'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	75.8		Estimated Purge Volume (liters):	268.5	

Sample ID:	GW-8D	Sample Time:	10:20	QA/QC:	MS/MSD
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Sample Parameters: VOCs, SVOCs, TAL Metals, PFCs, and 1,4-Dioxane

Other Information: Begin purge with Waterra pump; after 65 gallon purge with Waterra; switch to Geopump 2 and continue with low flow sampling.

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)	Gallons Purged
8:35	7.02	8.84	2.33	11.83	80.2	-166	-	5.85	
8:40	6.87	7.59	0.003	6.07	39.6	-28	-	5.85	10
8:50	6.92	9.11	1.63	2.19	12.1	20	-	5.85	20
9:00	6.91	9.42	1.65	2.78	3.9	49	-	5.85	30
9:10	6.90	8.53	1.68	2.61	5.7	56	-	5.85	40
9:25	6.91	9.41	1.64	1.71	12.0	61	-	5.85	50
9:35	6.90	9.30	1.65	2.91	0.5	68	-	5.85	60
9:40	6.91	9.52	1.66	2.56	9.6	71	-	5.85	65
	Switch from Waterra to low flow sampling after 65 gallons (246 liters) removed								
9:55	7.46	10.16	1.78	2.05	27.4	-71	900	5.85	
10:00	7.35	10.51	1.74	0.92	20.5	-35	900	5.85	
10:05	7.36	10.66	1.74	0.65	0.0	-10	900	5.85	
10:10	7.29	10.70	1.75	0.57	0.0	7	900	5.85	
10:15	7.33	10.64	1.75	0.59	0.0	12	900	5.85	
10:20	7.40	10.71	1.74	0.56	0.0	14	900	5.85	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Waterra, Geopump 2			Tubing Type:	HDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.70'	Depth to Well Bottom:	40.70'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainless Steel			Volume in 1 Well Casing (liters):	84.0		Estimated Purge Volume (liters):	287.5	

Sample ID:	GW-26D	Sample Time:	13:43	QA/QC:	FD-111418
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Sample Parameters: VOCs, SVOCs, TAL Metals, PFCs, and 1,4-Dioxane

Other Information: Begin purge with Waterra pump; after 70 gallon purge with Waterra; switch to Geopump 2 and continue with low flow sampling.

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)	Gallons Purged
11:55	6.85	8.20	2.37	13.80	60.6	-60	-	6.70	
12:05	6.86	9.58	2.34	6.03	38.3	-57	-	6.70	10
12:14	6.88	10.11	2.33	6.02	9.1	-56	-	6.70	20
12:23	6.87	10.58	2.32	3.40	0.0	-54	-	6.70	30
12:36	6.87	10.48	2.33	2.05	0.0	-56	-	6.70	40
12:43	6.87	10.30	2.33	2.73	0.0	-56	-	6.70	50
12:53	6.88	10.15	2.31	3.02	0.0	-54	-	6.70	60
13:03	6.88	10.41	2.31	2.44	0.0	-53	-	6.70	70
Switch from Waterra to low flow sampling after 70 gallons (265 liters) removed									
13:18	7.19	10.94	2.65	1.80	19.4	-81	900	6.70	
13:23	7.18	10.98	2.61	1.04	0.0	-90	900	6.70	
13:28	7.17	10.93	2.59	0.71	0.0	-95	900	6.70	
13:33	7.21	11.04	2.62	0.60	0.0	-100	900	6.70	
13:38	7.25	11.13	2.61	0.56	0.0	-103	900	6.70	
13:43	7.26	11.13	2.61	0.54	0.0	-105	900	6.70	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

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

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60411174 Site: Pfohl Brothers Well I.D.: GW-28S

Date: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.78'	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):	4.2	Estimated Purge Volume (liters):	5.0
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Sample ID: GW-28S Sample Time: 10:35 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: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.43'	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):	7.8	Estimated Purge Volume (liters):	11.0
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Sample ID: GW-29S Sample Time: 11:42 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: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.88'	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):	6.2	Estimated Purge Volume (liters):	13.3
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Sample ID: GW-30S Sample Time: 12:30 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. ($\text{vol}_{\text{cyl}} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

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

Date: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.72'	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: 13:27 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: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.80'	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):	4.4	Estimated Purge Volume (liters):	7.6
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Sample ID:	GW-32S	Sample Time:	14:19	QA/QC:
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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: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	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):	2.5	Estimated Purge Volume (liters):	4.5
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Sample ID: GW-33S Sample Time: 15:04 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: 11/15/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.86'	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):	5.7
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Sample ID: GW-34S Sample Time: 8:20 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-35S

Date: 11/14/2018 Sampling Personnel: Rob Murphy, Tom Urban Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	HDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.35'	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):	1.9	Estimated Purge Volume (liters):	8.0
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Sample ID: GW-35S Sample Time: 12:40 QA/QC:

Sample Parameters: VOCs, SVOCs, TAL Metals, PFCs, and 1,4-Dioxane

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 13, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-01S	GW-01S	7.0	11.3	11:28	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-01D	GW-01D	91.3	80.0	13:00	Groundwater		Not Applicable
GW-07D	GW-07D	38.2	38.2	13:45	Groundwater	VOCs	Not Applicable
GW-07S	GW-07S	19.4	26.5	13:50	Groundwater		Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization with the exception of wells GW-7D and GW-7S that were sampled for VOCs using passive diffusion bags (PDBs). GW-7D and GW-7S were then purged dry.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 14, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-08SR	GW-08SR	4.8	15.0	9:25	Groundwater	VOCs/SVOCs/ Metals/PFCs/1,4-Dioxane	Not Applicable
GW-08D	GW-08D	75.8	268.5	10:20	Groundwater		Not Applicable
GW-08D-MS	GW-08D	75.8	268.5	10:20	Groundwater		Not Applicable
GW-08D-MSD	GW-08D	75.8	268.5	10:20	Groundwater		Not Applicable
GW-35S	GW-35S	1.9	8.0	11:50	Groundwater		Not Applicable
FB-111418	N/A	-	-	11:00	Field Blank	PFCs	Not Applicable
EB-111418	N/A	-	-	11:05	Equipment Blank	1,4-Dioxane	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization. Field blank was created by pouring lab provided PFC free water directly into sample containers in the work area. Equipment blank was created by pumping lab provided water through new tubing into sample containers.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 14, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-26D	GW-26D	84.0	287.5	13:43	Groundwater	VOCs/SVOCs/ Metals/PFCs/1,4- Dioxane	Not Applicable
FD-111418	GW-26D	84.0	287.5	-	Groundwater		Not Applicable
GW-07D	GW-07D	38.2	38.2	14:30	Groundwater	SVOCs/Metals	Not Applicable
GW-07S	GW-07S	19.4	26.5	14:50	Groundwater		Not Applicable
GW-04S	GW-04S	7.3	9.5	15:25 & 17:05	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-04D	GW-04D	80.3	12.0	16:55	Groundwater		Not Applicable
TB-1113+1114	-	-	-	-	Trip Blank	VOCs	Not Applicable

Additional Comments: GW-04S was sampled for VOCs using a PDB. GW-04S was then purged dry and remaining parameters were collected after recovery. GW-07D and GW-07S were sampled for SVOCs and Metals after recharging overnight. All other wells were purged using low flow methods until parameter stabilization.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill Project Number: 60411174

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

Date of Sampling: November 15, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-34S	GW-34S	4.4	5.7	8:20	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-03D	GW-03D	83.4	60.0	9:50	Groundwater		Not Applicable
GW-28S	GW-28S	4.2	5.0	10:35	Groundwater		Not Applicable
GW-29S	GW-29S	7.8	11.0	11:42	Groundwater		Not Applicable
GW-30S	GW-30S	6.2	13.3	12:30	Groundwater		Not Applicable
GW-31S	GW-31S	4.2	6.0	13:27	Groundwater		Not Applicable
GW-32S	GW-32S	4.4	7.6	14:19	Groundwater		

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

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Sampling Crew Members: R. Murphy, T. Urban

Supervisor: R. Murphy

Date of Sampling: November 15, 2018

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of-Custody Number
GW-33S	GW-33S	2.5	4.5	15:04	Groundwater	VOCs/SVOCs/Metals	Not Applicable
TB-111518	-	-	-	-	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

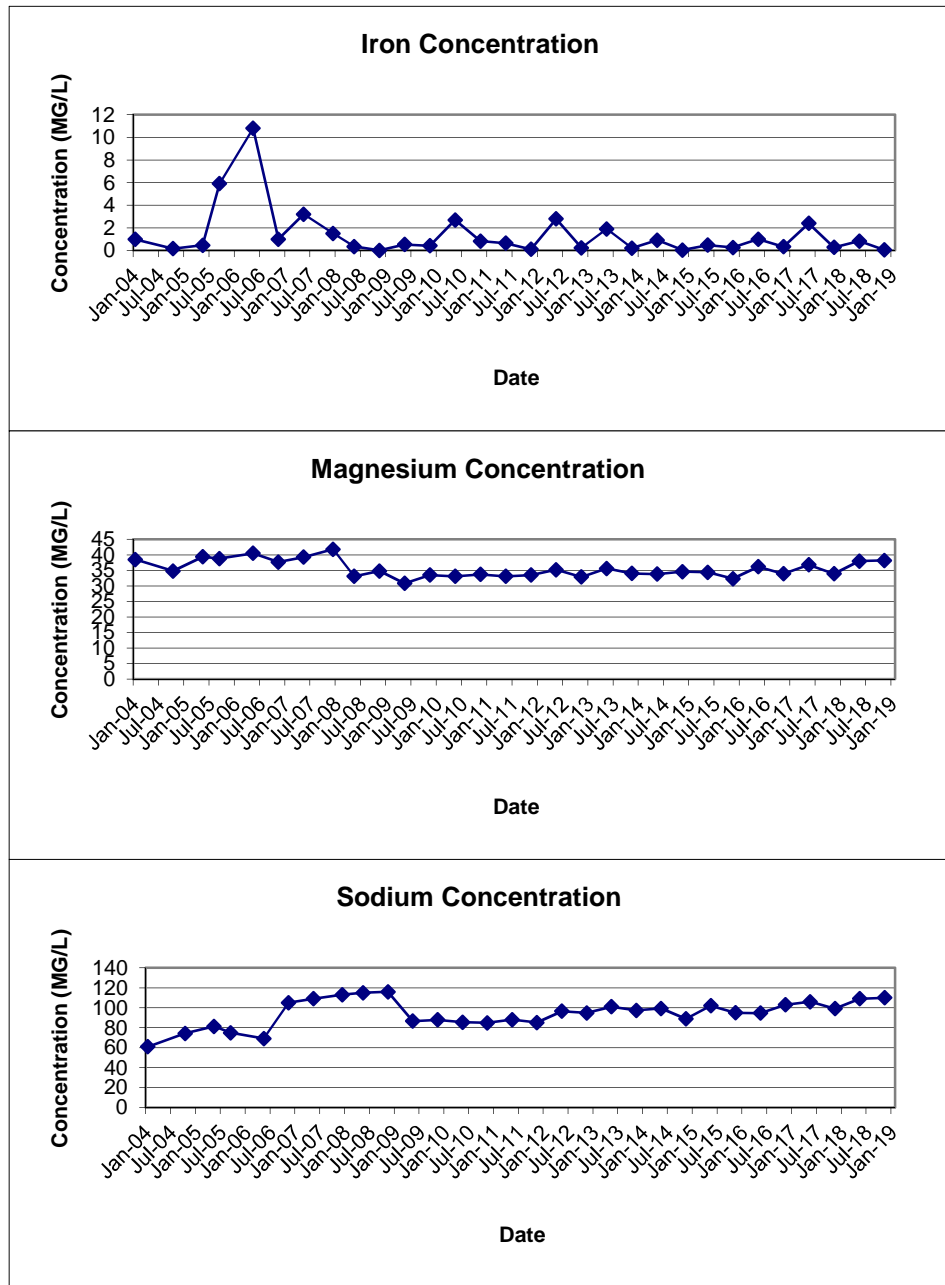


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-01S

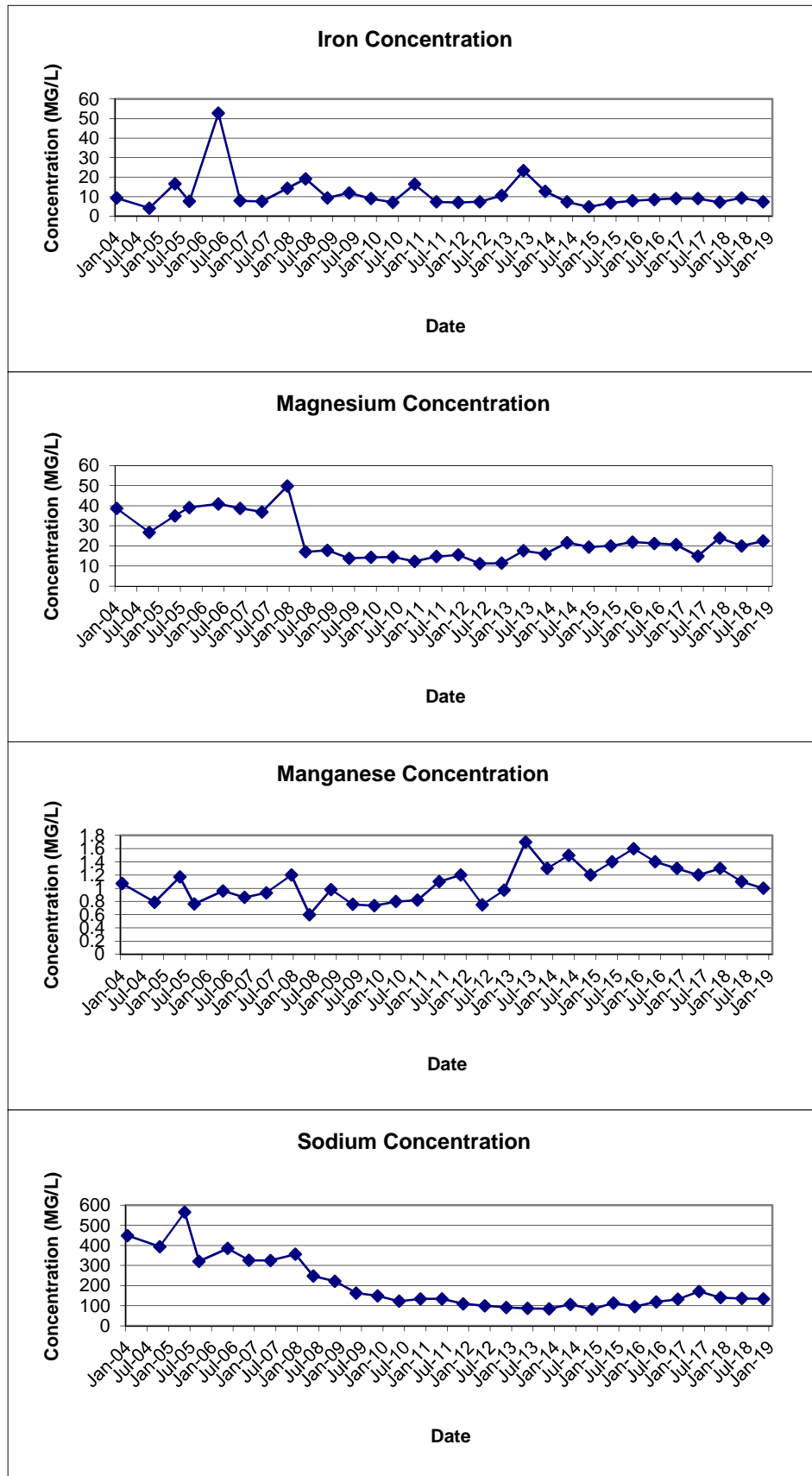


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03D

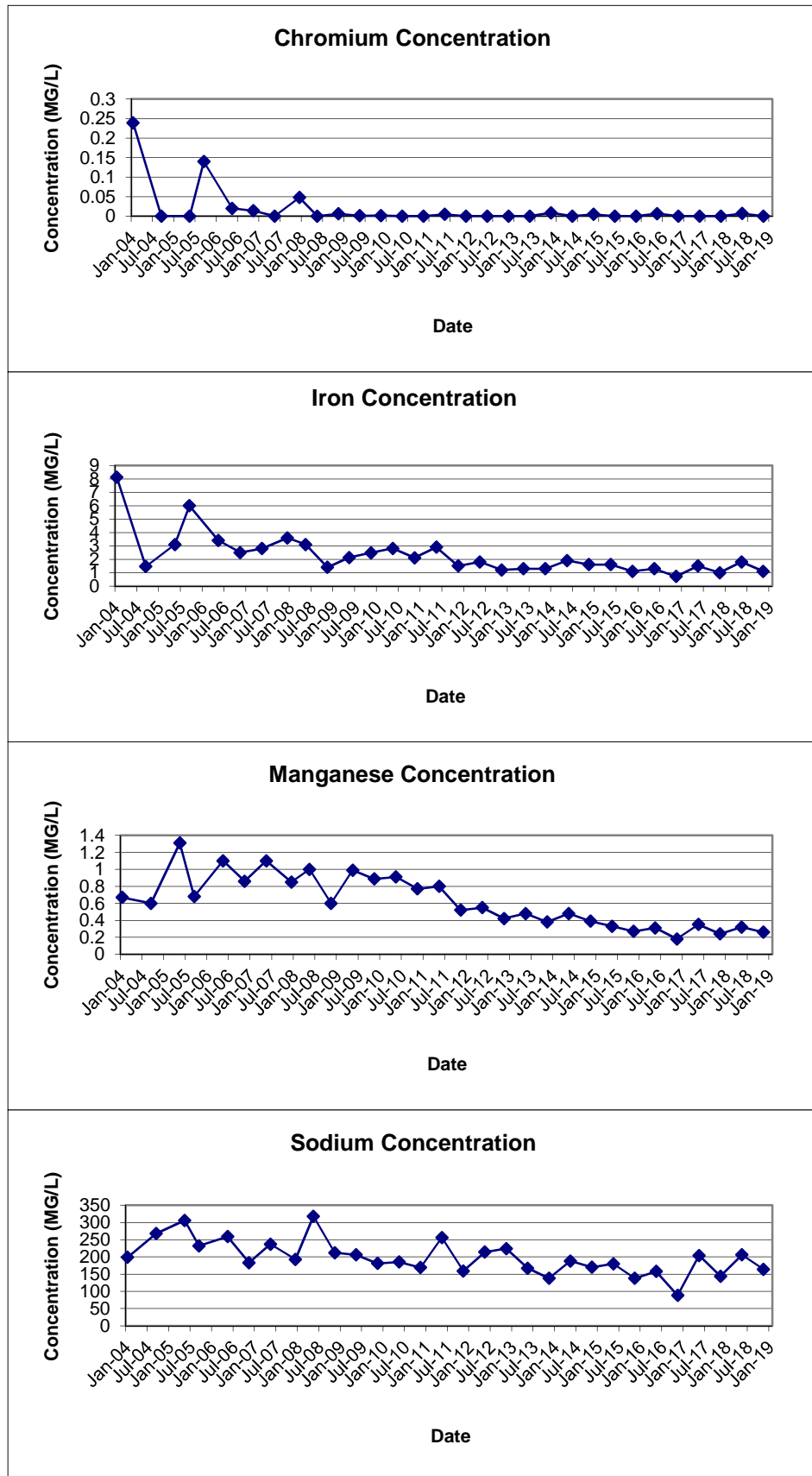
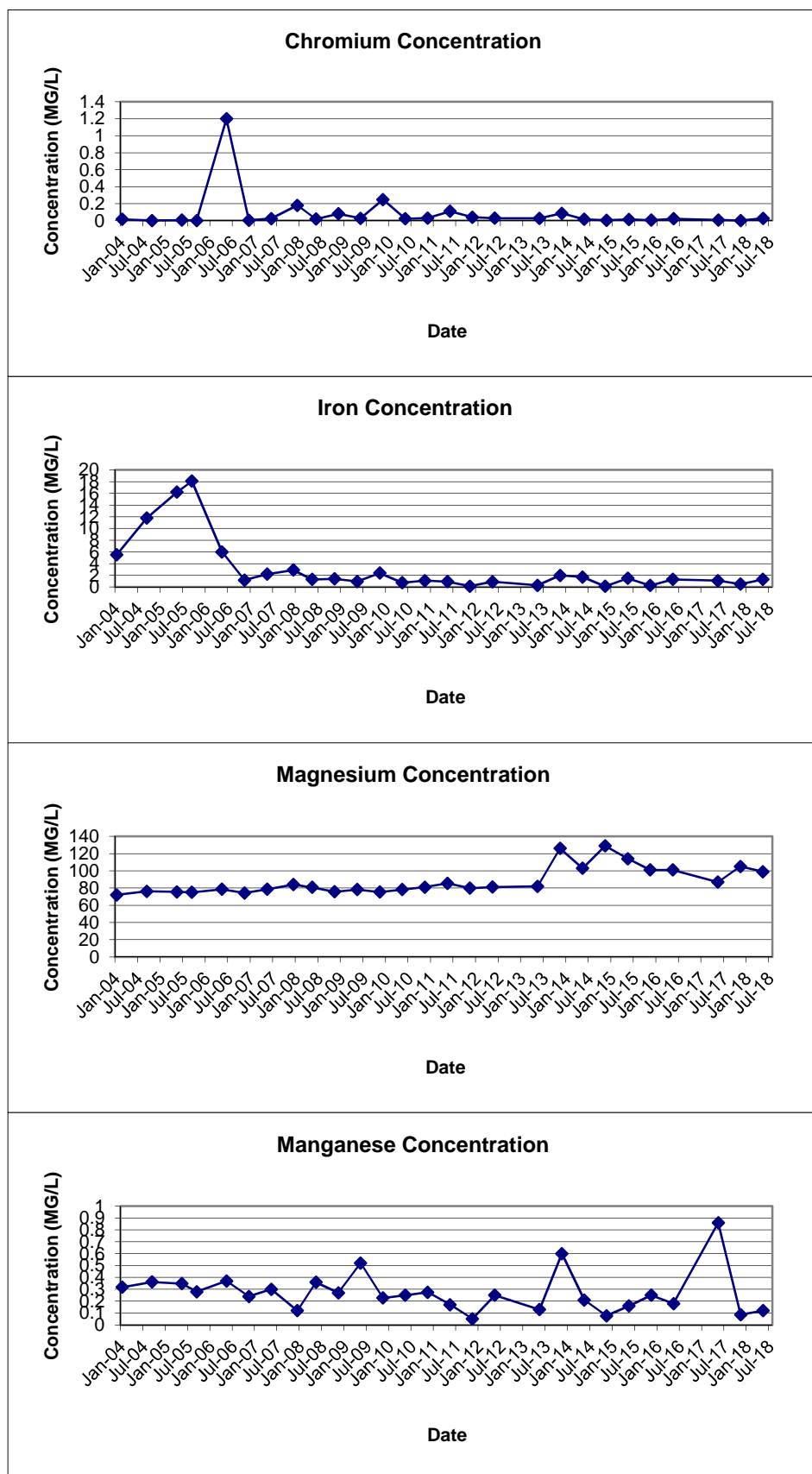
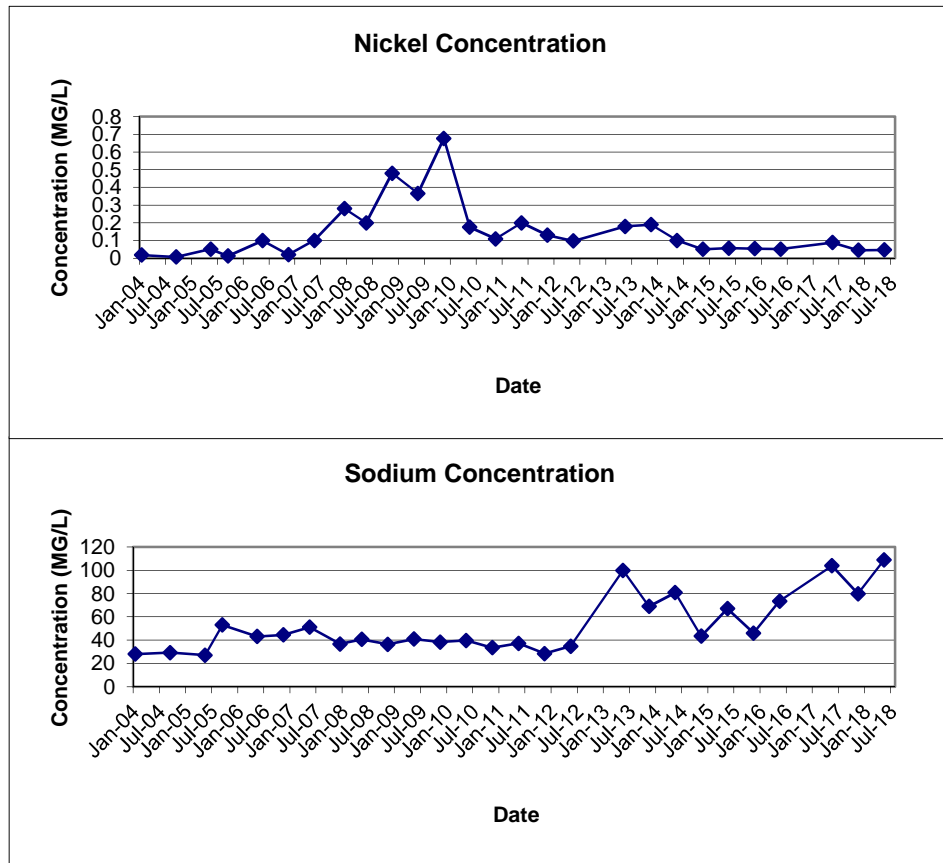


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-03S



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

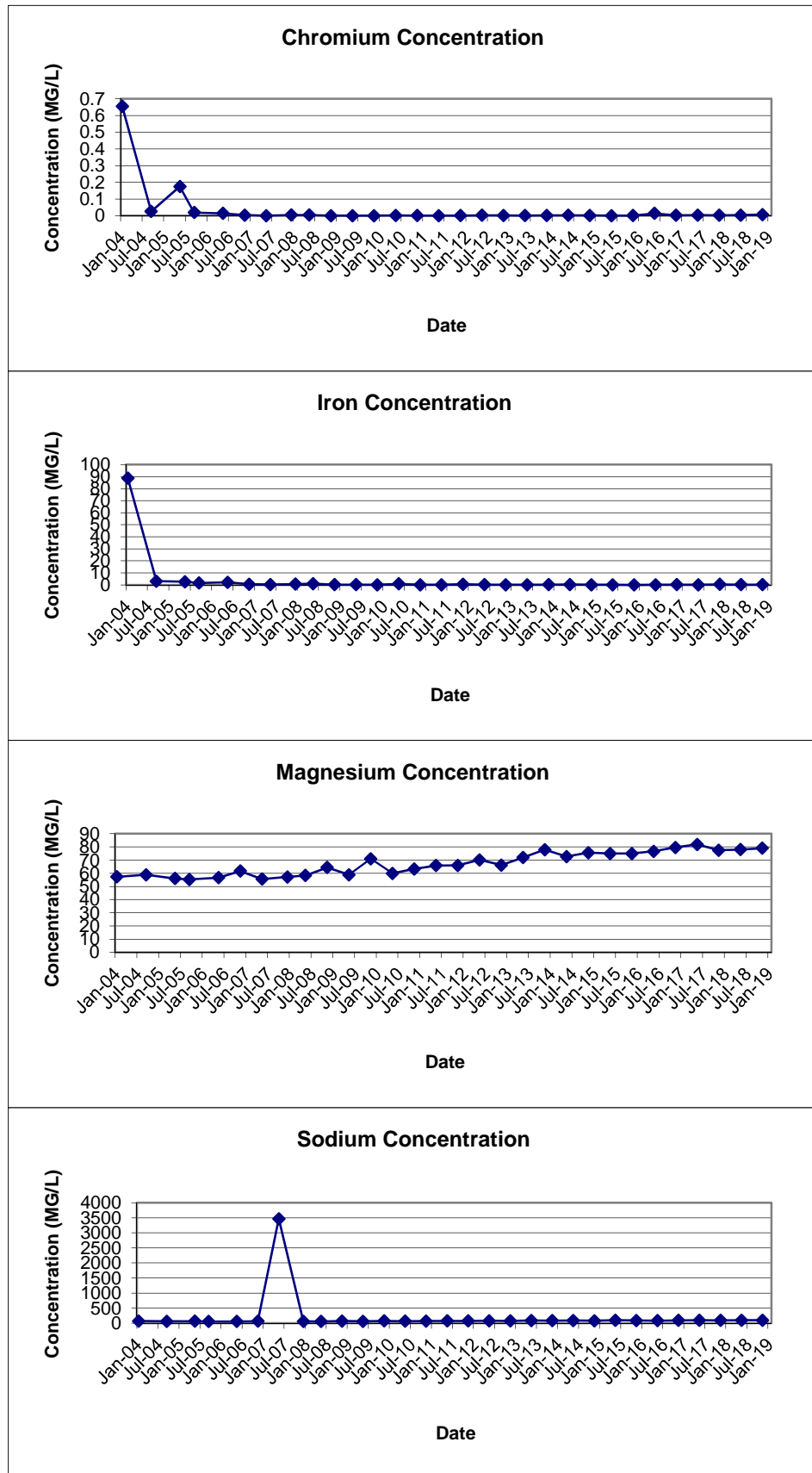


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-04S

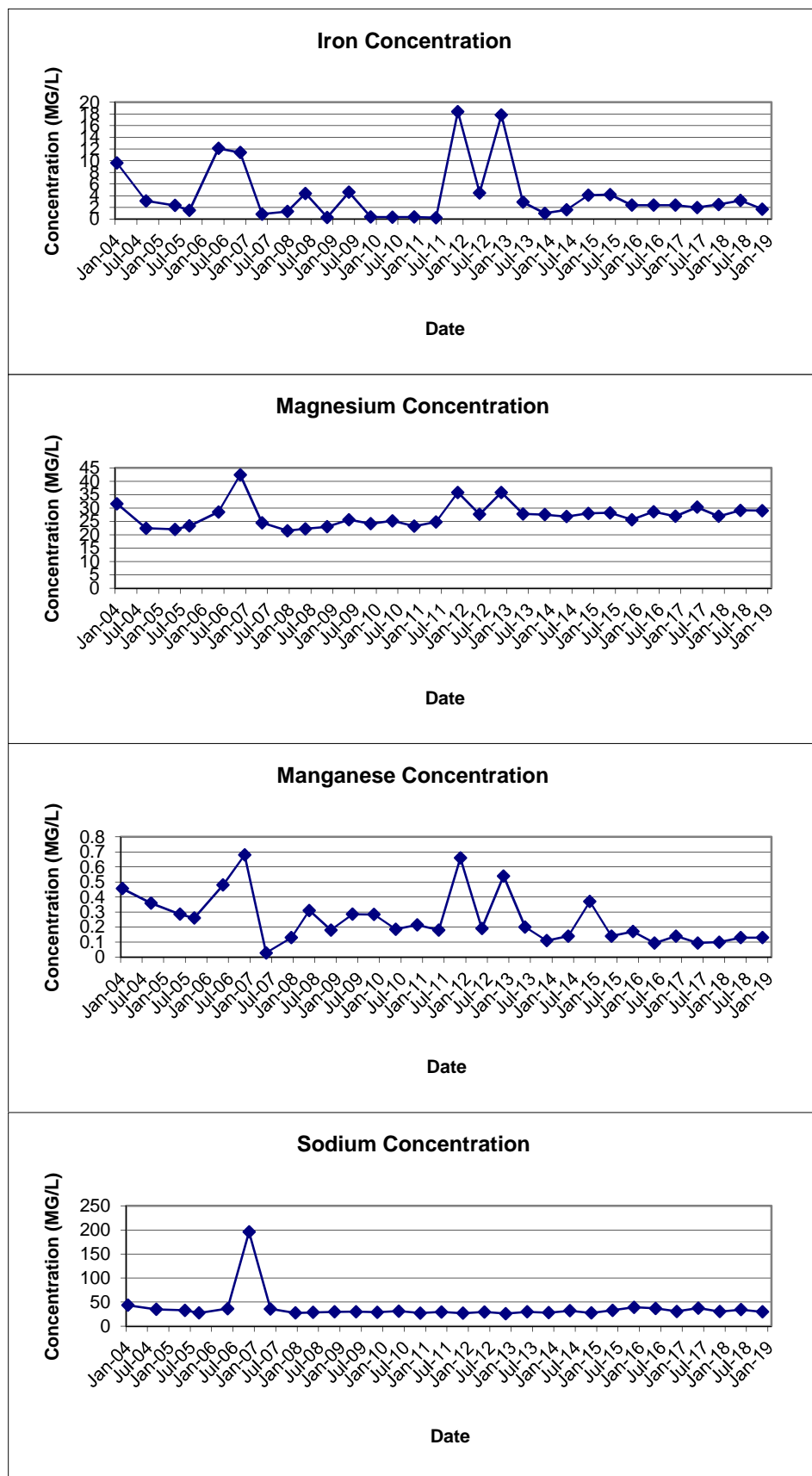


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

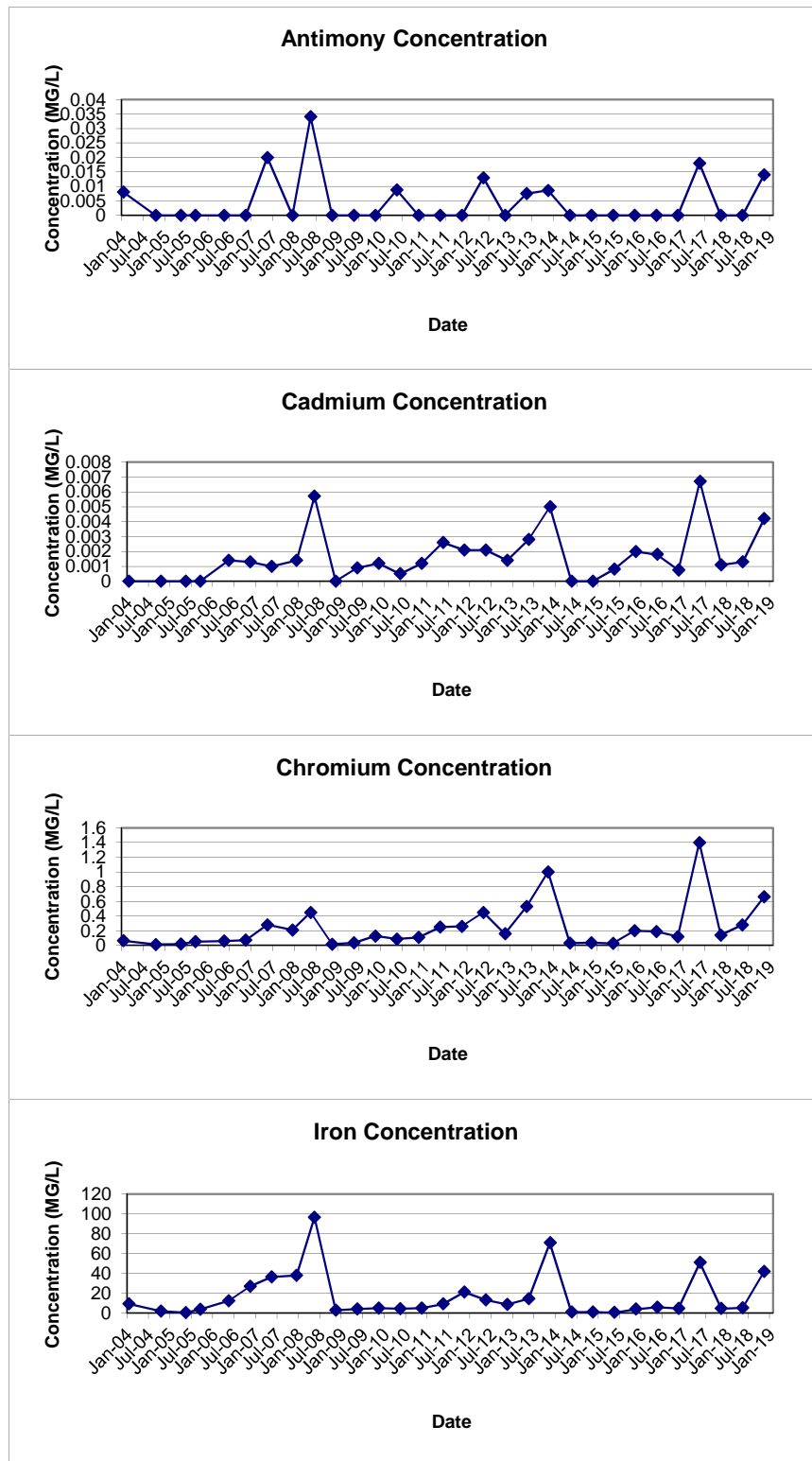


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

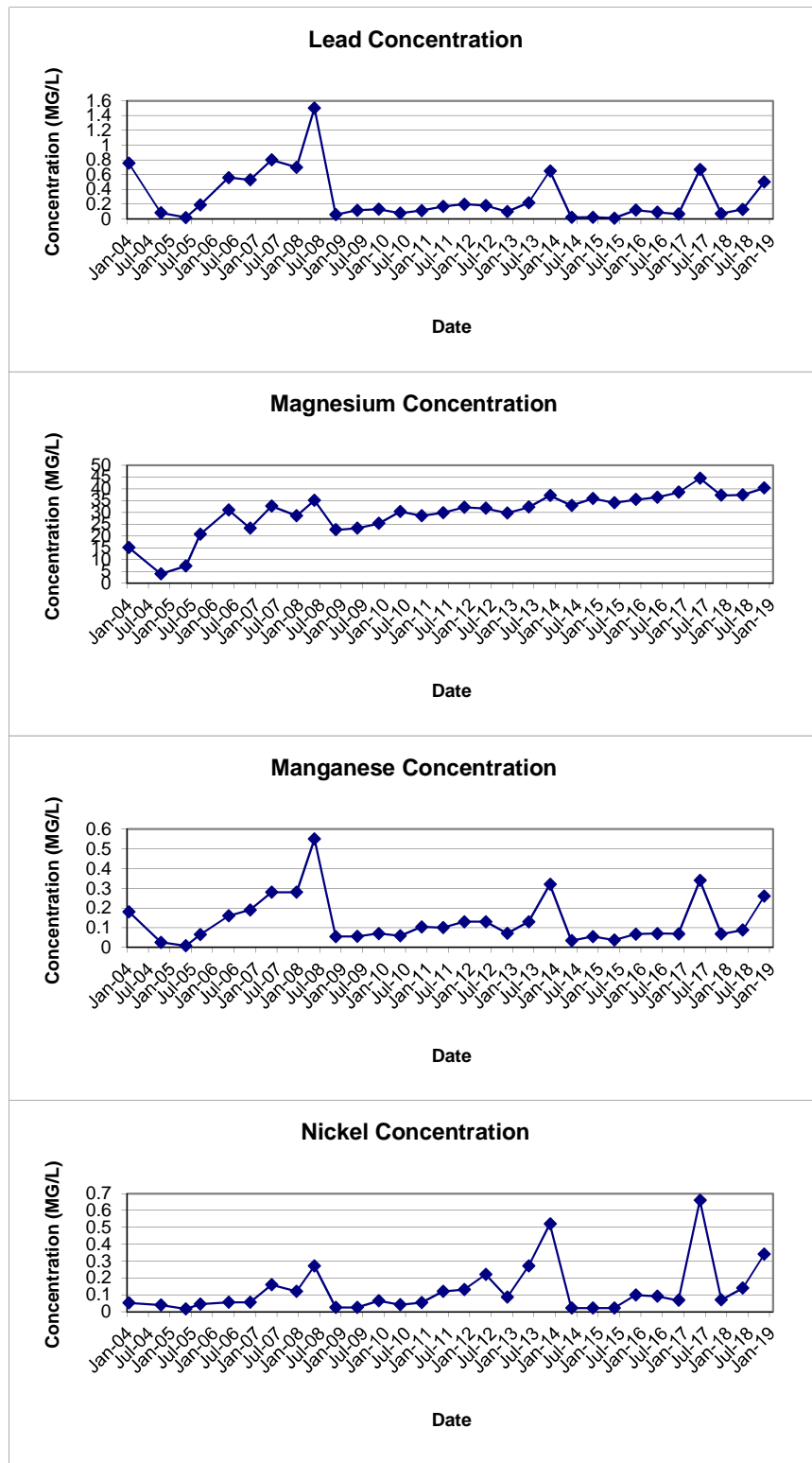


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07D

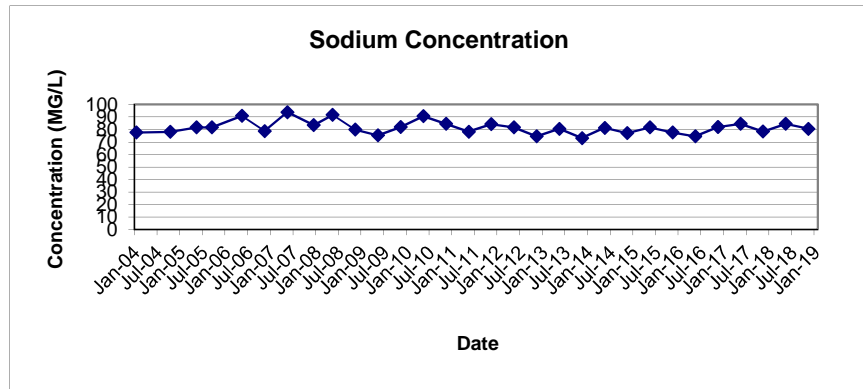


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-07S

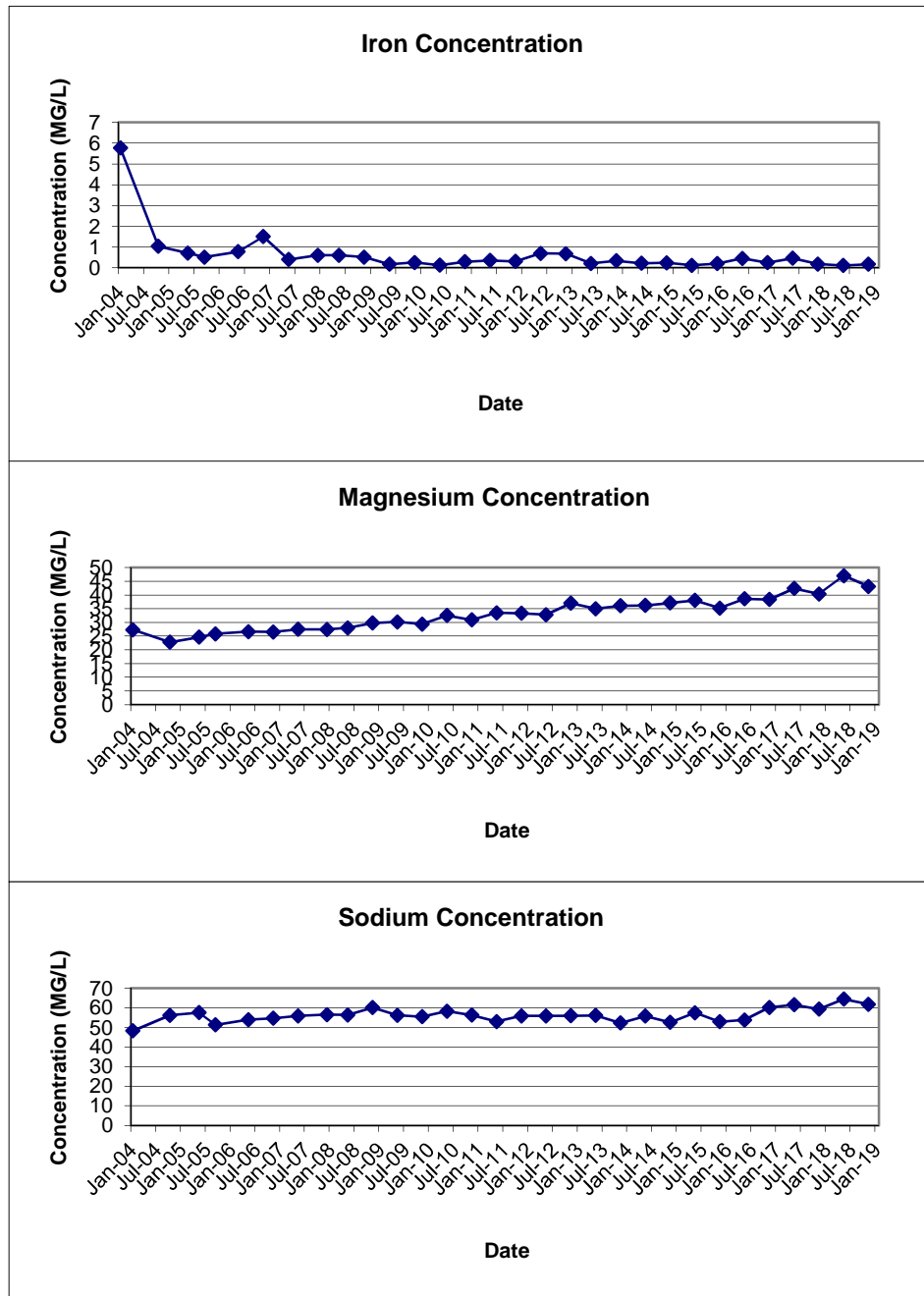


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08D

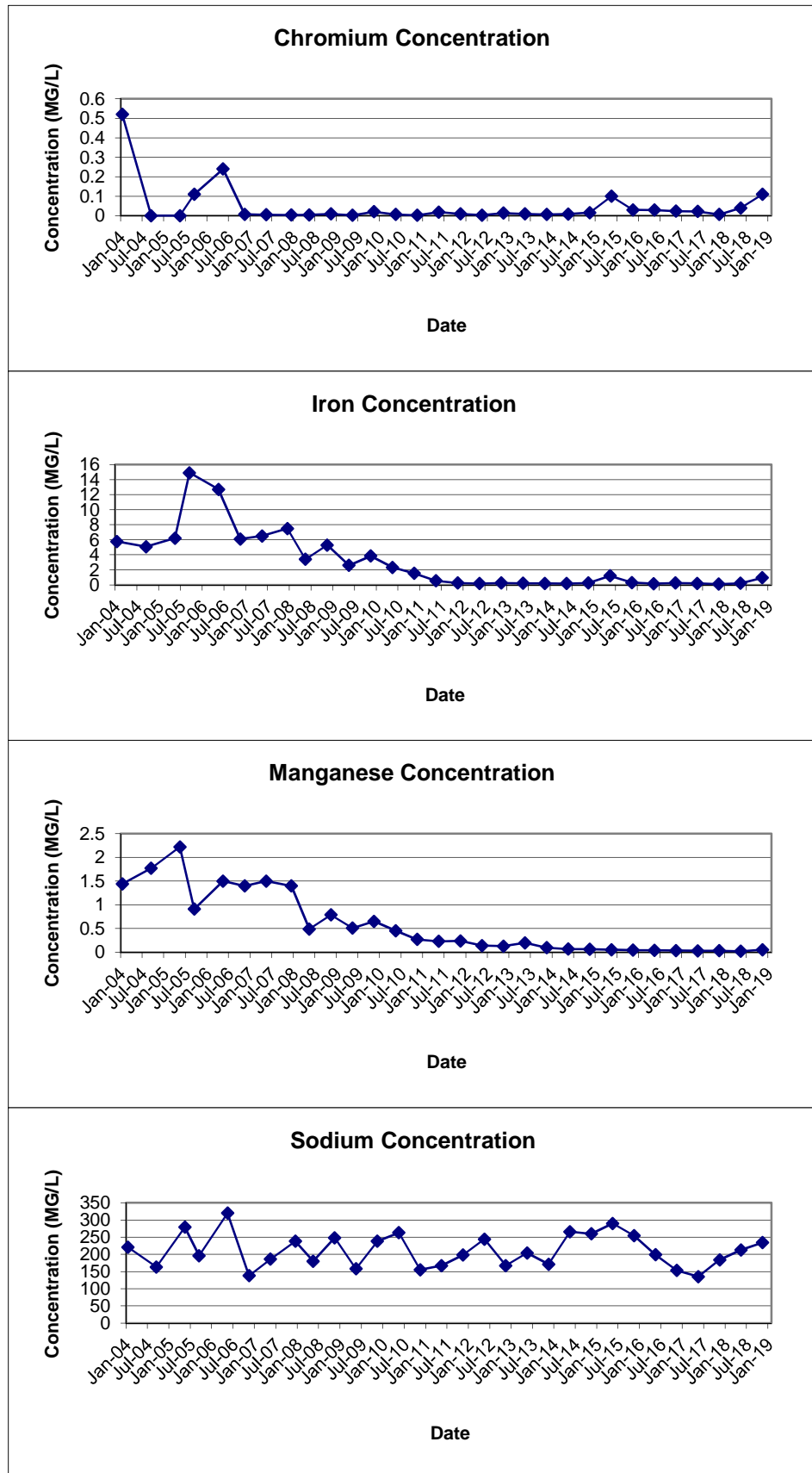


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-08SR

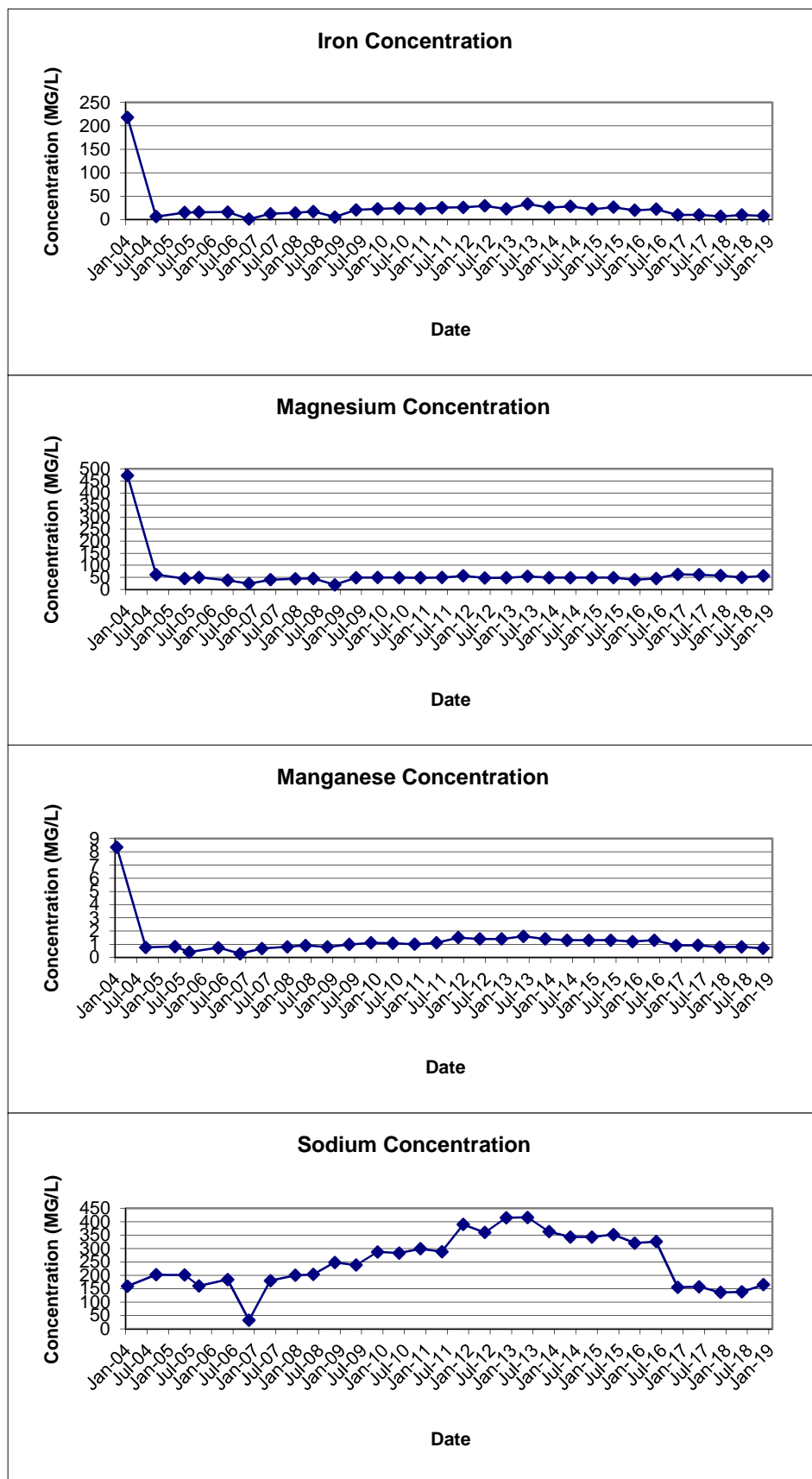


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

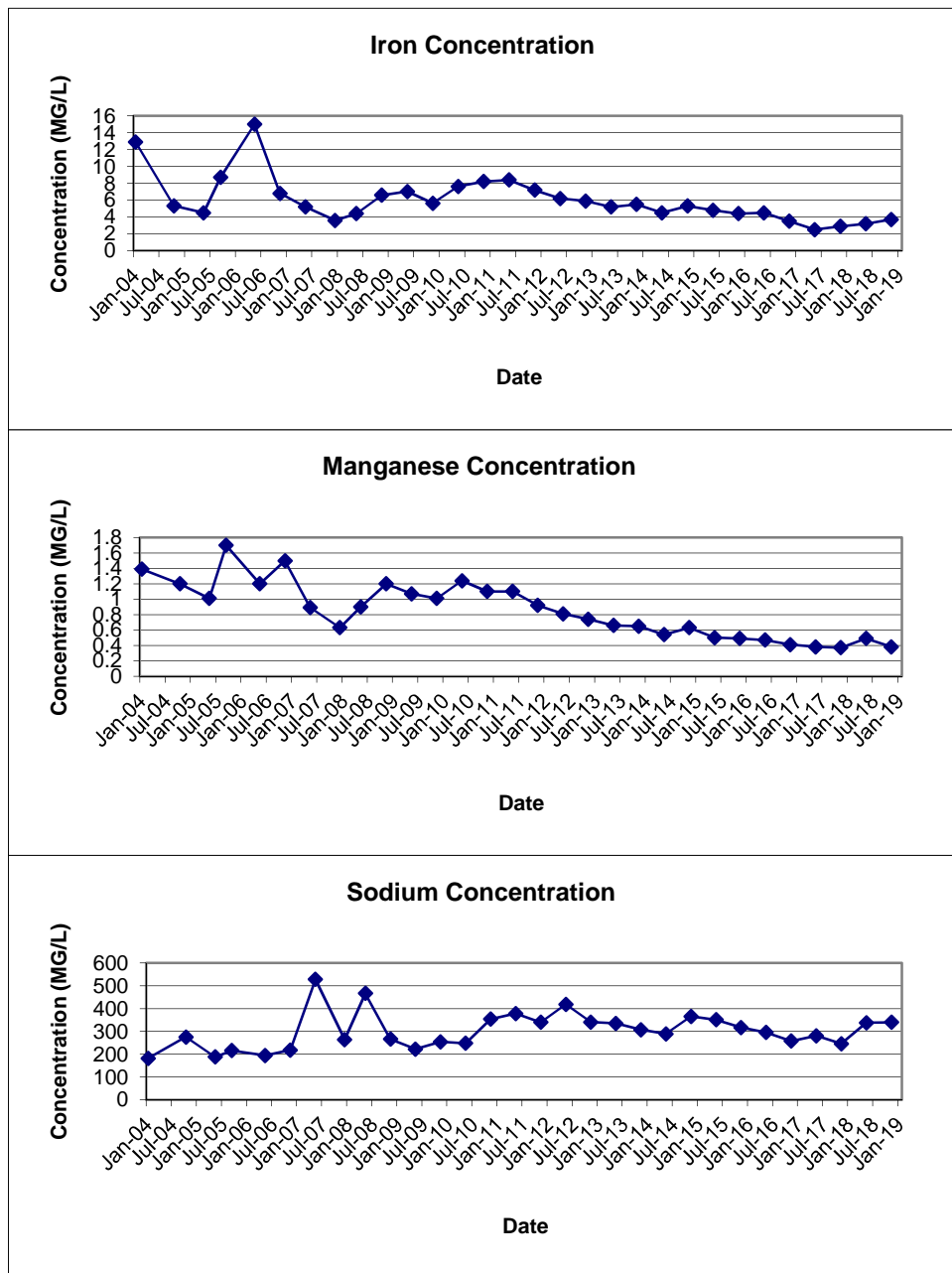


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

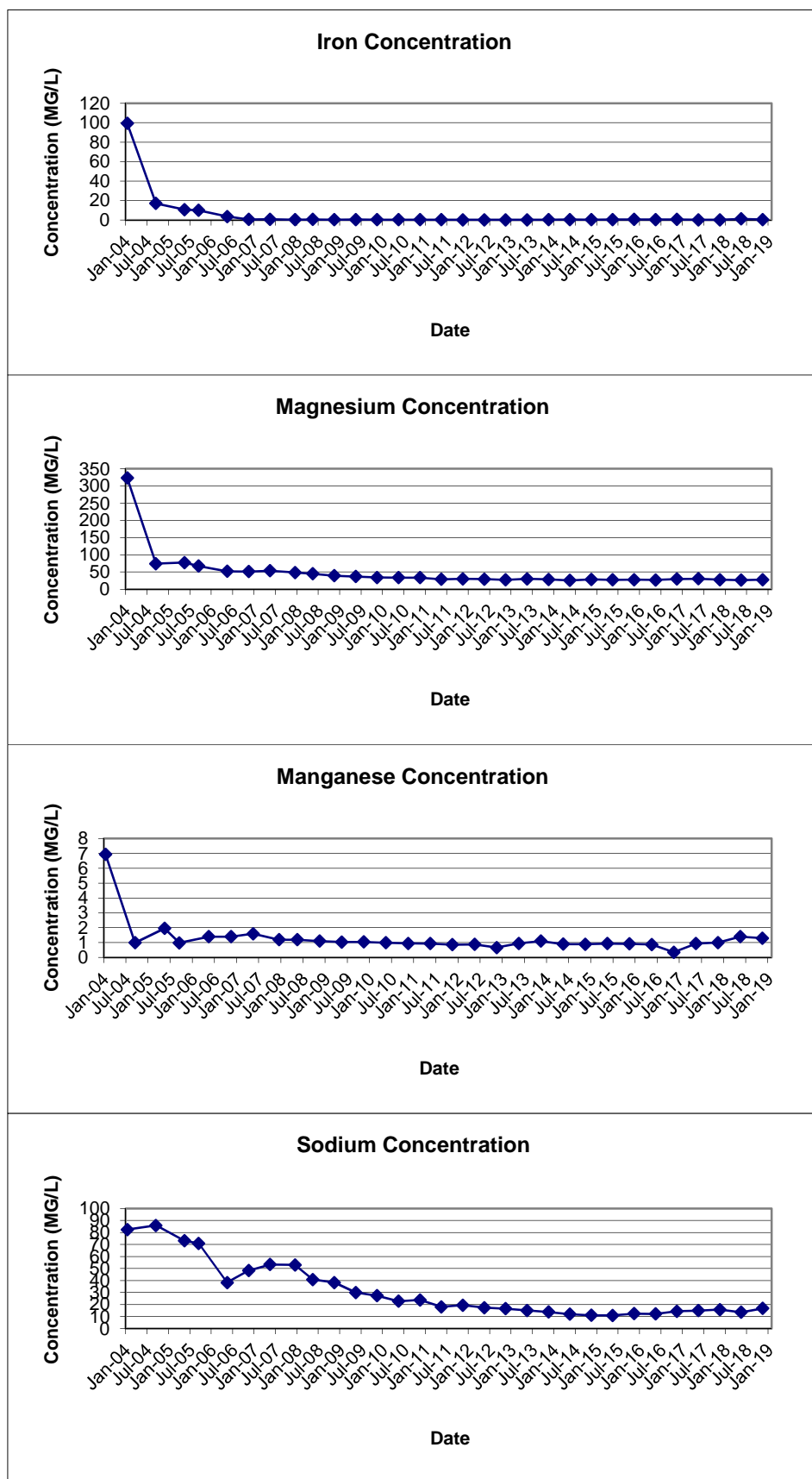


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

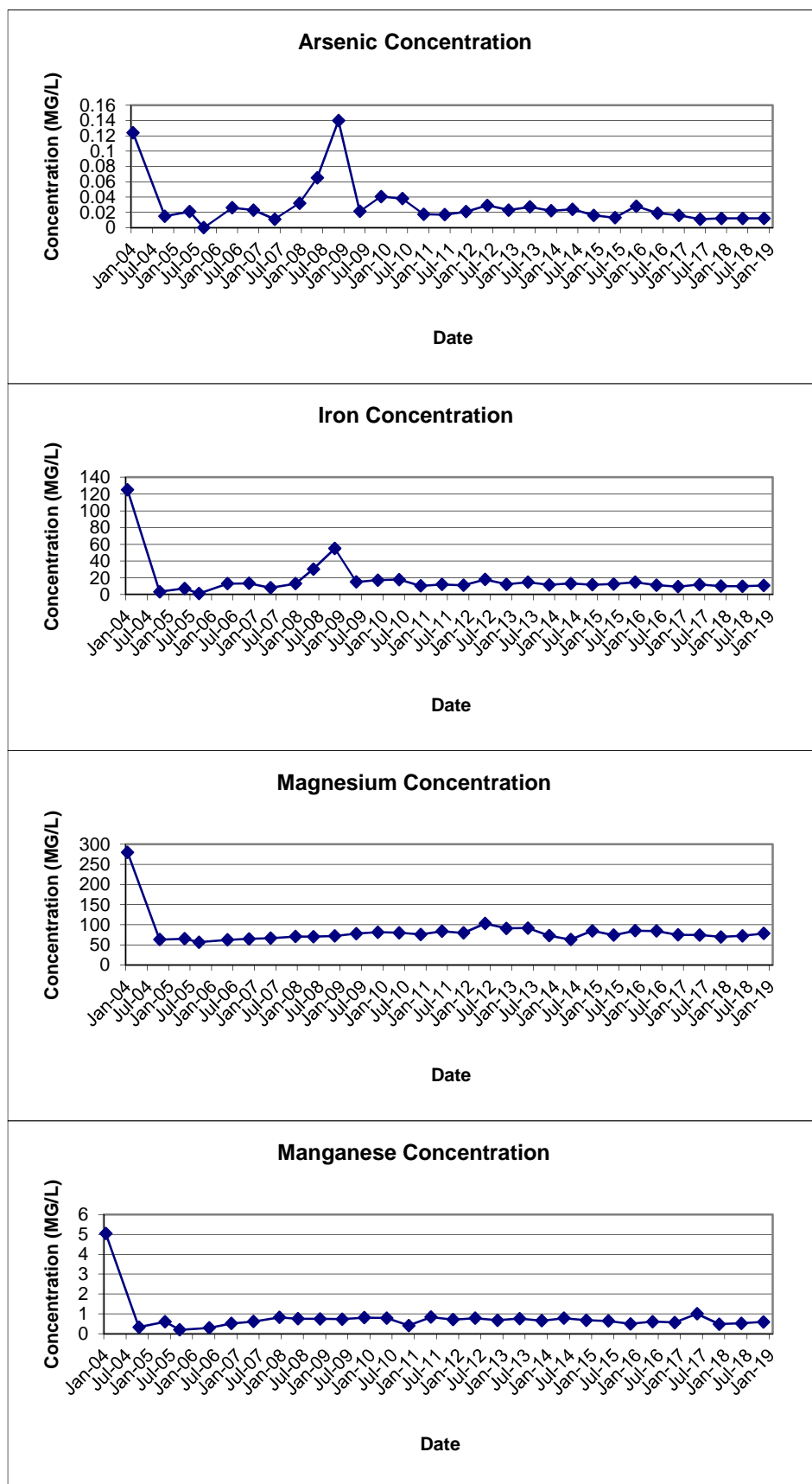


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

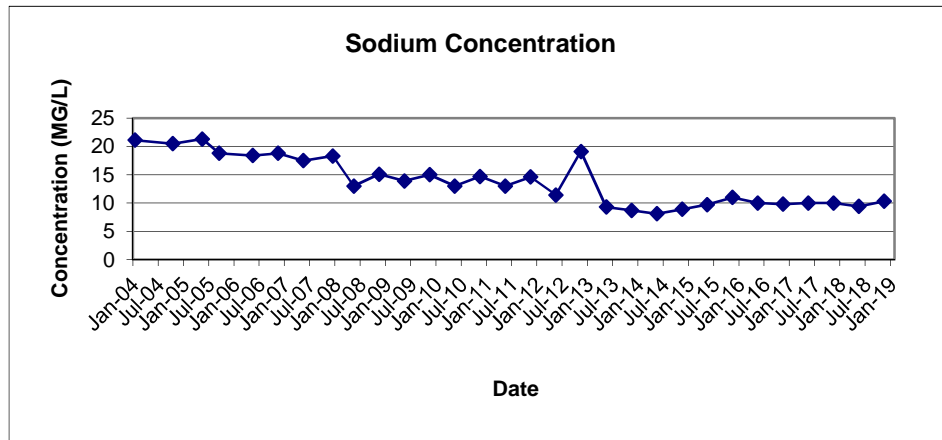


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

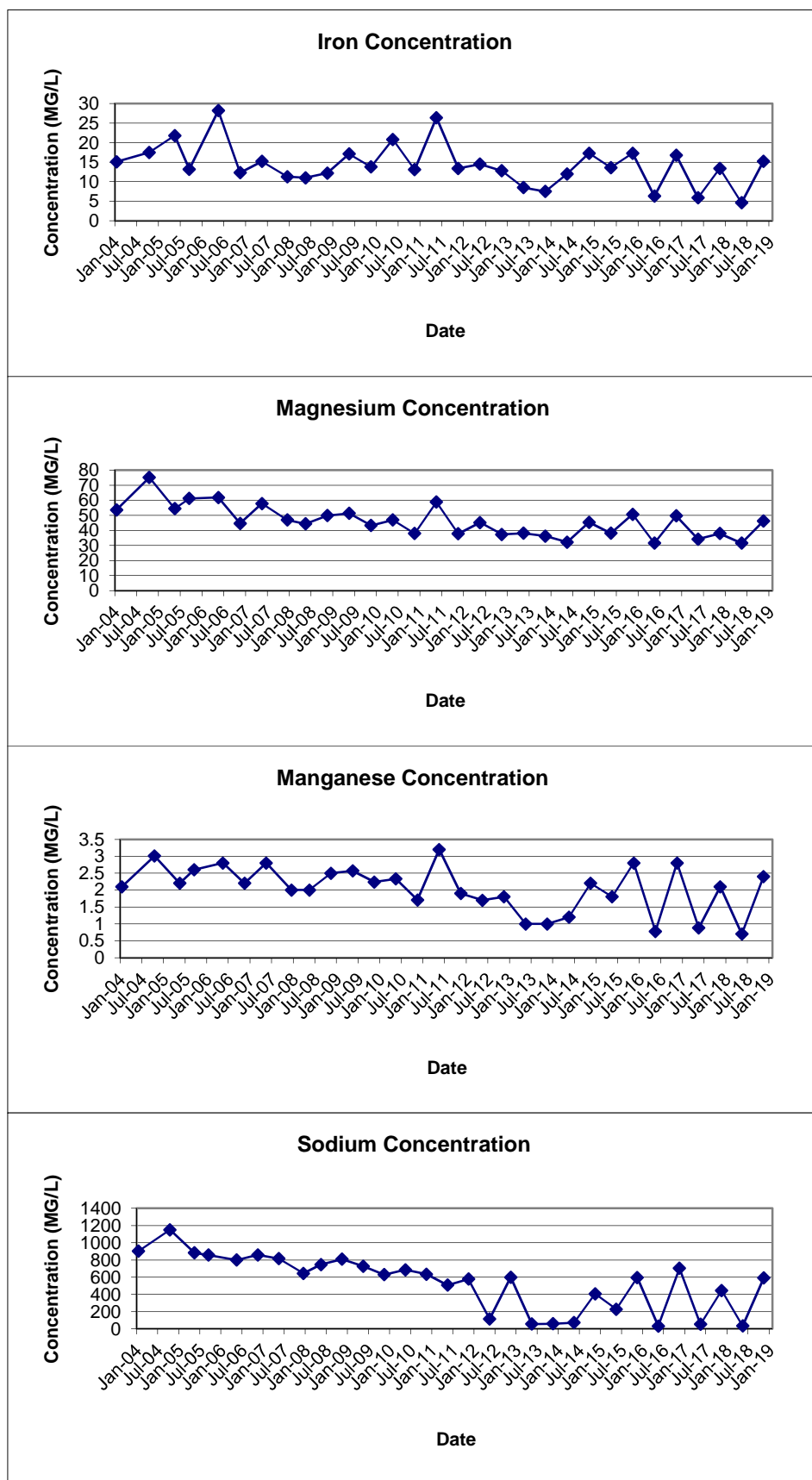


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

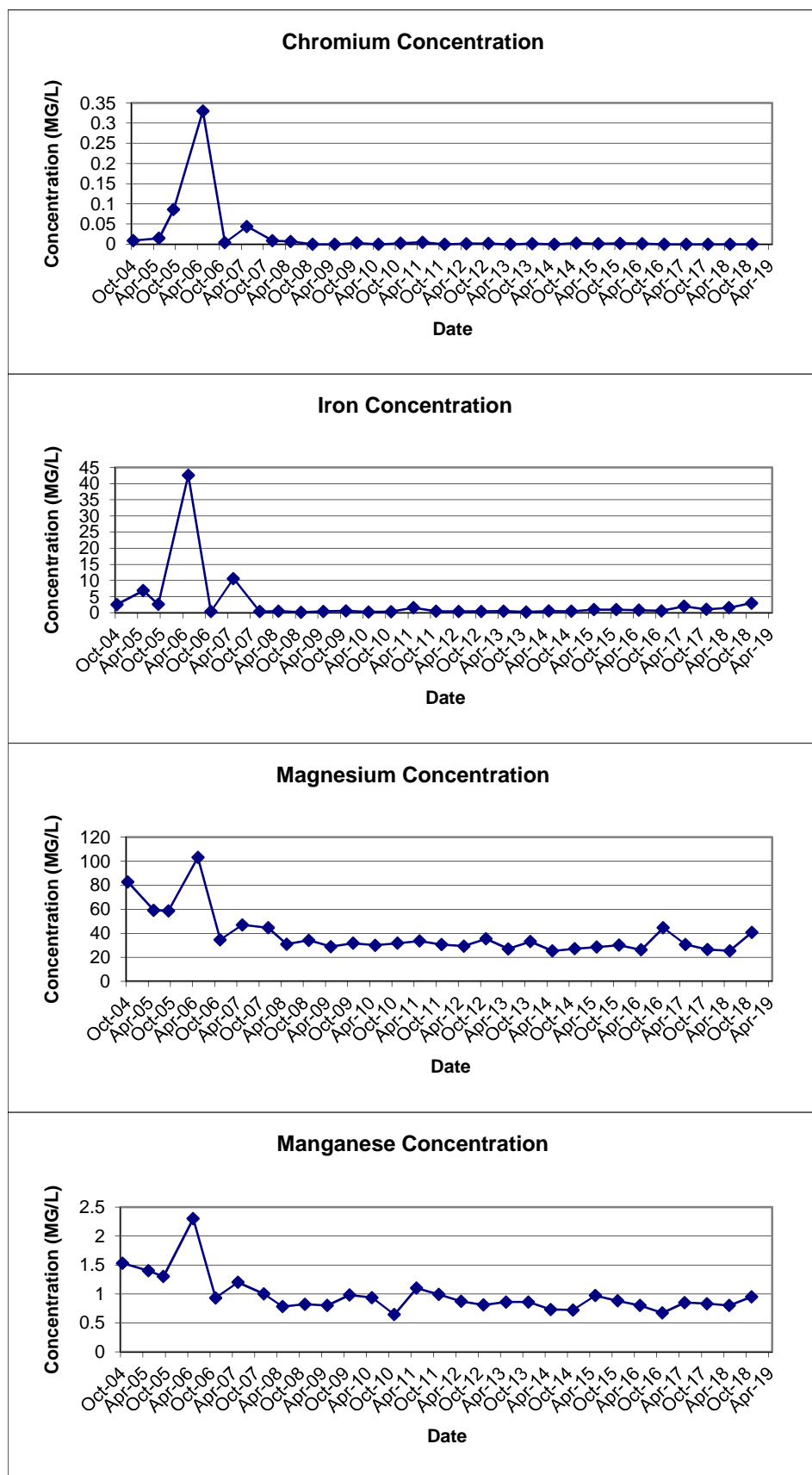


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

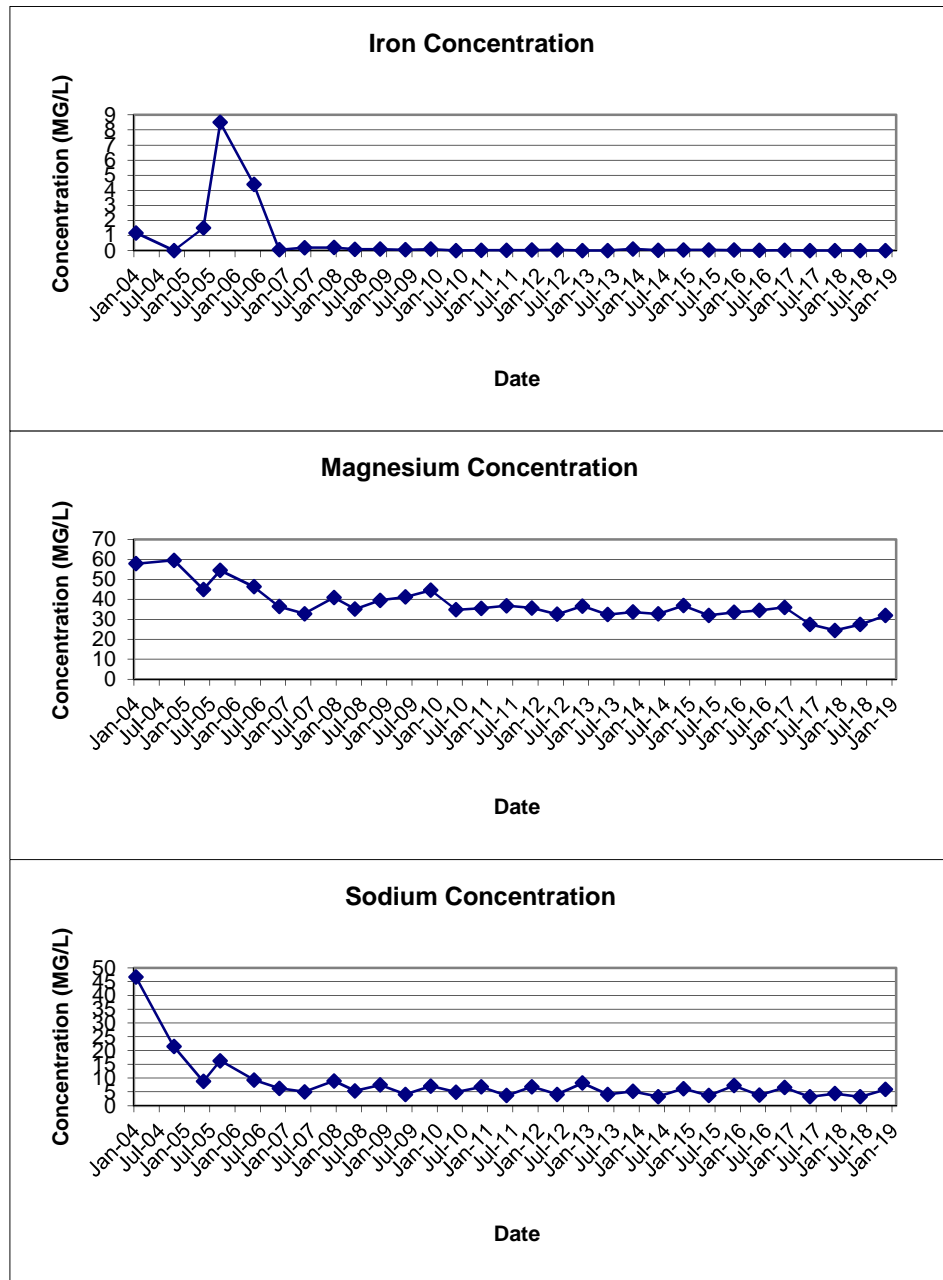


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

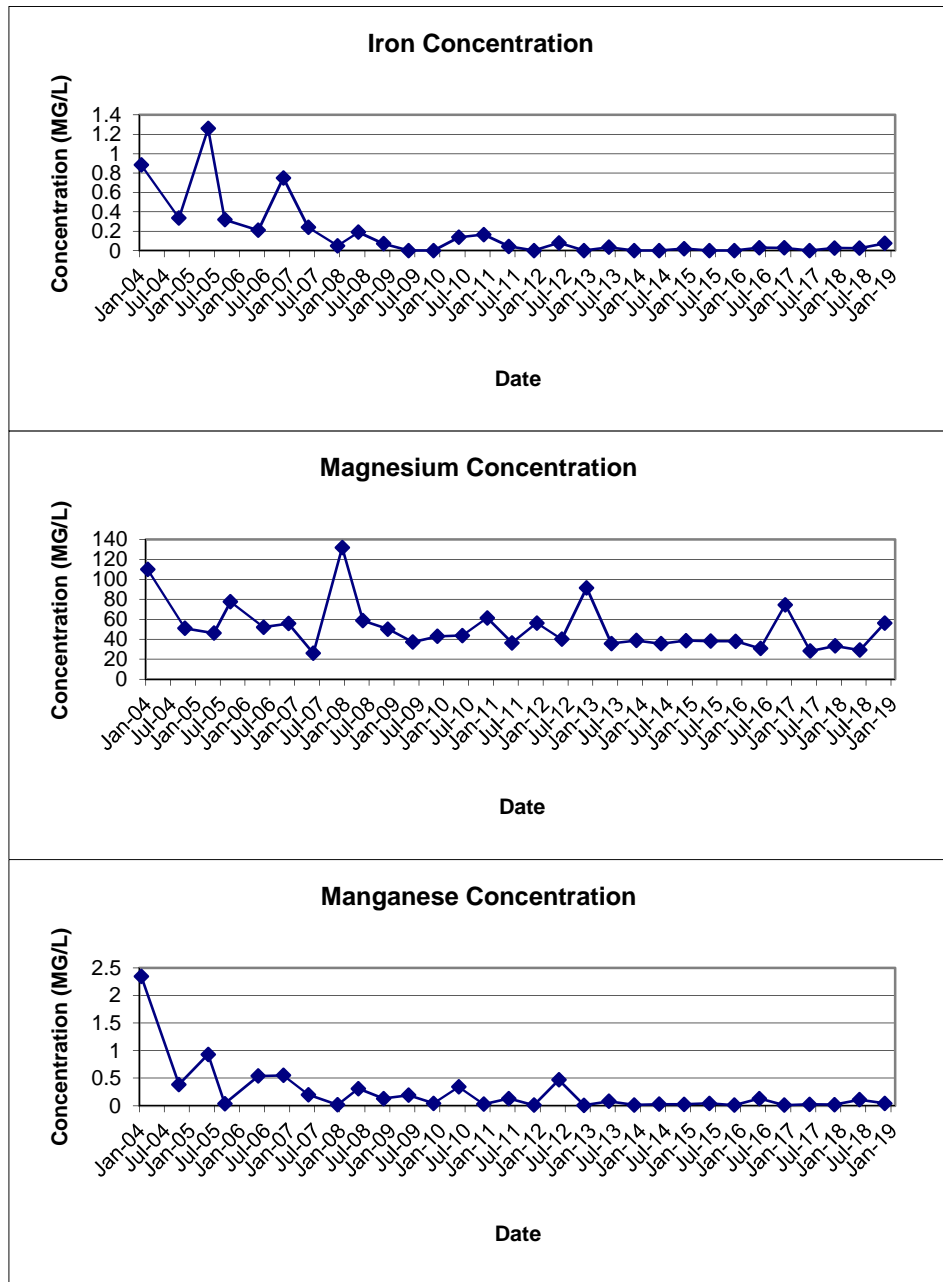


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

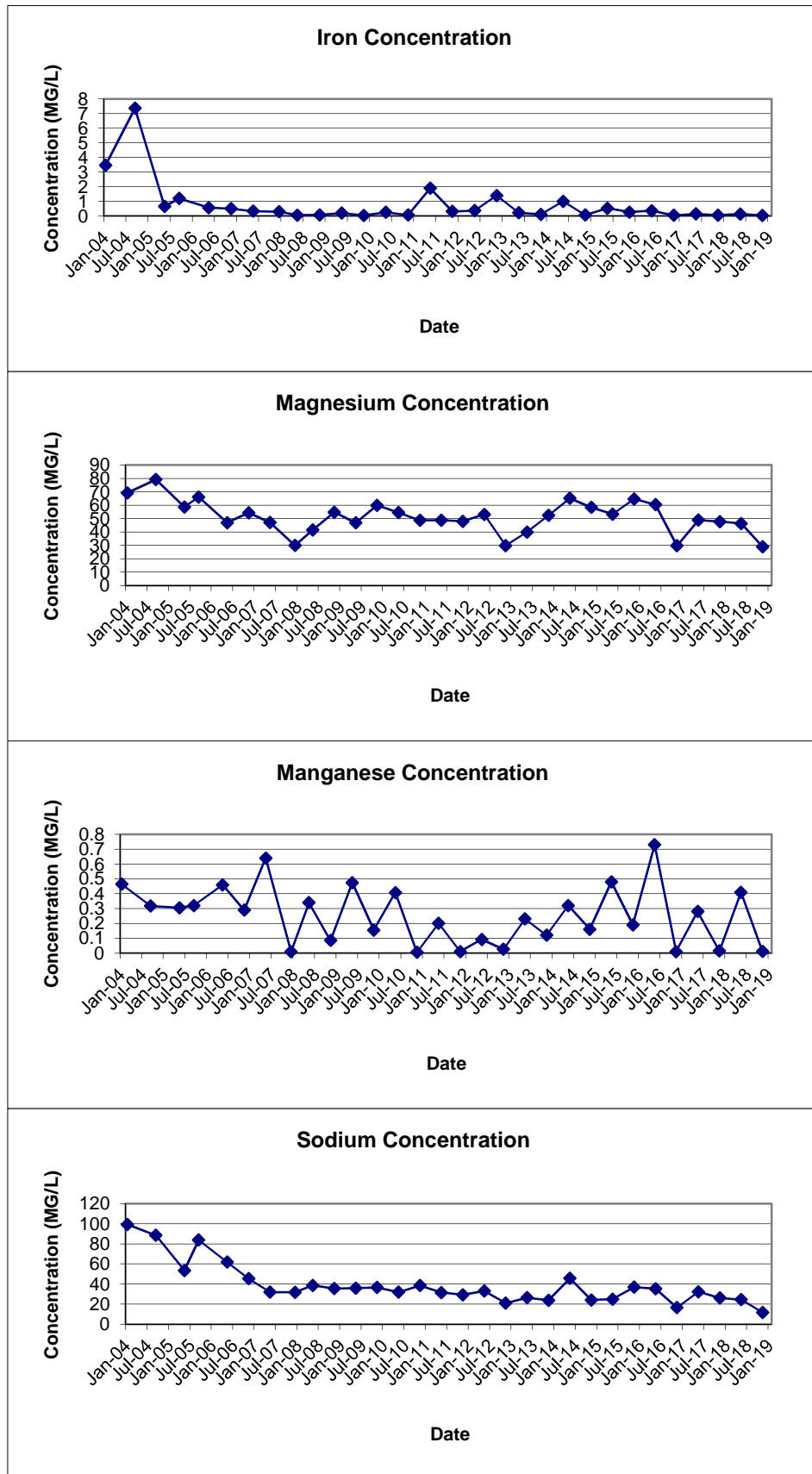
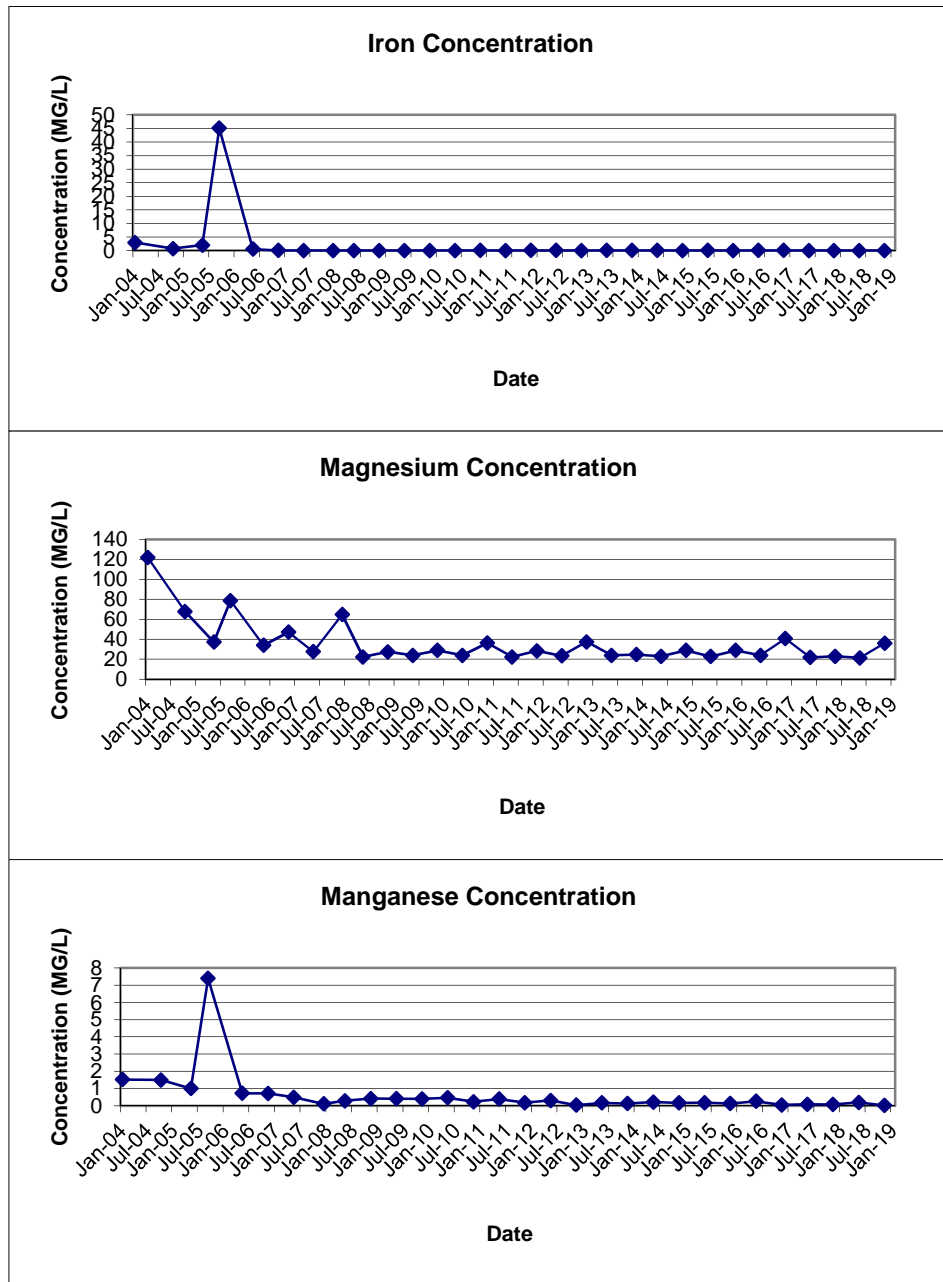


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



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:

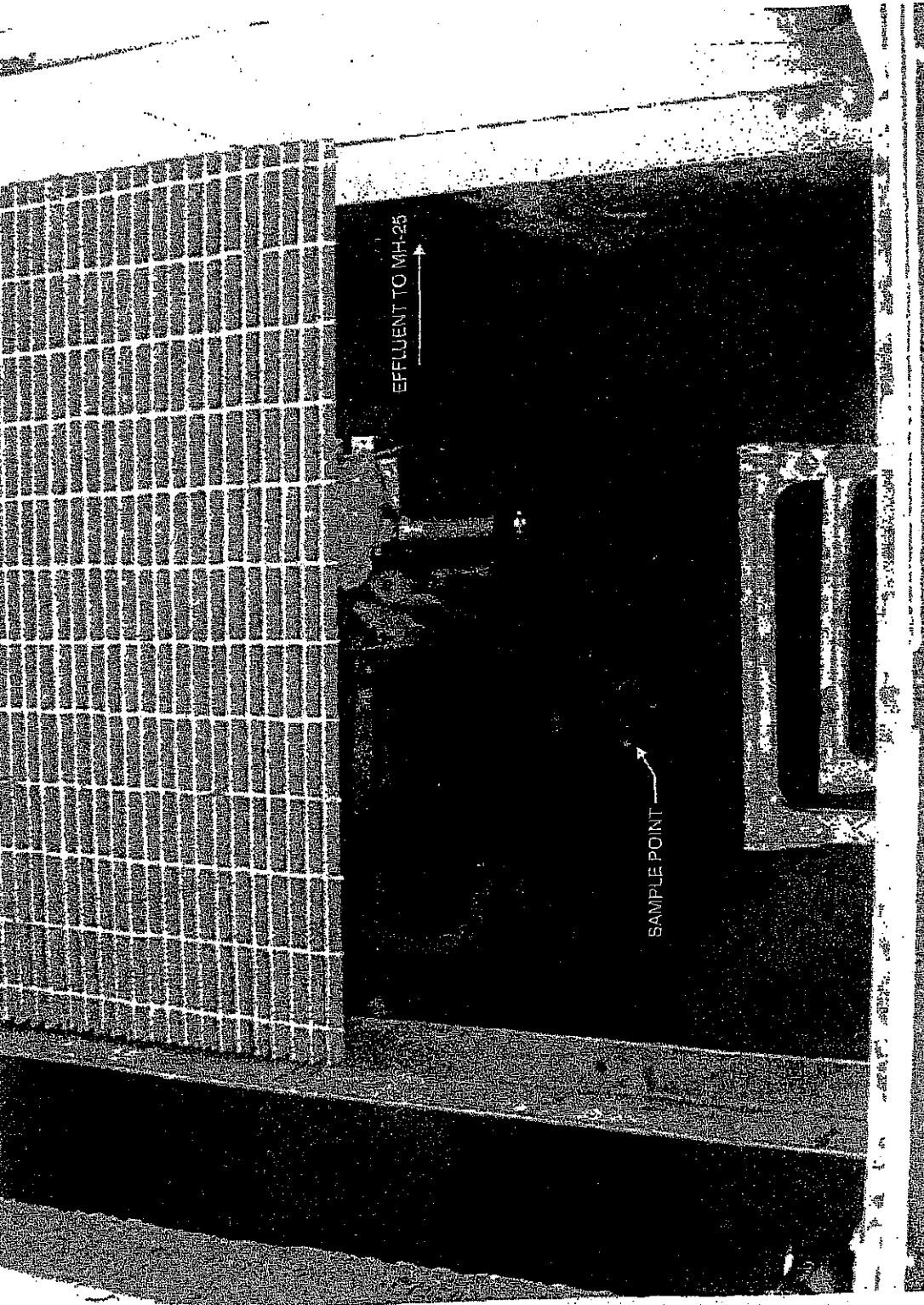
Sample Point	Parameter	Reporting Requirements	
		Initial Report	Subsequent Reports
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	June 30, 2016	Every March 31 st , June 30 th , September 30 th and December 31 st
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016	

* 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: 9/11/18 Crew: R. Murphy, K. McGovern, T. Raby

Weather: 70° F, Cloudy

Sampling Device: NA

Time of Installation: 14:48 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-06 was running at the time of sample set-up.

PLC display volumes: WW-01 (150,446 gals), WW-02 (0 gals), WW-03 (0 gals),

WW-04 (36,991 gals), WW-05 (685,371 gals), WW-06 (274,882 gals) & MH-25 (1,147,677 gals).

Date: 9/12/18 Crew: R. Murphy, K. McGovern, T. Raby

Weather: 81° F, Partly Cloudy

Time of Collection: 14:48

Field Measurements:

14:48/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 6.53

Temperature: 19.0°C

Identification: EFF-091218

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.

PLC display volumes: WW-01 (150,448 gals), WW-02 (0 gals), WW-03 (0 gals),

WW-04 (36,991 gals), WW-05 (695,908 gals), WW-06 (349,062 gals) & MH-25 (1,231,949 gals).

Reviewed By: Robert J. Murphy Date: 9/18/18
(Supervisor)

TABLE 1

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

Sample ID	EFF-091218			
Matrix	Effluent Water			
Date Sampled	9/12/2018			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.30	0.21	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.0004	1.17	No
Total Chromium	< 0.0010	< 0.00070	1.17	No
Total Copper	< 0.0016	< 0.001	3.74	No
Total Lead	< 0.0030	< 0.002	1.17	No
Total Nickel	0.0037	0.003	3.27	No
Total Zinc	0.0095	0.007	5.84	No
Total Suspended Solids	12.4	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	6.53	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		84,272	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

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

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: 12/19/18 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 37° F, Partly Cloudy

Sampling Device: NA

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

Sample Interval: NA Sample Volume: NA

Comments and Observations: Well WW-06 was running at the time of sample set-up.
PLC display volumes: WW-01 (790,502 gals), WW-02 (0 gals), WW-03 (0 gals),
WW-04 (315,452 gals), WW-05 (1,863,490 gals), WW-06 (2,464,787 gals) & MH-25 (5,473,096 gals).

Date: 12/20/18 Crew: R. Murphy, K. McGovern, T. Urban

Weather: 81° F, Partly Cloudy

Time of Collection: 10:15

Field Measurements:

10:45/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 7.34

Temperature: 8.0°C

Identification: EFF-122018

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: No wells were running at the time of sample collection.
PLC display volumes: WW-01 (790,502 gals), WW-02 (0 gals), WW-03 (0 gals),
WW-04 (344,429 gals), WW-05 (1,863,490 gals), WW-06 (2,502,708 gals) & MH-25 (5,539,864 gals).

Reviewed By: Robert J. Murphy Date: 12/20/18
(Supervisor)

TABLE 1

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

Sample ID	EFF-122018			
Matrix	Effluent Water			
Date Sampled	12/20/2018			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.22	0.12	2.34	No
Total Cadmuim	< ⁽¹⁾ 0.0005	< 0.0003	1.17	No
Total Chromium	< 0.0010	< 0.00056	1.17	No
Total Copper	0.0021	0.001	3.74	No
Total Lead	< 0.0030	< 0.002	1.17	No
Total Nickel	0.0026	0.001	3.27	No
Total Zinc	0.0083	0.005	5.84	No
Total Suspended Solids	16.0	NA ⁽²⁾	250 ⁽³⁾	No
pH ⁽⁴⁾	7.34	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		66,768	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

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

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: R. Murphy

Date(s) of Inspection: November 13, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-01S	OK	OK	OK	Bulged	3.55	14.94	
GW-01D	OK	OK	OK	Bulged	2.67	39.65	
GW-03S	OK	OK	OK	OK	DRY	13.22	
GW-03D	OK	OK	OK	OK	1.78	35.70	
GW-04S	OK	OK	OK	OK	4.27	16.23	
GW-04D	OK	OK	OK	OK	12.65	45.57	
GW-07S	OK	OK	OK	OK	5.20	35.33	
GW-07D	OK	OK	OK	Damaged	45.54	60.83	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, T. Urban

Supervisor: R. Murphy

Date(s) of Inspection: November 13, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-08SR	OK	OK	OK	OK	5.10	13.02	
GW-08D	OK	OK	OK	OK	5.73	36.54	
GW-26D	OK	OK	OK	OK	6.58	40.70	
GW-28S	OK	OK	OK	OK	8.51	15.52	
GW-29S	OK	OK	OK	OK	6.71	20.04	
GW-30S	OK	OK	OK	OK	7.82	17.97	
GW-31S	OK	OK	OK	OK	2.68	9.57	
GW-32S	OK	OK	OK	OK	2.65	9.93	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: Pfohl Brothers Landfill

Project Number: 60411174

Inspection Crew Members: R. Murphy, T. Urban

Supervisor: R. Murphy

Date(s) of Inspection: November 13, 2018

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-33S	OK	OK	OK	OK	3.95	8.21	
GW-34S	OK	OK	OK	OK	2.5	10.01	
GW-35S	OK	OK	OK	OK	4.41	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 and BURLINGTON, VT**

Prepared for:

**TOWN OF CHEEKTOWAGA
CHEEKTOWAGA, NY 14225**

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FEBRUARY 2019

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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 2018 semi-annual monitoring program at the Pfohl Brothers Landfill Site, located in Cheektowaga, NY.

II. ANALYTICAL METHODOLOGIES and DATA APPLICABILITY PROCEDURES

The data being evaluated are from the November 13-15, 2018 sampling of eighteen (18) groundwater samples, one (1) field duplicate, one (1) matrix spike (MS)/matrix spike duplicate (MSD) pair, one (1) equipment blank, one (1) field blank, and two (2) trip blanks. The analytical laboratory that performed the analyses was TestAmerica Laboratories, Inc. located in Amherst, NY and Burlington, VT. The samples were analyzed for the following parameters: Volatile Organic Compounds (VOCs) following United States Environmental Protection Agency (USEPA) Method 8260C, Semivolatile Organic Compounds (SVOCs) by USEPA Method 8270D, 1,4-Dioxane by USEPA method SW8270D SIM, metals by USEPA Methods 6010C/7470A, and Per- and Polyfluoroalkyl Substances (PFASs) by USEPA Method 537-Modified. Not all samples were analyzed for all parameters.

A limited data review was performed in accordance with the following USEPA guidelines along with the method and laboratory SOPs for PFASs:

- *National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-2017-002, January 2017.
- *National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-2017-001, January 2017.

The data applicability evaluation 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 analytical results are presented on Table 1 (groundwater) and Table 2 (field QC). Copies of the 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 (HT) with the following exception.

The original extraction of the samples for 1,4-dioxane occurred within the HT. The percent recovery (%R) of the laboratory control sample (LCS) was extremely high (i.e., 587%) and an elevated level of 1,4-dioxane was present in the laboratory method blank. The samples were re-extracted outside of the HT by 21 days. In the re-extraction the LCS %R was slightly above the QC limit and the method blank showed a much lower level of contamination. Since the QC was more favorable for the re-extraction, the re-extraction results have been reported and all samples qualified 'J' or 'UJ' using professional judgement due to the HT exceedance.

Due to the low recharge rates of monitoring wells GW-07D and GW-07S, the VOC aliquots were collected on 11/13/18, while the SVOC/metals aliquots were collected on 11/14/18. All aliquots of sample GW-04S were collected on 11/14/18, however the VOCs were collected at 15:25 while the SVOCs/metals were collected at 17:05, due to a low recharge rate.

V. NON-CONFORMANCES

Laboratory Method Blanks/Equipment Blanks

1,4-Dioxane was detected in the SVOC laboratory method blank and equipment blank above the reporting limit (RL). The detected results for 1,4-dioxane in associated samples GW-08D, GW-08SR, GW-26D, FD-111418 (GW-26D), and GW-35S were very similar in concentration to the laboratory method blank and less than five times the blank results. The results for 1,4-dioxane in these samples have been qualified 'U' at the detected results.

The PFASs method blank was detected for perfluorooctanoic acid (PFOA) below the RL. The result for PFOA in sample GW-35S has been qualified 'U' at the RL. The remaining samples were greater the RL for PFOA, therefore the 'B' qualifier applied by the laboratory has been removed, and no further qualification was deemed necessary.

Zinc (Zn) was detected in the metals laboratory blank below the RL. The detected results for Zn in samples GW-28S, GW-29S, GW-32s, and GW-33S were qualified 'U' at the RL. Iron (Fe) and Manganese (Mn) were also detected in the blank, however since the Fe and Mn results in the associated samples were greater than the RL, the 'B' qualifier applied by the laboratory was removed, and no further qualification was deemed necessary.

Continuing Calibration Verification (CCV)

The lab noted that the CCV for sodium (Na) was greater than the upper QC limit. The result for Na in associated sample GW-28S was qualified 'J+'.

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'.

Sample GW-30S was analyzed at a dilution of two for VOCs due to foaming issues. The RLs for the non-detect compounds represent the lowest achievable at the dilution utilized in the analysis.

A field duplicate was collected at groundwater location GW-26. 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' (estimated), 'J+' (estimated, bias high), and 'UJ' (non-detect, estimated RL) during the limited data review are considered conditionally usable. All other sample results are usable as reported. AECOM does not recommend the recollection of any samples currently.

Prepared By: Ann Marie Kropovitch, Chemist



Date:

2/6/19

Reviewed by: Peter R. Fairbanks, Senior Chemist



Date:

2/6/19

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-04D	GW-04S
Sample ID		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/14/18	11/14/18	11/15/18	11/14/18	11/14/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichloroethene (total)	UG/L	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
Acetone	UG/L	3.0 U	3.0 U	3.0 U	3.0 U	5.0 J
Benzene	UG/L	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Vinyl chloride	UG/L	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	0.48 U	0.52 U	2.9 J	0.48 U	0.50 U
1,4-Dichlorobenzene	UG/L	0.46 U	0.50 U	4.2 J	0.46 U	0.48 U
1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	UG/L	2.2 U	2.4 U	2.2 U	2.2 U	2.3 U
Phenol	UG/L	0.39 U	0.42 U	0.39 U	0.39 U	0.41 U
Metals						
Antimony	MG/L	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	MG/L	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Barium	MG/L	0.085	0.18	0.084	0.093	0.13
Cadmium	MG/L	0.00050 U	0.00065 J	0.00050 U	0.00064 J	0.00050 U
Chromium	MG/L	0.0090	0.0012 J	0.0010 U	0.0067	0.0024 J
Copper	MG/L	0.0016 U	0.0016 U	0.0016 U	0.0016 J	0.0019 J
Iron	MG/L	0.047 J	7.3	1.1	0.20	1.7
Lead	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Magnesium	MG/L	38.2	22.4	17.9	79.0	29.0
Manganese	MG/L	0.019	1.0	0.26	0.022	0.13
Mercury	MG/L	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S
Sample ID		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/14/18	11/14/18	11/15/18	11/14/18	11/14/18
Parameter	Units					
Metals						
Nickel	MG/L	0.0018 J	0.0013 U	0.0040 J	0.0039 J	0.0041 J
Silver	MG/L	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	MG/L	110	134	164	93.8	29.6
Zinc	MG/L	0.0033 J	0.0024 J	0.0015 U	0.0057 J	0.0096 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Sample ID		GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/13/18	11/14/18	11/13/18	11/14/18	11/14/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	0.23 U	NA	0.23 U	NA	0.23 U
1,2-Dichloroethene (total)	UG/L	0.81 U	NA	0.81 U	NA	0.81 U
Acetone	UG/L	4.7 J	NA	4.5 J	NA	3.0 U
Benzene	UG/L	0.41 U	NA	0.41 U	NA	0.41 U
Vinyl chloride	UG/L	0.90 U	NA	0.90 U	NA	0.90 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	0.52 U	NA	0.48 U	NA	0.52 U
1,4-Dichlorobenzene	UG/L	0.50 U	NA	0.46 U	NA	0.50 U
1,4-Dioxane	UG/L	NA	NA	NA	NA	0.29 UJ
bis(2-Ethylhexyl)phthalate	UG/L	NA	5.4	NA	2.2 U	2.4 U
Phenol	UG/L	NA	0.42 U	NA	0.39 U	0.42 U
Metals						
Antimony	MG/L	NA	0.014 J	NA	0.0068 U	0.0068 U
Arsenic	MG/L	NA	0.0061 J	NA	0.0056 U	0.0056 U
Barium	MG/L	NA	0.12	NA	0.37	0.080
Cadmium	MG/L	NA	0.0042	NA	0.00054 J	0.00050 U
Chromium	MG/L	NA	0.66	NA	0.0014 J	0.11
Copper	MG/L	NA	0.099	NA	0.0016 U	0.0043 J
Iron	MG/L	NA	41.9	NA	0.17	0.95
Lead	MG/L	NA	0.50	NA	0.0030 U	0.0030 U
Magnesium	MG/L	NA	40.3	NA	43.1	17.6
Manganese	MG/L	NA	0.26	NA	0.032	0.054
Mercury	MG/L	NA	0.00012 U	NA	0.00012 U	0.00012 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Sample ID		GW-07D	GW-07D	GW-07S	GW-07S	GW-08D
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/13/18	11/14/18	11/13/18	11/14/18	11/14/18
Parameter	Units					
Metals						
Nickel	MG/L	NA	0.34	NA	0.013	0.012
Silver	MG/L	NA	0.0017 U	NA	0.0017 U	0.0017 U
Sodium	MG/L	NA	80.6	NA	61.8	234
Zinc	MG/L	NA	0.31	NA	0.0051 J	0.0082 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-08SR	GW-26D	GW-26D	GW-28S	GW-29S
Sample ID		GW-08SR	FD-111418	GW-26D	GW-28S	GW-29S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/14/18	11/14/18	11/14/18	11/15/18	11/15/18
Parameter	Units		Field Duplicate (1-1)			
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichloroethene (total)	UG/L	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
Acetone	UG/L	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Vinyl chloride	UG/L	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	0.48 U	0.48 U	0.52 U	0.50 U	0.48 U
1,4-Dichlorobenzene	UG/L	0.46 U	0.46 U	0.50 U	0.48 U	0.46 U
1,4-Dioxane	UG/L	0.34 UJ	0.32 UJ	0.30 UJ	NA	NA
bis(2-Ethylhexyl)phthalate	UG/L	2.2 U	2.2 U	2.4 U	2.3 U	2.2 U
Phenol	UG/L	0.39 U	0.39 U	0.42 U	0.41 U	0.39 U
Metals						
Antimony	MG/L	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	MG/L	0.0056 U	0.0075 J	0.0065 J	0.0056 U	0.012
Barium	MG/L	0.13	0.13	0.13	0.092	0.20
Cadmium	MG/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Chromium	MG/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Copper	MG/L	0.0016 U	0.0016 U	0.0016 U	0.0029 J	0.0016 U
Iron	MG/L	8.2	3.7	3.7	0.38	10.8
Lead	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0036 J
Magnesium	MG/L	55.9	17.3	17.9	27.4	78.3
Manganese	MG/L	0.69	0.37	0.38	1.3	0.59
Mercury	MG/L	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-08SR	GW-26D	GW-26D	GW-28S	GW-29S
Sample ID		GW-08SR	FD-111418	GW-26D	GW-28S	GW-29S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/14/18	11/14/18	11/14/18	11/15/18	11/15/18
Parameter	Units		Field Duplicate (1-1)			
Metals						
Nickel	MG/L	0.0015 J	0.0037 J	0.0037 J	0.0023 J	0.0013 U
Silver	MG/L	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	MG/L	165	332	340	16.8 J+	10.3
Zinc	MG/L	0.0019 J	0.0023 J	0.0057 J	0.010 U	0.010 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Sample ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/15/18	11/15/18	11/15/18	11/15/18	11/15/18
Parameter	Units					
Volatile Organic Compounds						
1,1,2-Trichloroethane	UG/L	0.46 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichloroethene (total)	UG/L	1.6 U	0.81 U	0.81 U	0.81 U	0.81 U
Acetone	UG/L	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	0.82 U	0.41 U	0.41 U	0.41 U	0.41 U
Vinyl chloride	UG/L	1.8 U	0.90 U	0.90 U	0.90 U	0.90 U
Semivolatile Organic Compounds						
1,3-Dichlorobenzene	UG/L	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,4-Dichlorobenzene	UG/L	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	UG/L	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Phenol	UG/L	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
Metals						
Antimony	MG/L	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	MG/L	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Barium	MG/L	0.36	0.15	0.060	0.059	0.12
Cadmium	MG/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Chromium	MG/L	0.0010 U	0.0010 U	0.0010 J	0.0021 J	0.0077
Copper	MG/L	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U
Iron	MG/L	15.2	3.0	0.019 U	0.075	0.042 J
Lead	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Magnesium	MG/L	46.2	40.8	31.9	56.1	28.9
Manganese	MG/L	2.4	0.95	0.18	0.041	0.011
Mercury	MG/L	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Sample ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/15/18	11/15/18	11/15/18	11/15/18	11/15/18
Parameter	Units					
Metals						
Nickel	MG/L	0.0013 U	0.0040 J	0.0013 J	0.0017 J	0.0036 J
Silver	MG/L	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	MG/L	593	4.4	5.9	3.1	11.6
Zinc	MG/L	0.0015 U	0.011	0.010 U	0.010 U	0.0015 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-35S
Sample ID		GW-35S
Matrix		Groundwater
Depth Interval (ft)		-
Date Sampled		11/14/18
Parameter	Units	
Volatile Organic Compounds		
1,1,2-Trichloroethane	UG/L	0.23 U
1,2-Dichloroethene (total)	UG/L	0.81 U
Acetone	UG/L	3.0 U
Benzene	UG/L	0.41 U
Vinyl chloride	UG/L	0.90 U
Semivolatile Organic Compounds		
1,3-Dichlorobenzene	UG/L	0.50 U
1,4-Dichlorobenzene	UG/L	0.48 U
1,4-Dioxane	UG/L	0.26 U
bis(2-Ethylhexyl)phthalate	UG/L	2.3 U
Phenol	UG/L	0.41 U
Metals		
Antimony	MG/L	0.0068 U
Arsenic	MG/L	0.0056 U
Barium	MG/L	0.14
Cadmium	MG/L	0.00050 U
Chromium	MG/L	0.0010 U
Copper	MG/L	0.0016 U
Iron	MG/L	0.019 U
Lead	MG/L	0.0030 U
Magnesium	MG/L	36.0
Manganese	MG/L	0.012
Mercury	MG/L	0.00012 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-35S
Sample ID		GW-35S
Matrix		Groundwater
Depth Interval (ft)		-
Date Sampled		11/14/18
Parameter	Units	
Metals		
Nickel	MG/L	0.0013 U
Silver	MG/L	0.0017 U
Sodium	MG/L	4.2
Zinc	MG/L	0.0025 J

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS (PFAS ONLY)
PFOHL BROTHERS LANDFILL SITE

Location ID		GW-08D	GW-08SR	GW-26D	GW-26D	GW-35S
Sample ID		GW-08D	GW-08SR	FD-111418	GW-26D	GW-35S
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		11/14/18	11/14/18	11/14/18	11/14/18	11/14/18
Parameter	Units			Field Duplicate (1-1)		
Per- and Polyfluoroalkyl Substances						
Perfluorobutanoic acid (PFBA)	NG/L	0.37 U	19	10	10	0.41 J
Perfluoropentanoic acid (PFPeA)	NG/L	1.3 J	1.9	6.3	7.8	0.71 U
Perfluorohexanoic acid (PFHxA)	NG/L	1.1 J	1.7 J	5.9	6.1	0.23 U
Perfluoroheptanoic acid (PFHpA)	NG/L	1.1 J	1.6 J	2.0	2.1	0.30 U
Perfluorooctanoic acid (PFOA)	NG/L	5.6	5.3	4.2	4.4	1.9 U
Perfluorononanoic acid (PFNA)	NG/L	0.36 J	0.36 U	0.35 U	0.34 U	0.36 U
Perfluorodecanoic acid (PFDA)	NG/L	0.35 U	0.36 U	0.35 U	0.34 U	0.36 U
Perfluoroundecanoic acid (PFUnA)	NG/L	0.23 U	0.24 U	0.23 U	0.22 J	0.27 J
Perfluorododecanoic acid (PFDoA)	NG/L	0.32 U	0.33 U	0.32 U	0.31 U	0.33 U
Perfluorotridecanoic acid (PFTriA)	NG/L	0.22 U	0.23 U	0.22 U	0.21 U	0.23 U
Perfluorotetradecanoic acid (PFTeA)	NG/L	0.41 U	0.43 U	0.42 U	0.40 U	0.43 U
Perfluorobutanesulfonic acid (PFBS)	NG/L	4.5	0.98 J	3.8	3.7	0.42 U
Perfluorohexanesulfonic acid (PFHxS)	NG/L	1.5 J	0.30 J	1.2 J	1.3 J	0.25 U
Perfluoroheptanesulfonic acid (PFHpS)	NG/L	0.75 U	0.78 U	0.76 U	0.73 U	0.78 U
Perfluorooctanesulfonic acid (PFOS)	NG/L	13	0.85 J	8.5	7.9	0.72 U
Perfluorodecane sulfonate (PFDS)	NG/L	0.48 U	0.50 U	0.49 U	0.47 U	0.51 U
Perfluorooctane sulfonamide (PFOSA)	NG/L	0.51 U	0.53 U	0.52 U	0.50 U	0.53 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	NG/L	0.41 U	0.43 U	0.42 U	0.40 U	0.43 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NG/L	0.64 U	0.66 U	0.65 U	0.62 U	0.67 U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2)	NG/L	0.91 U	0.95 U	0.93 U	0.89 U	0.95 U
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2)	NG/L	0.51 U	0.53 U	0.52 U	0.50 U	0.53 U

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 2
VALIDATED FIELD QC SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		EB-111418	FB-111418	TB-1113 +1114	TB-111518
Matrix		Quality Control	Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-	-
Date Sampled		11/14/18	11/14/18	11/14/18	11/15/18
Parameter	Units	Equipment Blank (1-1)	Field Blank (1-1)	Trip Blank (1-1)	Trip Blank (1-1)
Volatile Organic Compounds					
1,1,2-Trichloroethane	UG/L	NA	NA	0.23 U	0.23 U
1,2-Dichloroethene (total)	UG/L	NA	NA	0.81 U	0.81 U
Acetone	UG/L	NA	NA	3.0 U	3.0 U
Benzene	UG/L	NA	NA	0.41 U	0.41 U
Vinyl chloride	UG/L	NA	NA	0.90 U	0.90 U
Semivolatile Organic Compounds					
1,4-Dioxane	UG/L	0.26 J	NA	NA	NA
Per- and Polyfluoroalkyl Substances					
Perfluorobutanoic acid (PFBA)	NG/L	0.41 U	0.37 U	NA	NA
Perfluoropentanoic acid (PFPeA)	NG/L	0.75 U	0.68 U	NA	NA
Perfluorohexanoic acid (PFHxA)	NG/L	0.24 U	0.22 U	NA	NA
Perfluoroheptanoic acid (PFHpA)	NG/L	0.32 U	0.29 U	NA	NA
Perfluorooctanoic acid (PFOA)	NG/L	0.32 U	0.29 U	NA	NA
Perfluorononanoic acid (PFNA)	NG/L	0.38 U	0.35 U	NA	NA
Perfluorodecanoic acid (PFDA)	NG/L	0.38 U	0.35 U	NA	NA
Perfluoroundecanoic acid (PFUnA)	NG/L	0.25 U	0.23 U	NA	NA
Perfluorododecanoic acid (PFDoA)	NG/L	0.35 U	0.32 U	NA	NA
Perfluorotridecanoic acid (PFTriA)	NG/L	0.24 U	0.22 U	NA	NA
Perfluorotetradecanoic acid (PFTeA)	NG/L	0.45 U	0.41 U	NA	NA
Perfluorobutanesulfonic acid (PFBS)	NG/L	0.44 U	0.40 U	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	NG/L	0.26 U	0.24 U	NA	NA
Perfluoroheptanesulfonic acid (PFHpS)	NG/L	0.82 U	0.75 U	NA	NA
Perfluorooctanesulfonic acid (PFOS)	NG/L	0.76 U	0.69 U	NA	NA

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

TABLE 2
VALIDATED FIELD QC SAMPLE RESULTS
PFOHL BROTHERS LANDFILL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		EB-111418	FB-111418	TB-1113 +1114	TB-111518
Matrix		Quality Control	Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-	-
Date Sampled		11/14/18	11/14/18	11/14/18	11/15/18
Parameter	Units	Equipment Blank (1-1)	Field Blank (1-1)	Trip Blank (1-1)	Trip Blank (1-1)
Per- and Polyfluoroalkyl Substances					
Perfluorodecane sulfonate (PFDS)	NG/L	0.53 U	0.48 U	NA	NA
Perfluorooctane sulfonamide (PFOSA)	NG/L	0.56 U	0.51 U	NA	NA
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	NG/L	0.45 U	0.41 U	NA	NA
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NG/L	0.70 U	0.64 U	NA	NA
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2)	NG/L	1.0 U	0.91 U	NA	NA
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2)	NG/L	0.56 U	0.51 U	NA	NA

Flags assigned during chemistry validation are shown.

MADE BY: AMK 1/2/19

CHECKED BY: PRF 2/1/19

Detection Limits shown are MDL

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-07D

Lab Sample ID: 480-145329-1

Date Collected: 11/14/18 14:30

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 12:02	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 12:02	1
Acetone	4.7	J	10	3.0	ug/L			11/21/18 12:02	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 12:02	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 12:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		77 - 120		11/21/18 12:02	1
Toluene-d8 (Surr)	100		80 - 120		11/21/18 12:02	1
4-Bromofluorobenzene (Surr)	106		73 - 120		11/21/18 12:02	1
Dibromofluoromethane (Surr)	106		75 - 123		11/21/18 12:02	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		11/19/18 09:16	12/03/18 17:05	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		11/19/18 09:16	12/03/18 17:05	1
Bis(2-ethylhexyl) phthalate	5.4		5.4	2.4	ug/L		11/19/18 09:16	12/03/18 17:05	1
Phenol	ND		5.4	0.42	ug/L		11/19/18 09:16	12/03/18 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		41 - 120	11/19/18 09:16	12/03/18 17:05	1
2-Fluorobiphenyl	73		48 - 120	11/19/18 09:16	12/03/18 17:05	1
2-Fluorophenol	53		35 - 120	11/19/18 09:16	12/03/18 17:05	1
Nitrobenzene-d5	72		46 - 120	11/19/18 09:16	12/03/18 17:05	1
Phenol-d5	40		22 - 120	11/19/18 09:16	12/03/18 17:05	1
p-Terphenyl-d14	76		59 - 136	11/19/18 09:16	12/03/18 17:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.014	J	0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 12:57	1
Arsenic	0.0061	J	0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 12:57	1
Barium	0.12		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 12:57	1
Cadmium	0.0042		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 12:57	1
Chromium	0.66		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 12:57	1
Copper	0.099		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 12:57	1
Iron	41.9	B	0.050	0.019	mg/L		12/11/18 15:18	12/13/18 12:57	1
Lead	0.50		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 12:57	1
Magnesium	40.3		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 12:57	1
Manganese	0.26		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 12:57	1
Nickel	0.34		0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 12:57	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 12:57	1
Sodium	80.6		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 12:57	1
Zinc	0.31		0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 12:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:27	1

Handwritten signature and date: 12/13/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-01S

Lab Sample ID: 480-145329-2

Date Collected: 11/14/18 11:28

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 12:26	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 12:26	1
Acetone	ND		10	3.0	ug/L			11/21/18 12:26	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 12:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 12:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		11/21/18 12:26	1
Toluene-d8 (Surr)	102		80 - 120		11/21/18 12:26	1
4-Bromofluorobenzene (Surr)	110		73 - 120		11/21/18 12:26	1
Dibromofluoromethane (Surr)	102		75 - 123		11/21/18 12:26	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		11/19/18 09:16	12/03/18 17:34	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		11/19/18 09:16	12/03/18 17:34	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		11/19/18 09:16	12/03/18 17:34	1
Phenol	ND		5.4	0.42	ug/L		11/19/18 09:16	12/03/18 17:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	72		41 - 120	11/19/18 09:16	12/03/18 17:34	1
2-Fluorobiphenyl	86		48 - 120	11/19/18 09:16	12/03/18 17:34	1
2-Fluorophenol	61		35 - 120	11/19/18 09:16	12/03/18 17:34	1
Nitrobenzene-d5	86		46 - 120	11/19/18 09:16	12/03/18 17:34	1
Phenol-d5	47		22 - 120	11/19/18 09:16	12/03/18 17:34	1
p-Terphenyl-d14	91		59 - 136	11/19/18 09:16	12/03/18 17:34	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:00	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:00	1
Barium	0.18		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:00	1
Cadmium	0.00065	J	0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:00	1
Chromium	0.0012	J	0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:00	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:00	1
Iron	7.3	B	0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:00	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:00	1
Magnesium	22.4		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:00	1
Manganese	1.0		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:00	1
Nickel	ND		0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:00	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:00	1
Sodium	134		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:00	1
Zinc	0.0024	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:00	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:28	1

Handwritten signature and date 12/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-01D

Lab Sample ID: 480-145329-3

Date Collected: 11/14/18 13:00

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 12:50	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 12:50	1
Acetone	ND		10	3.0	ug/L			11/21/18 12:50	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 12:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 12:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		77 - 120		11/21/18 12:50	1
Toluene-d8 (Surr)	101		80 - 120		11/21/18 12:50	1
4-Bromofluorobenzene (Surr)	107		73 - 120		11/21/18 12:50	1
Dibromofluoromethane (Surr)	104		75 - 123		11/21/18 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		11/19/18 09:16	12/03/18 18:04	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 18:04	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 18:04	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 18:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	71		41 - 120	11/19/18 09:16	12/03/18 18:04	1
2-Fluorobiphenyl	83		48 - 120	11/19/18 09:16	12/03/18 18:04	1
2-Fluorophenol	52		35 - 120	11/19/18 09:16	12/03/18 18:04	1
Nitrobenzene-d5	84		46 - 120	11/19/18 09:16	12/03/18 18:04	1
Phenol-d5	38		22 - 120	11/19/18 09:16	12/03/18 18:04	1
p-Terphenyl-d14	87		59 - 136	11/19/18 09:16	12/03/18 18:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:04	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:04	1
Barium	0.085		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:04	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:04	1
Chromium	0.0090		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:04	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:04	1
Iron	0.047	J	0.050	0.019	mg/L		12/17/18 09:17	12/18/18 11:20	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:04	1
Magnesium	38.2		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:04	1
Manganese	0.019		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:04	1
Nickel	0.0018	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:04	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:04	1
Sodium	110		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:04	1
Zinc	0.0033	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:04	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:30	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-07S

Lab Sample ID: 480-145329-4

Date Collected: 11/14/18 14:50

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 13:14	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 13:14	1
Acetone	4.5	J	10	3.0	ug/L			11/21/18 13:14	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 13:14	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 13:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/21/18 13:14	1
Toluene-d8 (Surr)	103		80 - 120		11/21/18 13:14	1
4-Bromofluorobenzene (Surr)	109		73 - 120		11/21/18 13:14	1
Dibromofluoromethane (Surr)	104		75 - 123		11/21/18 13:14	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		11/19/18 09:16	12/03/18 18:34	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 18:34	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 18:34	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 18:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	68		41 - 120	11/19/18 09:16	12/03/18 18:34	1
2-Fluorobiphenyl	88		48 - 120	11/19/18 09:16	12/03/18 18:34	1
2-Fluorophenol	78		35 - 120	11/19/18 09:16	12/03/18 18:34	1
Nitrobenzene-d5	88		46 - 120	11/19/18 09:16	12/03/18 18:34	1
Phenol-d5	54		22 - 120	11/19/18 09:16	12/03/18 18:34	1
p-Terphenyl-d14	89		59 - 136	11/19/18 09:16	12/03/18 18:34	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:08	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:08	1
Barium	0.37		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:08	1
Cadmium	0.00054	J	0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:08	1
Chromium	0.0014	J	0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:08	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:08	1
Iron	0.17		0.050	0.019	mg/L		12/17/18 09:17	12/18/18 11:31	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:08	1
Magnesium	43.1		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:08	1
Manganese	0.032		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:08	1
Nickel	0.013		0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:08	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:08	1
Sodium	61.8		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:08	1
Zinc	0.0051	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:08	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:31	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08SR

Lab Sample ID: 480-145329-5

Date Collected: 11/14/18 09:25

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 13:38	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 13:38	1
Acetone	ND		10	3.0	ug/L			11/21/18 13:38	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 13:38	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 13:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		77 - 120		11/21/18 13:38	1
Toluene-d8 (Surr)	100		80 - 120		11/21/18 13:38	1
4-Bromofluorobenzene (Surr)	108		73 - 120		11/21/18 13:38	1
Dibromofluoromethane (Surr)	109		75 - 123		11/21/18 13:38	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Method: 8270.D SIM.D - Semivolatile Organic Compounds (SVM) SIM: Isotope Dilution									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND	*	0.21	0.10	ug/L		11/19/18 08:22	11/24/18 04:45	1
1,4-Dioxane	ND	0.34 H-B	0.21	0.11	ug/L		11/28/18 08:05	12/08/18 11:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	26	*	15 - 110				11/19/18 08:22	11/24/18 04:45	1
1,4-Dioxane-d8	28		15 - 110				11/28/18 08:05	12/08/18 11:07	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		11/19/18 09:16	12/03/18 19:03	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 19:03	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 19:03	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		41 - 120	11/19/18 09:16	12/03/18 19:03	1
2-Fluorobiphenyl	87		48 - 120	11/19/18 09:16	12/03/18 19:03	1
2-Fluorophenol	78		35 - 120	11/19/18 09:16	12/03/18 19:03	1
Nitrobenzene-d5	86		46 - 120	11/19/18 09:16	12/03/18 19:03	1
Phenol-d5	44		22 - 120	11/19/18 09:16	12/03/18 19:03	1
p-Terphenyl-d14	88		59 - 136	11/19/18 09:16	12/03/18 19:03	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	19		1.9	0.39	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluoropentanoic acid (PFPeA)	1.9		1.9	0.71	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorohexanoic acid (PFHxA)	1.7 J		1.9	0.23	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluoroheptanoic acid (PFHpA)	1.6 J		1.9	0.30	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorooctanoic acid (PFOA)	5.3 B		1.9	0.30	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.36	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.36	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorobutanesulfonic acid (PFBS)	0.98 J		1.9	0.42	ng/L		11/28/18 11:34	11/30/18 07:07	1

Handwritten signature and date: 12/13/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-08SR

Lab Sample ID: 480-145329-5

Date Collected: 11/14/18 09:25

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	0.30	J	1.9	0.25	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorooctanesulfonic acid (PFOS)	0.85	J	1.9	0.72	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.50	ng/L		11/28/18 11:34	11/30/18 07:07	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53	ng/L		11/28/18 11:34	11/30/18 07:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43	ng/L		11/28/18 11:34	11/30/18 07:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.66	ng/L		11/28/18 11:34	11/30/18 07:07	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95	ng/L		11/28/18 11:34	11/30/18 07:07	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53	ng/L		11/28/18 11:34	11/30/18 07:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	89		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C4 PFHpA	70		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C4 PFOA	90		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C4 PFOS	96		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C5 PFNA	103		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C4 PFBA	16 *		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C2 PFHxA	44		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C2 PFDA	104		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C2 PFUnA	113		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C2 PFDaA	101		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C8 FOSA	73		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C5 PFPaA	29		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C2 PFTeDA	115		25 - 150				11/28/18 11:34	11/30/18 07:07	1
d3-NMeFOSAA	87		25 - 150				11/28/18 11:34	11/30/18 07:07	1
d5-NEtFOSAA	107		25 - 150				11/28/18 11:34	11/30/18 07:07	1
M2-6:2 FTS	204 *		25 - 150				11/28/18 11:34	11/30/18 07:07	1
M2-8:2 FTS	108		25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C3 PFBS	57		25 - 150				11/28/18 11:34	11/30/18 07:07	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:12	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:12	1
Barium	0.13		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:12	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:12	1
Chromium	ND		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:12	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:12	1
Iron	8.2		0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:12	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:12	1
Magnesium	55.9		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:12	1
Manganese	0.69		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:12	1
Nickel	0.0015	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:12	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:12	1
Sodium	165		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:12	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08SR

Lab Sample ID: 480-145329-5

Date Collected: 11/14/18 09:25

Matrix: Water

Date Received: 11/14/18 17:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.0019	J	0.010	0.0015	mg/L	—	12/11/18 15:18	12/13/18 13:12	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L	—	11/28/18 13:40	11/28/18 17:35	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08D

Lab Sample ID: 480-145329-6

Date Collected: 11/14/18 10:20

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 14:02	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 14:02	1
Acetone	ND		10	3.0	ug/L			11/21/18 14:02	1
Benzene	ND	F2	1.0	0.41	ug/L			11/21/18 14:02	1
Vinyl chloride	ND	F2	1.0	0.90	ug/L			11/21/18 14:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/21/18 14:02	1
Toluene-d8 (Surr)	101		80 - 120		11/21/18 14:02	1
4-Bromofluorobenzene (Surr)	104		73 - 120		11/21/18 14:02	1
Dibromofluoromethane (Surr)	107		75 - 123		11/21/18 14:02	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	8.0	E B *	0.20	0.10	ug/L		11/19/18 08:22	11/24/18 02:20	1
1,4-Dioxane	0.29	H B *	0.20	0.10	ug/L		11/28/18 08:05	12/08/18 10:19	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	20	*	15 - 110				11/19/18 08:22	11/24/18 02:20	1
1,4-Dioxane-d8	27		15 - 110				11/28/18 08:05	12/08/18 10:19	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		11/19/18 09:16	12/03/18 16:36	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		11/19/18 09:16	12/03/18 16:36	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		11/19/18 09:16	12/03/18 16:36	1
Phenol	ND		5.4	0.42	ug/L		11/19/18 09:16	12/03/18 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	72		41 - 120	11/19/18 09:16	12/03/18 16:36	1
2-Fluorobiphenyl	82		48 - 120	11/19/18 09:16	12/03/18 16:36	1
2-Fluorophenol	63		35 - 120	11/19/18 09:16	12/03/18 16:36	1
Nitrobenzene-d5	81		46 - 120	11/19/18 09:16	12/03/18 16:36	1
Phenol-d5	46		22 - 120	11/19/18 09:16	12/03/18 16:36	1
p-Terphenyl-d14	88		59 - 136	11/19/18 09:16	12/03/18 16:36	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	0.37	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluoropentanoic acid (PFPeA)	1.3	J	1.8	0.68	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorohexanoic acid (PFHxA)	1.1	J	1.8	0.22	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.8	0.29	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorooctanoic acid (PFOA)	5.6	B	1.8	0.29	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorononanoic acid (PFNA)	0.36	J	1.8	0.35	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.35	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.23	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.32	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.22	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.41	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorobutanesulfonic acid (PFBS)	4.5		1.8	0.40	ng/L		11/28/18 11:34	11/30/18 07:23	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-08D

Lab Sample ID: 480-145329-6

Date Collected: 11/14/18 10:20

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.8	0.24	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.75	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorooctanesulfonic acid (PFOS)	13		1.8	0.69	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.48	ng/L		11/28/18 11:34	11/30/18 07:23	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.51	ng/L		11/28/18 11:34	11/30/18 07:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	0.41	ng/L		11/28/18 11:34	11/30/18 07:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18	0.64	ng/L		11/28/18 11:34	11/30/18 07:23	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	0.91	ng/L		11/28/18 11:34	11/30/18 07:23	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	0.51	ng/L		11/28/18 11:34	11/30/18 07:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	81		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C4 PFHpA	71		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C4 PFOA	85		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C4 PFOS	79		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C5 PFNA	85		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C4 PFBA	26		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C2 PFHxA	51		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C2 PFDA	91		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C2 PFUnA	92		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C2 PFDoA	82		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C8 FOSA	69		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C5 PFPeA	41		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C2 PFTeDA	91		25 - 150				11/28/18 11:34	11/30/18 07:23	1
d3-NMeFOSAA	76		25 - 150				11/28/18 11:34	11/30/18 07:23	1
d5-NEtFOSAA	91		25 - 150				11/28/18 11:34	11/30/18 07:23	1
M2-6:2 FTS	140		25 - 150				11/28/18 11:34	11/30/18 07:23	1
M2-8:2 FTS	99		25 - 150				11/28/18 11:34	11/30/18 07:23	1
13C3 PFBS	58		25 - 150				11/28/18 11:34	11/30/18 07:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:15	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:15	1
Barium	0.080		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:15	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:15	1
Chromium	0.11		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:15	1
Copper	0.0043	J	0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:15	1
Iron	0.95		0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:15	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:15	1
Magnesium	17.6		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:15	1
Manganese	0.054		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:15	1
Nickel	0.012		0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:15	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:15	1
Sodium	234		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:15	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-08D

Lab Sample ID: 480-145329-6

Date Collected: 11/14/18 10:20

Matrix: Water

Date Received: 11/14/18 17:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.0082	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:15	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:36	1

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: FB-111418

Lab Sample ID: 480-145329-7

Date Collected: 11/14/18 11:00

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	0.37	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.68	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.22	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.29	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.29	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.35	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.35	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.23	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.32	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.22	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.41	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.40	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.24	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.75	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.69	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.48	ng/L		11/28/18 11:34	11/30/18 08:10	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.51	ng/L		11/28/18 11:34	11/30/18 08:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	0.41	ng/L		11/28/18 11:34	11/30/18 08:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18	0.64	ng/L		11/28/18 11:34	11/30/18 08:10	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	0.91	ng/L		11/28/18 11:34	11/30/18 08:10	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	0.51	ng/L		11/28/18 11:34	11/30/18 08:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	78		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C4 PFHpA	79		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C4 PFOA	85		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C4 PFOS	70		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C5 PFNA	83		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C4 PFBA	70		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C2 PFHxA	79		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C2 PFDA	87		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C2 PFUnA	90		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C2 PFDoA	83		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C8 FOSA	44		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C5 PFPeA	79		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C2 PFTeDA	80		25 - 150	11/28/18 11:34	11/30/18 08:10	1
d3-NMeFOSAA	76		25 - 150	11/28/18 11:34	11/30/18 08:10	1
d5-NEtFOSAA	89		25 - 150	11/28/18 11:34	11/30/18 08:10	1
M2-6:2 FTS	102		25 - 150	11/28/18 11:34	11/30/18 08:10	1
M2-8:2 FTS	80		25 - 150	11/28/18 11:34	11/30/18 08:10	1
13C3 PFBS	78		25 - 150	11/28/18 11:34	11/30/18 08:10	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: EB-111418

Lab Sample ID: 480-145329-8

Date Collected: 11/14/18 11:05

Matrix: Water

Date Received: 11/14/18 17:50

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.40	B*	0.24	0.10	ug/L		11/19/18 08:22	11/24/18 05:10	1
1,4-Dioxane	0.26	H-B*	0.21	0.10	ug/L		11/28/18 08:05	12/08/18 11:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	24	*	15 - 110				11/19/18 08:22	11/24/18 05:10	1
1,4-Dioxane-d8	26		15 - 110				11/28/18 08:05	12/08/18 11:31	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.75	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.24	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.32	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		11/28/18 11:34	11/30/18 08:27	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		11/28/18 11:34	11/30/18 08:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 11:34	11/30/18 08:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 11:34	11/30/18 08:27	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		11/28/18 11:34	11/30/18 08:27	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		11/28/18 11:34	11/30/18 08:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	85		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C4 PFHpA	94		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C4 PFOA	86		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C4 PFOS	84		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C5 PFNA	94		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C4 PFBA	44		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C2 PFHxA	89		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C2 PFDA	99		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C2 PFUnA	106		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C2 PFDoA	93		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C8 FOSA	56		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C5 PFPeA	87		25 - 150				11/28/18 11:34	11/30/18 08:27	1
13C2 PFTeDA	96		25 - 150				11/28/18 11:34	11/30/18 08:27	1
d3-NMeFOSAA	88		25 - 150				11/28/18 11:34	11/30/18 08:27	1
d5-NEtFOSAA	101		25 - 150				11/28/18 11:34	11/30/18 08:27	1

Handwritten signature and date: 12/1/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-35S

Lab Sample ID: 480-145329-9

Date Collected: 11/14/18 12:40

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 14:26	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 14:26	1
Acetone	ND		10	3.0	ug/L			11/21/18 14:26	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 14:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 14:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/21/18 14:26	1
Toluene-d8 (Surr)	99		80 - 120		11/21/18 14:26	1
4-Bromofluorobenzene (Surr)	104		73 - 120		11/21/18 14:26	1
Dibromofluoromethane (Surr)	104		75 - 123		11/21/18 14:26	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Method: 8270.D SMR.D - Semi-volatile Organic Compounds (Semi-SMR) Isotope Dilution									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.25	B *	0.20	0.099	ug/L		11/19/18 08:22	11/24/18 05:34	1
1,4-Dioxane	0.26	H B *	0.20	0.10	ug/L		11/28/18 08:05	12/08/18 11:55	1
0.26 0.26									
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	22	*	15 - 110				11/19/18 08:22	11/24/18 05:34	1
1,4-Dioxane-d8	26		15 - 110				11/28/18 08:05	12/08/18 11:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.50	ug/L		11/19/18 09:16	12/03/18 19:33	1
1,4-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 19:33	1
Bis(2-ethylhexyl) phthalate	ND		5.2	2.3	ug/L		11/19/18 09:16	12/03/18 19:33	1
Phenol	ND		5.2	0.41	ug/L		11/19/18 09:16	12/03/18 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	54		41 - 120	11/19/18 09:16	12/03/18 19:33	1
2-Fluorobiphenyl	91		48 - 120	11/19/18 09:16	12/03/18 19:33	1
2-Fluorophenol	56		35 - 120	11/19/18 09:16	12/03/18 19:33	1
Nitrobenzene-d5	76		46 - 120	11/19/18 09:16	12/03/18 19:33	1
Phenol-d5	41		22 - 120	11/19/18 09:16	12/03/18 19:33	1
p-Terphenyl-d14	83		59 - 136	11/19/18 09:16	12/03/18 19:33	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.41	J	1.9	0.39	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.71	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.23	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.30	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorooctanoic acid (PFOA)	0.32	J B	1.9	0.30	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.36	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.36	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluoroundecanoic acid (PFUnA)	0.27	J	1.9	0.24	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.42	ng/L		11/28/18 11:34	11/30/18 08:58	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-35S

Lab Sample ID: 480-145329-9

Date Collected: 11/14/18 12:40

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.25	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.72	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.51	ng/L		11/28/18 11:34	11/30/18 08:58	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53	ng/L		11/28/18 11:34	11/30/18 08:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43	ng/L		11/28/18 11:34	11/30/18 08:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67	ng/L		11/28/18 11:34	11/30/18 08:58	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95	ng/L		11/28/18 11:34	11/30/18 08:58	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53	ng/L		11/28/18 11:34	11/30/18 08:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹⁸ O2 PFHxS	78		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C4 PFHpA	77		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C4 PFOA	81		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C4 PFOS	76		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C5 PFNA	84		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C4 PFBA	28		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C2 PFHxA	61		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C2 PFDA	92		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C2 PFUnA	91		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C2 PFDaA	85		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C8 FOSA	66		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C5 PFPeA	51		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C2 PFTeDA	88		25 - 150				11/28/18 11:34	11/30/18 08:58	1
d3-NMeFOSAA	71		25 - 150				11/28/18 11:34	11/30/18 08:58	1
d5-NEtFOSAA	88		25 - 150				11/28/18 11:34	11/30/18 08:58	1
M2-6:2 FTS	108		25 - 150				11/28/18 11:34	11/30/18 08:58	1
M2-8:2 FTS	90		25 - 150				11/28/18 11:34	11/30/18 08:58	1
¹³ C3 PFBS	68		25 - 150				11/28/18 11:34	11/30/18 08:58	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:44	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:44	1
Barium	0.14		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:44	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:44	1
Chromium	ND		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:44	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:44	1
Iron	ND		0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:44	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:44	1
Magnesium	36.0		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:44	1
Manganese	0.012		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:44	1
Nickel	ND		0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:44	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:44	1
Sodium	4.2		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:44	1
Zinc	0.0025	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:44	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-35S

Lab Sample ID: 480-145329-9

Date Collected: 11/14/18 12:40

Matrix: Water

Date Received: 11/14/18 17:50

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:41	1

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-26D

Lab Sample ID: 480-145329-10

Date Collected: 11/14/18 13:43

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 14:50	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 14:50	1
Acetone	ND		10	3.0	ug/L			11/21/18 14:50	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 14:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 14:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/21/18 14:50	1
Toluene-d8 (Surr)	98		80 - 120		11/21/18 14:50	1
4-Bromofluorobenzene (Surr)	106		73 - 120		11/21/18 14:50	1
Dibromofluoromethane (Surr)	101		75 - 123		11/21/18 14:50	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Method: 6270.D SM-10 - Semi-volatile Organic Compounds (Semi- SM-10) - Isotope Dilution									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.45	B *	0.20	0.098	ug/L		11/19/18 08:22	11/24/18 05:58	1
1,4-Dioxane	0.30	H B *	0.19	0.096	ug/L		11/28/18 08:05	12/08/18 12:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	23		15 - 110				11/19/18 08:22	11/24/18 05:58	1
1,4-Dioxane-d8	25		15 - 110				11/28/18 08:05	12/08/18 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		11	0.52	ug/L		11/19/18 09:16	12/03/18 20:03	1
1,4-Dichlorobenzene	ND		11	0.50	ug/L		11/19/18 09:16	12/03/18 20:03	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.4	ug/L		11/19/18 09:16	12/03/18 20:03	1
Phenol	ND		5.4	0.42	ug/L		11/19/18 09:16	12/03/18 20:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	63		41 - 120	11/19/18 09:16	12/03/18 20:03	1
2-Fluorobiphenyl	89		48 - 120	11/19/18 09:16	12/03/18 20:03	1
2-Fluorophenol	64		35 - 120	11/19/18 09:16	12/03/18 20:03	1
Nitrobenzene-d5	91		46 - 120	11/19/18 09:16	12/03/18 20:03	1
Phenol-d5	48		22 - 120	11/19/18 09:16	12/03/18 20:03	1
p-Terphenyl-d14	87		59 - 136	11/19/18 09:16	12/03/18 20:03	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		1.8	0.37	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluoropentanoic acid (PFPeA)	7.8		1.8	0.67	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorohexanoic acid (PFHxA)	6.1		1.8	0.21	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluoroheptanoic acid (PFHpA)	2.1		1.8	0.28	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorooctanoic acid (PFOA)	4.4	B	1.8	0.28	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.34	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.34	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluoroundecanoic acid (PFUnA)	0.22	J	1.8	0.22	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.31	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.21	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.40	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorobutanesulfonic acid (PFBS)	3.7		1.8	0.39	ng/L		11/28/18 11:34	11/30/18 09:14	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-26D

Lab Sample ID: 480-145329-10

Date Collected: 11/14/18 13:43

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.8	0.23	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.73	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorooctanesulfonic acid (PFOS)	7.9		1.8	0.68	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.47	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.50	ng/L		11/28/18 11:34	11/30/18 09:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	0.40	ng/L		11/28/18 11:34	11/30/18 09:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18	0.62	ng/L		11/28/18 11:34	11/30/18 09:14	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	0.89	ng/L		11/28/18 11:34	11/30/18 09:14	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	0.50	ng/L		11/28/18 11:34	11/30/18 09:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	100		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C4 PFHpA	92		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C4 PFOA	109		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C4 PFOS	106		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C5 PFNA	116		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C4 PFBA	31		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C2 PFHxA	60		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C2 PFDA	118		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C2 PFUnA	127		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C2 PFDoA	117		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C8 FOSA	81		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C5 PFPeA	51		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C2 PFTeDA	125		25 - 150				11/28/18 11:34	11/30/18 09:14	1
d3-NMeFOSAA	106		25 - 150				11/28/18 11:34	11/30/18 09:14	1
d5-NEtFOSAA	125		25 - 150				11/28/18 11:34	11/30/18 09:14	1
M2-6:2 FTS	181	*	25 - 150				11/28/18 11:34	11/30/18 09:14	1
M2-8:2 FTS	117		25 - 150				11/28/18 11:34	11/30/18 09:14	1
13C3 PFBS	65		25 - 150				11/28/18 11:34	11/30/18 09:14	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:48	1
Arsenic	0.0065	J	0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:48	1
Barium	0.13		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:48	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:48	1
Chromium	ND		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:48	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:48	1
Iron	3.7		0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:48	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:48	1
Magnesium	17.9		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:48	1
Manganese	0.38		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:48	1
Nickel	0.0037	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:48	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:48	1
Sodium	340		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:48	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-26D

Lab Sample ID: 480-145329-10

Date Collected: 11/14/18 13:43

Matrix: Water

Date Received: 11/14/18 17:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.0057	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:48	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:43	1

TestAmerica Buffalo

Client Sample Results

GW-26D

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: FD-111418

Lab Sample ID: 480-145329-11

Date Collected: 11/14/18 00:00

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 15:14	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 15:14	1
Acetone	ND		10	3.0	ug/L			11/21/18 15:14	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 15:14	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 15:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		11/21/18 15:14	1
Toluene-d8 (Surr)	100		80 - 120		11/21/18 15:14	1
4-Bromofluorobenzene (Surr)	104		73 - 120		11/21/18 15:14	1
Dibromofluoromethane (Surr)	112		75 - 123		11/21/18 15:14	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.45	B*	0.20	0.098	ug/L		11/19/18 08:22	11/24/18 06:22	1
1,4-Dioxane	0.32	H B*	0.49	0.097	ug/L		11/28/18 08:05	12/08/18 12:44	1
Isotope Dilution	%Recovery	Qualifier	Limits	0.32	0.32		Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	24		15 - 110				11/19/18 08:22	11/24/18 06:22	1
1,4-Dioxane-d8	26		15 - 110				11/28/18 08:05	12/08/18 12:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 20:33	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 20:33	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 20:33	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 20:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		41 - 120	11/19/18 09:16	12/03/18 20:33	1
2-Fluorobiphenyl	93		48 - 120	11/19/18 09:16	12/03/18 20:33	1
2-Fluorophenol	64		35 - 120	11/19/18 09:16	12/03/18 20:33	1
Nitrobenzene-d5	93		46 - 120	11/19/18 09:16	12/03/18 20:33	1
Phenol-d5	46		22 - 120	11/19/18 09:16	12/03/18 20:33	1
p-Terphenyl-d14	94		59 - 136	11/19/18 09:16	12/03/18 20:33	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		1.9	0.38	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluoropentanoic acid (PFPeA)	6.3		1.9	0.70	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorohexanoic acid (PFHxA)	5.9		1.9	0.22	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluoroheptanoic acid (PFHpA)	2.0		1.9	0.30	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorooctanoic acid (PFOA)	4.2	B	1.9	0.30	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.35	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.35	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.23	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.32	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.22	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.42	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorobutanesulfonic acid (PFBS)	3.8		1.9	0.41	ng/L		11/28/18 11:34	11/30/18 09:30	1

12/13/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: FD-111418

Lab Sample ID: 480-145329-11

Date Collected: 11/14/18 00:00

Matrix: Water

Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	1.9	0.24	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.76	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorooctanesulfonic acid (PFOS)	8.5		1.9	0.71	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.49	ng/L		11/28/18 11:34	11/30/18 09:30	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.52	ng/L		11/28/18 11:34	11/30/18 09:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.42	ng/L		11/28/18 11:34	11/30/18 09:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.65	ng/L		11/28/18 11:34	11/30/18 09:30	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.93	ng/L		11/28/18 11:34	11/30/18 09:30	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.52	ng/L		11/28/18 11:34	11/30/18 09:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹⁸ O ₂ PFHxS	72		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₄ PFHpA	74		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₄ PFOA	83		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₄ PFOS	76		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₅ PFNA	87		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₄ PFBA	25		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₂ PFHxA	49		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₂ PFDA	91		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₂ PFUnA	96		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₂ PFDaA	88		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₈ FOSA	64		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₅ PFPeA	41		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₂ PFTeDA	88		25 - 150				11/28/18 11:34	11/30/18 09:30	1
d ₃ -NMeFOSAA	81		25 - 150				11/28/18 11:34	11/30/18 09:30	1
d ₅ -NEtFOSAA	95		25 - 150				11/28/18 11:34	11/30/18 09:30	1
M2-6:2 FTS	147		25 - 150				11/28/18 11:34	11/30/18 09:30	1
M2-8:2 FTS	89		25 - 150				11/28/18 11:34	11/30/18 09:30	1
¹³ C ₃ PFBS	52		25 - 150				11/28/18 11:34	11/30/18 09:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:51	1
Arsenic	0.0075	J	0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:51	1
Barium	0.13		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:51	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:51	1
Chromium	ND		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:51	1
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:51	1
Iron	3.7		0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:51	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:51	1
Magnesium	17.3		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:51	1
Manganese	0.37		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:51	1
Nickel	0.0037	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:51	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:51	1
Sodium	332		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:51	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: FD-111418

Lab Sample ID: 480-145329-11

Date Collected: 11/14/18 00:00

Matrix: Water

Date Received: 11/14/18 17:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.0023	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:44	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-04S

Lab Sample ID: 480-145329-12

Date Collected: 11/14/18 17:05

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 15:38	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 15:38	1
Acetone	5.0	J	10	3.0	ug/L			11/21/18 15:38	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 15:38	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 15:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/21/18 15:38	1
Toluene-d8 (Surr)	101		80 - 120		11/21/18 15:38	1
4-Bromofluorobenzene (Surr)	110		73 - 120		11/21/18 15:38	1
Dibromofluoromethane (Surr)	102		75 - 123		11/21/18 15:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.50	ug/L		11/19/18 09:16	12/03/18 21:03	1
1,4-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 21:03	1
Bis(2-ethylhexyl) phthalate	ND		5.2	2.3	ug/L		11/19/18 09:16	12/03/18 21:03	1
Phenol	ND		5.2	0.41	ug/L		11/19/18 09:16	12/03/18 21:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	65		41 - 120	11/19/18 09:16	12/03/18 21:03	1
2-Fluorobiphenyl	87		48 - 120	11/19/18 09:16	12/03/18 21:03	1
2-Fluorophenol	60		35 - 120	11/19/18 09:16	12/03/18 21:03	1
Nitrobenzene-d5	90		46 - 120	11/19/18 09:16	12/03/18 21:03	1
Phenol-d5	45		22 - 120	11/19/18 09:16	12/03/18 21:03	1
p-Terphenyl-d14	89		59 - 136	11/19/18 09:16	12/03/18 21:03	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:55	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:55	1
Barium	0.13		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:55	1
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:55	1
Chromium	0.0024	J	0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:55	1
Copper	0.0019	J	0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:55	1
Iron	1.7	B	0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:55	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:55	1
Magnesium	29.0		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:55	1
Manganese	0.13		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:55	1
Nickel	0.0041	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:55	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:55	1
Sodium	29.6		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:55	1
Zinc	0.0096	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:55	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:45	1

Handwritten signature and date:
12/31/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: GW-04D

Lab Sample ID: 480-145329-13

Date Collected: 11/14/18 16:55

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 16:01	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 16:01	1
Acetone	ND		10	3.0	ug/L			11/21/18 16:01	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 16:01	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/21/18 16:01	1
Toluene-d8 (Surr)	101		80 - 120		11/21/18 16:01	1
4-Bromofluorobenzene (Surr)	108		73 - 120		11/21/18 16:01	1
Dibromofluoromethane (Surr)	104		75 - 123		11/21/18 16:01	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		11/19/18 09:16	12/03/18 21:33	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 21:33	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 21:33	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	76		41 - 120	11/19/18 09:16	12/03/18 21:33	1
2-Fluorobiphenyl	89		48 - 120	11/19/18 09:16	12/03/18 21:33	1
2-Fluorophenol	64		35 - 120	11/19/18 09:16	12/03/18 21:33	1
Nitrobenzene-d5	92		46 - 120	11/19/18 09:16	12/03/18 21:33	1
Phenol-d5	46		22 - 120	11/19/18 09:16	12/03/18 21:33	1
p-Terphenyl-d14	89		59 - 136	11/19/18 09:16	12/03/18 21:33	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:59	1
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:59	1
Barium	0.093		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:59	1
Cadmium	0.00064	J	0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:59	1
Chromium	0.0067		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:59	1
Copper	0.0016	J	0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:59	1
Iron	0.20		0.050	0.019	mg/L		12/17/18 09:17	12/18/18 11:35	1
Lead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:59	1
Magnesium	79.0		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:59	1
Manganese	0.022		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:59	1
Nickel	0.0039	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:59	1
Silver	ND		0.0030	0.0017	mg/L		12/11/18 15:18	12/13/18 13:59	1
Sodium	93.8		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:59	1
Zinc	0.0057	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/28/18 13:40	11/28/18 17:47	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Client Sample ID: TB-1113 +1114

Lab Sample ID: 480-145329-14

Date Collected: 11/14/18 00:00

Matrix: Water

Date Received: 11/14/18 17:50

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			11/21/18 16:25	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 16:25	1
Acetone	ND		10	3.0	ug/L			11/21/18 16:25	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 16:25	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/21/18 16:25	1
Toluene-d8 (Surr)	100		80 - 120		11/21/18 16:25	1
4-Bromofluorobenzene (Surr)	104		73 - 120		11/21/18 16:25	1
Dibromofluoromethane (Surr)	104		75 - 123		11/21/18 16:25	1

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-34S

Lab Sample ID: 480-145376-1

Date Collected: 11/15/18 08:20

Matrix: Water

Date Received: 11/15/18 16:45

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			11/20/18 23:43	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/20/18 23:43	1
Acetone	ND		10	3.0	ug/L			11/20/18 23:43	1
Benzene	ND		1.0	0.41	ug/L			11/20/18 23:43	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/20/18 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		77 - 120		11/20/18 23:43	1
Toluene-d8 (Surr)	96		80 - 120		11/20/18 23:43	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/20/18 23:43	1
Dibromofluoromethane (Surr)	98		75 - 123		11/20/18 23:43	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		11/19/18 09:16	12/03/18 22:02	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 22:02	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 22:02	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 22:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	72		41 - 120	11/19/18 09:16	12/03/18 22:02	1
2-Fluorobiphenyl	86		48 - 120	11/19/18 09:16	12/03/18 22:02	1
2-Fluorophenol	61		35 - 120	11/19/18 09:16	12/03/18 22:02	1
Nitrobenzene-d5	86		46 - 120	11/19/18 09:16	12/03/18 22:02	1
Phenol-d5	45		22 - 120	11/19/18 09:16	12/03/18 22:02	1
p-Terphenyl-d14	87		59 - 136	11/19/18 09:16	12/03/18 22:02	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:23	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:23	1
Barium	0.12		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:23	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:23	1
Chromium	0.0077		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:23	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:23	1
Iron	0.042	J	0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:23	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:23	1
Magnesium	28.9		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:23	1
Manganese	0.011	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:23	1
Nickel	0.0036	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:23	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:23	1
Sodium	11.6		1.0	0.32	mg/L		11/23/18 08:08	11/26/18 23:23	1
Zinc	ND		0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:23	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:32	1

Handwritten signature and date: 12/1/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-03D

Lab Sample ID: 480-145376-2

Date Collected: 11/15/18 09:50

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 00:10	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 00:10	1
Acetone	ND		10	3.0	ug/L			11/21/18 00:10	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 00:10	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 00:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		77 - 120		11/21/18 00:10	1
Toluene-d8 (Surr)	97		80 - 120		11/21/18 00:10	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/21/18 00:10	1
Dibromofluoromethane (Surr)	96		75 - 123		11/21/18 00:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	2.9	J	10	0.48	ug/L		11/19/18 09:16	12/03/18 22:32	1
1,4-Dichlorobenzene	4.2	J	10	0.46	ug/L		11/19/18 09:16	12/03/18 22:32	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 22:32	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 22:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		41 - 120	11/19/18 09:16	12/03/18 22:32	1
2-Fluorobiphenyl	89		48 - 120	11/19/18 09:16	12/03/18 22:32	1
2-Fluorophenol	64		35 - 120	11/19/18 09:16	12/03/18 22:32	1
Nitrobenzene-d5	90		46 - 120	11/19/18 09:16	12/03/18 22:32	1
Phenol-d5	46		22 - 120	11/19/18 09:16	12/03/18 22:32	1
p-Terphenyl-d14	92		59 - 136	11/19/18 09:16	12/03/18 22:32	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:27	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:27	1
Barium	0.084		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:27	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:27	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:27	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:27	1
Iron	1.1		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:27	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:27	1
Magnesium	17.9		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:27	1
Manganese	0.26	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:27	1
Nickel	0.0040	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:27	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:27	1
Sodium	164		1.0	0.32	mg/L		11/23/18 08:08	11/26/18 23:27	1
Zinc	ND		0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:27	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:40	1

Handwritten signature and date: 12/3/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145376-1

Client Sample ID: GW-28S

Lab Sample ID: 480-145376-3

Date Collected: 11/15/18 10:35

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 00:37	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 00:37	1
Acetone	ND		10	3.0	ug/L			11/21/18 00:37	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 00:37	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 00:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		77 - 120		11/21/18 00:37	1
Toluene-d8 (Surr)	93		80 - 120		11/21/18 00:37	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/21/18 00:37	1
Dibromofluoromethane (Surr)	99		75 - 123		11/21/18 00:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		10	0.50	ug/L		11/19/18 09:16	12/03/18 23:01	1
1,4-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 23:01	1
Bis(2-ethylhexyl) phthalate	ND		5.2	2.3	ug/L		11/19/18 09:16	12/03/18 23:01	1
Phenol	ND		5.2	0.41	ug/L		11/19/18 09:16	12/03/18 23:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	74		41 - 120	11/19/18 09:16	12/03/18 23:01	1
2-Fluorobiphenyl	82		48 - 120	11/19/18 09:16	12/03/18 23:01	1
2-Fluorophenol	59		35 - 120	11/19/18 09:16	12/03/18 23:01	1
Nitrobenzene-d5	84		46 - 120	11/19/18 09:16	12/03/18 23:01	1
Phenol-d5	42		22 - 120	11/19/18 09:16	12/03/18 23:01	1
p-Terphenyl-d14	82		59 - 136	11/19/18 09:16	12/03/18 23:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:42	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:42	1
Barium	0.092		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:42	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:42	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:42	1
Copper	0.0029	J	0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:42	1
Iron	0.38		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:42	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:42	1
Magnesium	27.4		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:42	1
Manganese	1.3	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:42	1
Nickel	0.0023	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:42	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:42	1
Sodium	16.8		1.0	0.32	mg/L		11/23/18 08:08	11/27/18 10:54	1
Zinc	ND	J B	0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:41	1

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TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145376-1

Client Sample ID: GW-29S

Lab Sample ID: 480-145376-4

Date Collected: 11/15/18 11:42

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 01:04	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 01:04	1
Acetone	ND		10	3.0	ug/L			11/21/18 01:04	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 01:04	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		77 - 120		11/21/18 01:04	1
Toluene-d8 (Surr)	94		80 - 120		11/21/18 01:04	1
4-Bromofluorobenzene (Surr)	102		73 - 120		11/21/18 01:04	1
Dibromofluoromethane (Surr)	96		75 - 123		11/21/18 01:04	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		11/19/18 09:16	12/03/18 23:30	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 23:30	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 23:30	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 23:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	82		41 - 120	11/19/18 09:16	12/03/18 23:30	1
2-Fluorobiphenyl	87		48 - 120	11/19/18 09:16	12/03/18 23:30	1
2-Fluorophenol	57		35 - 120	11/19/18 09:16	12/03/18 23:30	1
Nitrobenzene-d5	84		46 - 120	11/19/18 09:16	12/03/18 23:30	1
Phenol-d5	41		22 - 120	11/19/18 09:16	12/03/18 23:30	1
p-Terphenyl-d14	83		59 - 136	11/19/18 09:16	12/03/18 23:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:46	1
Arsenic	0.012		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:46	1
Barium	0.20		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:46	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:46	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:46	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:46	1
Iron	10.8		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:46	1
Lead	0.0036	J	0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:46	1
Magnesium	78.3		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:46	1
Manganese	0.59	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:46	1
Nickel	ND		0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:46	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:46	1
Sodium	10.3		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:16	1
Zinc	ND	0.0042 J B	0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:42	1

Handwritten signature and date: 12/3/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-30S

Lab Sample ID: 480-145376-5

Date Collected: 11/15/18 12:30

Matrix: Water

Date Received: 11/15/18 16:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			11/21/18 01:32	2
1,2-Dichloroethene, Total	ND		4.0	1.6	ug/L			11/21/18 01:32	2
Acetone	ND		20	6.0	ug/L			11/21/18 01:32	2
Benzene	ND		2.0	0.82	ug/L			11/21/18 01:32	2
Vinyl chloride	ND		2.0	1.8	ug/L			11/21/18 01:32	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		77 - 120		11/21/18 01:32	2
Toluene-d8 (Surr)	96		80 - 120		11/21/18 01:32	2
4-Bromofluorobenzene (Surr)	105		73 - 120		11/21/18 01:32	2
Dibromofluoromethane (Surr)	101		75 - 123		11/21/18 01:32	2

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		11/19/18 09:16	12/03/18 23:59	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 23:59	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 23:59	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 23:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	81		41 - 120	11/19/18 09:16	12/03/18 23:59	1
2-Fluorobiphenyl	84		48 - 120	11/19/18 09:16	12/03/18 23:59	1
2-Fluorophenol	63		35 - 120	11/19/18 09:16	12/03/18 23:59	1
Nitrobenzene-d5	85		46 - 120	11/19/18 09:16	12/03/18 23:59	1
Phenol-d5	46		22 - 120	11/19/18 09:16	12/03/18 23:59	1
p-Terphenyl-d14	87		59 - 136	11/19/18 09:16	12/03/18 23:59	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:50	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:50	1
Barium	0.36		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:50	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:50	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:50	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:50	1
Iron	15.2		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:50	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:50	1
Magnesium	46.2		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:50	1
Manganese	2.4	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:50	1
Nickel	ND		0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:50	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:50	1
Sodium	593		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:20	1
Zinc	ND		0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:44	1

Handwritten signature and date: 12/13/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145376-1

Client Sample ID: GW-31S

Lab Sample ID: 480-145376-6

Date Collected: 11/15/18 13:27

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 02:00	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 02:00	1
Acetone	ND		10	3.0	ug/L			11/21/18 02:00	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 02:00	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		77 - 120		11/21/18 02:00	1
Toluene-d8 (Surr)	95		80 - 120		11/21/18 02:00	1
4-Bromofluorobenzene (Surr)	106		73 - 120		11/21/18 02:00	1
Dibromofluoromethane (Surr)	98		75 - 123		11/21/18 02:00	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		11/19/18 09:16	12/04/18 00:28	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/04/18 00:28	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/04/18 00:28	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/04/18 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	75		41 - 120	11/19/18 09:16	12/04/18 00:28	1
2-Fluorobiphenyl	92		48 - 120	11/19/18 09:16	12/04/18 00:28	1
2-Fluorophenol	66		35 - 120	11/19/18 09:16	12/04/18 00:28	1
Nitrobenzene-d5	90		46 - 120	11/19/18 09:16	12/04/18 00:28	1
Phenol-d5	48		22 - 120	11/19/18 09:16	12/04/18 00:28	1
p-Terphenyl-d14	92		59 - 136	11/19/18 09:16	12/04/18 00:28	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:54	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:54	1
Barium	0.15		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:54	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:54	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:54	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:54	1
Iron	3.0		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:54	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:54	1
Magnesium	40.8		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:54	1
Manganese	0.95	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:54	1
Nickel	0.0040	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:54	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:54	1
Sodium	4.4		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:24	1
Zinc	0.011	B	0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:45	1

Handwritten signature and date 12/13/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-32S

Lab Sample ID: 480-145376-7

Date Collected: 11/15/18 14:19

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 02:27	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 02:27	1
Acetone	ND		10	3.0	ug/L			11/21/18 02:27	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 02:27	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		77 - 120		11/21/18 02:27	1
Toluene-d8 (Surr)	97		80 - 120		11/21/18 02:27	1
4-Bromofluorobenzene (Surr)	106		73 - 120		11/21/18 02:27	1
Dibromofluoromethane (Surr)	102		75 - 123		11/21/18 02:27	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		11/19/18 09:16	12/04/18 00:57	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/04/18 00:57	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/04/18 00:57	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/04/18 00:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	62		41 - 120	11/19/18 09:16	12/04/18 00:57	1
2-Fluorobiphenyl	87		48 - 120	11/19/18 09:16	12/04/18 00:57	1
2-Fluorophenol	59		35 - 120	11/19/18 09:16	12/04/18 00:57	1
Nitrobenzene-d5	86		46 - 120	11/19/18 09:16	12/04/18 00:57	1
Phenol-d5	44		22 - 120	11/19/18 09:16	12/04/18 00:57	1
p-Terphenyl-d14	91		59 - 136	11/19/18 09:16	12/04/18 00:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:58	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:58	1
Barium	0.060		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:58	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:58	1
Chromium	0.0010	J	0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:58	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:58	1
Iron	ND		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:58	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:58	1
Magnesium	31.9		0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:58	1
Manganese	0.18	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:58	1
Nickel	0.0013	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:58	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/26/18 23:58	1
Sodium	5.9		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:27	1
Zinc	ND		0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:46	1

Handwritten signature and date: 12/1/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145376-1

Client Sample ID: GW-33S

Lab Sample ID: 480-145376-8

Date Collected: 11/15/18 15:04

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 02:54	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 02:54	1
Acetone	ND		10	3.0	ug/L			11/21/18 02:54	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 02:54	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		77 - 120		11/21/18 02:54	1
Toluene-d8 (Surr)	94		80 - 120		11/21/18 02:54	1
4-Bromofluorobenzene (Surr)	100		73 - 120		11/21/18 02:54	1
Dibromofluoromethane (Surr)	98		75 - 123		11/21/18 02:54	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		11/19/18 09:16	12/04/18 16:59	1
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/04/18 16:59	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/04/18 16:59	1
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/04/18 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	45		41 - 120	11/19/18 09:16	12/04/18 16:59	1
2-Fluorobiphenyl	65		48 - 120	11/19/18 09:16	12/04/18 16:59	1
2-Fluorophenol	49		35 - 120	11/19/18 09:16	12/04/18 16:59	1
Nitrobenzene-d5	65		46 - 120	11/19/18 09:16	12/04/18 16:59	1
Phenol-d5	39		22 - 120	11/19/18 09:16	12/04/18 16:59	1
p-Terphenyl-d14	82		59 - 136	11/19/18 09:16	12/04/18 16:59	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/27/18 00:02	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/27/18 00:02	1
Barium	0.059		0.0020	0.00070	mg/L		11/23/18 08:08	11/27/18 00:02	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/27/18 00:02	1
Chromium	0.0021	J	0.0040	0.0010	mg/L		11/23/18 08:08	11/27/18 00:02	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/27/18 00:02	1
Iron	0.075		0.050	0.019	mg/L		11/23/18 08:08	11/27/18 00:02	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/27/18 00:02	1
Magnesium	56.1		0.20	0.043	mg/L		11/23/18 08:08	11/27/18 00:02	1
Manganese	0.041	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/27/18 00:02	1
Nickel	0.0017	J	0.010	0.0013	mg/L		11/23/18 08:08	11/27/18 00:02	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/27/18 00:02	1
Sodium	3.1		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:31	1
Zinc	ND	0.0044 J-B	0.010	0.0015	mg/L		11/23/18 08:08	11/27/18 00:02	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/18 15:05	11/20/18 17:47	1

Handwritten signature and date:
12/3/18

TestAmerica Buffalo

Client Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: TB-111518

Lab Sample ID: 480-145376-9

Date Collected: 11/15/18 00:00

Matrix: Water

Date Received: 11/15/18 16:45

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			11/21/18 03:22	1
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 03:22	1
Acetone	ND		10	3.0	ug/L			11/21/18 03:22	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 03:22	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 03:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		77 - 120		11/21/18 03:22	1
Toluene-d8 (Surr)	96		80 - 120		11/21/18 03:22	1
4-Bromofluorobenzene (Surr)	104		73 - 120		11/21/18 03:22	1
Dibromofluoromethane (Surr)	102		75 - 123		11/21/18 03:22	1

TestAmerica Buffalo

APPENDIX B

SUPPORT DOCUMENTATION

TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 891-2800 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
Buffalo, NY



Client Information Client Contact: Ms. Ann Marie Kropovitch Company: AECOM Address: 257 West Genesee Street, Suite 400 City: Buffalo State: NY, Zip: 14202-2657 Phone: 716-123-1176 Email: ann.marie.kropovitch@aecom.com Project Name: Pfohl Brothers Landfill GW Monitoring Site: S50W#		Lab PM Dayo: Melissa L E-Mail: melissa.deyo@testamericainc.com Phone: 716-123-1176 Camer Tracking No(s): 480-121444-13 Page: 1 of 2 Job #: 480-145329 COC																																																																																																																																																													
Analysis Requested Due Date Requested: TAT Requested (days): 5 PO #: 60411174 Task11175616 00000 WO #: ann.marie.kropovitch@aecom.com Project #: 48002609 S50W#																																																																																																																																																															
Sample Identification <table border="1"> <thead> <tr> <th>Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=Grab)</th> <th>Matrix (V=Water, S=Solid, O=Other)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Performance MS/MSD (Yes or No)</th> <th>6270D - Semivolatile Compounds by GC/MS</th> <th>6280C - Volatile Organic Compounds (GC/MS)</th> <th>FFC 104 - FFA STAIN TEST (3)</th> <th>6270D - Sym-M, 1,4-Dioxins</th> <th>Preservation Codes:</th> <th>Special Instructions/Note:</th> </tr> </thead> <tbody> <tr> <td>GW-07D</td> <td>11/13/18</td> <td>1345</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td>A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA M - Hexane N - None O - Na2O2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)</td> <td>3</td> </tr> <tr> <td>GW-015</td> <td>11/13/18</td> <td>1128</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>5</td> </tr> <tr> <td>GW-01D</td> <td>11/13/18</td> <td>1300</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>5</td> </tr> <tr> <td>GW-07S</td> <td>11/13/18</td> <td>1350</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>3</td> </tr> <tr> <td>GW-08SR</td> <td>11/14/18</td> <td>0925</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>GW-08D</td> <td>11/14/18</td> <td>1020</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>FB-HH4-GW-08D-MS</td> <td>11/14/18</td> <td>1020</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>GW-08D-MSD</td> <td>11/14/18</td> <td>1020</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>FB-111418</td> <td>11/14/18</td> <td>1100</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>EB-111418</td> <td>11/14/18</td> <td>1105</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> <tr> <td>GW-35S</td> <td>11/14/18</td> <td>1240</td> <td>G</td> <td>Water</td> <td>X</td> <td>X</td> <td>1 2 3</td> <td>1 2 3</td> <td>2</td> <td>2</td> <td></td> <td>10</td> </tr> </tbody> </table>				Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (V=Water, S=Solid, O=Other)	Field Filtered Sample (Yes or No)	Performance MS/MSD (Yes or No)	6270D - Semivolatile Compounds by GC/MS	6280C - Volatile Organic Compounds (GC/MS)	FFC 104 - FFA STAIN TEST (3)	6270D - Sym-M, 1,4-Dioxins	Preservation Codes:	Special Instructions/Note:	GW-07D	11/13/18	1345	G	Water	X	X	1 2 3	1 2 3	2	2	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA M - Hexane N - None O - Na2O2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	3	GW-015	11/13/18	1128	G	Water	X	X	1 2 3	1 2 3	2	2		5	GW-01D	11/13/18	1300	G	Water	X	X	1 2 3	1 2 3	2	2		5	GW-07S	11/13/18	1350	G	Water	X	X	1 2 3	1 2 3	2	2		3	GW-08SR	11/14/18	0925	G	Water	X	X	1 2 3	1 2 3	2	2		10	GW-08D	11/14/18	1020	G	Water	X	X	1 2 3	1 2 3	2	2		10	FB-HH4-GW-08D-MS	11/14/18	1020	G	Water	X	X	1 2 3	1 2 3	2	2		10	GW-08D-MSD	11/14/18	1020	G	Water	X	X	1 2 3	1 2 3	2	2		10	FB-111418	11/14/18	1100	G	Water	X	X	1 2 3	1 2 3	2	2		10	EB-111418	11/14/18	1105	G	Water	X	X	1 2 3	1 2 3	2	2		10	GW-35S	11/14/18	1240	G	Water	X	X	1 2 3	1 2 3	2	2		10
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Possible Hazard Identification <input 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 Deliverable Requested: I, II, III, IV, Other (specify)																																																																																																																																																															
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																																																																																																																															
Special Instructions/OC Requirements:																																																																																																																																																															
Relinquished by: [Signature] Date: 11/14/18 Time: 1750 Company: AECOM Relinquished by: [Signature] Date: 11/14/18 Time: 1750 Company: AECOM Relinquished by: [Signature] Date: 11/14/18 Time: 1750 Company: AECOM																																																																																																																																																															
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No. 3.0.3.2.3.5.3.6.2.9 Cooler Temperature(s) °C and Other Remarks: #1																																																																																																																																																															

TestAmerica Buffalo

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Ms Ann Marie Kropovitch Company: AECOM Address: 257 West Genesee Street Suite 400 City: Buffalo State Zip: NY 14202-2657 Phone: 716-923-1776 Email: ann.marie.kropovitch@aecom.com Project Name: Ploft Brothers Landfill GW Monitoring Site: SSOW#		Lab PM: Devo, Melissa L E-Mail: melissa.devo@testamericainc.com COC No: 480-121444-13273.2 Page: Page 2 of 2 Job #:	
Due Date Requested: TAT Requested (days): STANDARD PO #: 60411174 Task11175816.00000 WO #: ann.marie.kropovitch@aecom.com Project #: 48002609 SSOW#		Analysis Requested 8270D - Semivolatile Compounds by GC/MS 8260C - Volatile Organic Compounds (VOCs) by GC/MS 6010C, 7470A Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Field Filtrate Sample (Yes or No) <input checked="" type="checkbox"/> D N A 1 2 3 2 2 1 2 3 2 2 1 2 1 2 1 2 3 1 2 3 1 2 2	
Sample Identification GW-26D FD-111418 GW-07D GW-07S GW-04S GW-04D GW-04S TG-1112+1114		Total Number of Containers X 10 GW-26D 3 3 3 6 3 2 TRIP BLANK	
Possible Hazard Identification <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 Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Method of Shipment: FEDEX Date/Time: 11/14/18 1758 Date/Time: 11/14/18 1758 Date/Time: 11/14/18 1758	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.		Cooler Temperature(s) °C and Other Remarks	

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Job ID: 480-145329-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-145329-1

Receipt

The samples were received on 11/14/2018 5:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.9° C, 3.0° C, 3.2° C, 3.5° C and 3.6° C.

Receipt Exceptions

Samples GW-07D, GW-07S and GW-04S were listed on the Chain of Custody (COC) twice; however, the samples were only logged in once. The collection time was taken from the sample that was collected later.

GC/MS VOA

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

GC/MS Semi VOA

Method(s) 8270D SIM ID: The laboratory control sample (LCS) for preparation batch 480-447793 and analytical batch 480-449683 recovered outside control limits for the following analytes: 1,4-dioxane. The associated sample(s) was re-prepared outside of holding time. Both sets of data have been reported. The following samples are impacted: GW-08SR (480-145329-5), GW-08D (480-145329-6), EB-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-11).

Method(s) 8270D SIM ID: The method blank 480-446346 associated with samples GW-08SR (480-145329-5), GW-08D (480-145329-6), EB-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-11) contains 1,4-dioxane greater than the reporting limit (RL) due to contamination from a high level sample. The associated samples were re-prepared outside of holding time in batch 480-447793. The blank in the reprep batch also contains 1,4-Dioxane above the RL. Both sets of data have been reported and have similar results.

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

Metals

Method(s) 6010C: The method blank for preparation batch 480-450226 and analytical batch 480-450847 contained Total Iron above the reporting limit (RL). Associated sample(s) GW-07D (480-145329-1), GW-01S (480-145329-2), GW-08SR (480-145329-5), GW-08D (480-145329-6), GW-35S (480-145329-9), GW-26D (480-145329-10), FD-111418 (480-145329-11) and GW-04S (480-145329-12) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

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

LCMS

Method(s) 537 (modified): M2-6:2 FTS and/or M2-8:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: GW-08SR (480-145329-5) and GW-26D (480-145329-10). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery of 13C4 PFOS and/or 8:2 FTS and/or 13C2 PFDA and/or 13C2 PFUnA and/or 13C2 PFDoA and/or 13C8 FOSA and/or 13C5-PFPeA DNU and/or 13C2 PFTeDA and/or d3-NMeFOSAA and/or 13C4 PFBA associated with the following sample is below the method recommended limit: GW-08SR (480-145329-5). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): The method blank for preparation batch 200-137484 and analytical batch 200-137534 contained Perfluorooctanoic acid (PFOA) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

Organic Prep

Method(s) 3510C: The following samples were re-prepared outside of preparation holding time due to the method blank (MB) and

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Job ID: 480-145329-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

laboratory control sample (LCS) being contaminated: GW-08SR (480-145329-5), GW-08D (480-145329-6), GW-08D (480-145329-6[MS]), GW-08D (480-145329-6[MSD]), EB-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-11).

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

QC Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

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

Lab Sample ID: LCS 480-446368/2-A
Matrix: Water
Analysis Batch: 448732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446368

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
p-Terphenyl-d14	88		59 - 136

Lab Sample ID: 480-145329-6 MS
Matrix: Water
Analysis Batch: 448732

Client Sample ID: GW-08D
Prep Type: Total/NA
Prep Batch: 446368

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,3-Dichlorobenzene	ND		32.0	27.3		ug/L		85	51 - 120
1,4-Dichlorobenzene	ND		32.0	27.6		ug/L		86	32 - 150
Bis(2-ethylhexyl) phthalate	ND		32.0	37.6		ug/L		118	16 - 150
Phenol	ND		32.0	21.1		ug/L		66	16 - 120

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
2,4,6-Tribromophenol	97		41 - 120
2-Fluorobiphenyl	91		48 - 120
2-Fluorophenol	65		35 - 120
Nitrobenzene-d5	87		46 - 120
Phenol-d5	50		22 - 120
p-Terphenyl-d14	86		59 - 136

Lab Sample ID: 480-145329-6 MSD
Matrix: Water
Analysis Batch: 448732

Client Sample ID: GW-08D
Prep Type: Total/NA
Prep Batch: 446368

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,3-Dichlorobenzene	ND		33.3	28.1		ug/L		84	51 - 120	3	37
1,4-Dichlorobenzene	ND		33.3	28.7		ug/L		86	32 - 150	4	36
Bis(2-ethylhexyl) phthalate	ND		33.3	40.5		ug/L		122	16 - 150	7	15
Phenol	ND		33.3	22.7		ug/L		68	16 - 120	7	34

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
2,4,6-Tribromophenol	97		41 - 120
2-Fluorobiphenyl	89		48 - 120
2-Fluorophenol	66		35 - 120
Nitrobenzene-d5	89		46 - 120
Phenol-d5	51		22 - 120
p-Terphenyl-d14	87		59 - 136

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-446346/1-A
Matrix: Water
Analysis Batch: 446723

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.75	E	0.20	0.10	ug/L		11/19/18 08:22	11/23/18 23:30	1

TestAmerica Buffalo

QC Sample Results

Client: AECOM

TestAmerica Job ID: 480-145329-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

MB MB

Isotope Dilution	%Recovery	Qualifier	Limits
1,4-Dioxane-d8	27		15 - 110

Prepared	Analyzed	Dil Fac
11/19/18 08:22	11/23/18 23:30	1

Lab Sample ID: LCS 480-446346/2-A

Matrix: Water

Analysis Batch: 446723

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 446346

%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	1.00	5.87	E *	ug/L		587	40 - 140

Isotope Dilution	%Recovery	Qualifier	Limits
1,4-Dioxane-d8	29		15 - 110

Lab Sample ID: 480-145329-6 MS

Matrix: Water

Analysis Batch: 446723

Client Sample ID: GW-08D

Prep Type: Total/NA

Prep Batch: 446346

%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	8.9	E B *	1.00	10.0	E 4	ug/L		112	40 - 140

Isotope Dilution	%Recovery	Qualifier	Limits
1,4-Dioxane-d8	24		15 - 110

Lab Sample ID: 480-145329-6 MSD

Matrix: Water

Analysis Batch: 446723

Client Sample ID: GW-08D

Prep Type: Total/NA

Prep Batch: 446346

%Rec.

RPD

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	8.9	E B *	1.03	9.72	E 4	ug/L		79	40 - 140	3	20

Isotope Dilution	%Recovery	Qualifier	Limits
1,4-Dioxane-d8	26		15 - 110

Lab Sample ID: MB 480-447793/1-A

Matrix: Water

Analysis Batch: 449683

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 447793

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.277		0.20	0.10	ug/L		11/28/18 08:05	12/08/18 07:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110	11/28/18 08:05	12/08/18 07:55	1

Lab Sample ID: LCS 480-447793/2-A

Matrix: Water

Analysis Batch: 449683

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 447793

%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	1.00	1.44	E *	ug/L		144	40 - 140

Isotope Dilution	%Recovery	Qualifier	Limits
1,4-Dioxane-d8	29		15 - 110

TestAmerica Buffalo

QC Sample Results

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145329-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution) (Continued)

Lab Sample ID: 480-145329-6 MS

Matrix: Water

Analysis Batch: 449683

Client Sample ID: GW-08D

Prep Type: Total/NA

Prep Batch: 447793

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	0.29	H B *	0.962	1.36	H E	ug/L		111	40 - 140
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
1,4-Dioxane-d8	28		15 - 110						

Lab Sample ID: 480-145329-6 MSD

Matrix: Water

Analysis Batch: 449683

Client Sample ID: GW-08D

Prep Type: Total/NA

Prep Batch: 447793

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	0.29	H B *	0.962	1.44	H E	ug/L		120	40 - 140	6	20
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
1,4-Dioxane-d8	23		15 - 110								

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-137484/1-A

Matrix: Water

Analysis Batch: 137534

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 137484

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.75	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.24	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorooctanoic acid (PFOA)	0.431	J	2.0	0.32	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		11/28/18 11:34	11/30/18 06:35	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		11/28/18 11:34	11/30/18 06:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 11:34	11/30/18 06:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 11:34	11/30/18 06:35	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		11/28/18 11:34	11/30/18 06:35	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		11/28/18 11:34	11/30/18 06:35	1

TestAmerica Buffalo

Chain of Custody Record

Client Information Client Contact: Ms. Ann Marie Kropovitch Company: AECOM Address: 257 West Genesee Street Suite 400 City: Buffalo State, Zip: NY, 14202-2657 Phone: 716-923-1176 Email: ann.marie.kropovitch@aecom.com Project Name: Pfohl Brothers Landfill GW Monitoring Site: SSOWa		Lab PW: Deyo, Melissa L E Mail: melissa.deyo@testamericainc.com Phone: 716-923-1176 Fax: 716-923-1176		COC No: 480-121444-13273.3 Page: 3 of 3 Job #: 1061	
Analysis Requested Due Date Requested: TAT Requested (days): STANDARD PO #: 604111174 Task 11175616 00000 WO #: ann.marie.kropovitch@aecom.com Project #: 48002609 SSOWa		Preservation Codes: A - HCL B - NaOH C - Zn Ac D - NaOH E - NaOH F - MeOH G - Amch H - Ascor I - Ice J - Di Wa K - EDTA L - EDA Other: hydriate 480-145376 COC			
Sample Identification Sample ID: GW-345 GW-03A GW-285 GW-295 GW-305 GW-315 GW-325 GW-335 TB-111518		Sample Date: 11/15/18 11/15/18 11/15/18 11/15/18 11/15/18 11/15/18 11/15/18 11/15/18		Sample Time: 0820 0930 1035 1142 1230 1327 1419 1504	
Sample Type (C=comp, G=grab): G G G G G G G G		Matrix (Inorganic, Organic, Semi-solid, Other): Water Water W W W W W W		Field Filtered Sample (Yes or No): D N A 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
Total Number of Containers: 6 6 6 6 6 6 6 6		Special Instructions/Note: 2-TEP canke			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements					
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date: 11/15/18 11/15/18 11/15/18		Method of Shipment: DLT of 05	
Company: AECOM Date/Time: 11/15/18 1645 Date/Time: 11/15/18 1645 Date/Time: 11/15/18 1645		Company: AECOM Company: AECOM Company: AECOM		Cooler Temperature(s) °C and Other Remarks: 23.6	
Custody Seal No.: A Yes A No		Ver: 08/04/2016			

Case Narrative

Client: AECOM
Project/Site: Pfohl Brothers Landfill GW Monitoring

TestAmerica Job ID: 480-145376-1

Job ID: 480-145376-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-145376-1

Receipt

The samples were received on 11/15/2018 4:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° 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 (480-145376-5). 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

Method(s) 6010C, 6010D: The low level continuing calibration verification (CCVL 480-447645/21) recovered above the upper control limit for Total Sodium. The sample associated with this CCVL were either less than the reporting limit (RL) for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples GW-28S (480-145376-3) was 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.

QC Sample Results

Client: AECOM

TestAmerica Job ID: 480-145376-1

Project/Site: Pfohl Brothers Landfill GW Monitoring

Lab Sample ID: LCS 480-446368/2-A

Matrix: Water

Analysis Batch: 448732

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 446368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,3-Dichlorobenzene	32.0	26.0		ug/L		81	50 - 120
1,4-Dichlorobenzene	32.0	26.7		ug/L		83	51 - 120
Bis(2-ethylhexyl) phthalate	32.0	37.4		ug/L		117	63 - 139
Phenol	32.0	20.8		ug/L		65	17 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	90		41 - 120
2-Fluorobiphenyl	86		48 - 120
2-Fluorophenol	63		35 - 120
Nitrobenzene-d5	85		46 - 120
Phenol-d5	49		22 - 120
p-Terphenyl-d14	88		59 - 136

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-446790/1-A

Matrix: Water

Analysis Batch: 448106

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 446790

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/29/18 10:09	1
Arsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/29/18 10:09	1
Barium	ND		0.0020	0.00070	mg/L		11/23/18 08:08	11/29/18 10:09	1
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/29/18 10:09	1
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/29/18 10:09	1
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/29/18 10:09	1
Iron	ND		0.050	0.019	mg/L		11/23/18 08:08	11/29/18 10:09	1
Lead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/29/18 10:09	1
Magnesium	ND		0.20	0.043	mg/L		11/23/18 08:08	11/29/18 10:09	1
Manganese	0.000480	J	0.0030	0.00040	mg/L		11/23/18 08:08	11/29/18 10:09	1
Nickel	ND		0.010	0.0013	mg/L		11/23/18 08:08	11/29/18 10:09	1
Silver	ND		0.0030	0.0017	mg/L		11/23/18 08:08	11/29/18 10:09	1
Sodium	ND		1.0	0.32	mg/L		11/23/18 08:08	11/29/18 10:09	1
Zinc	0.00159	J	0.010	0.0015	mg/L		11/23/18 08:08	11/29/18 10:09	1

Lab Sample ID: LCS 480-446790/2-A

Matrix: Water

Analysis Batch: 448106

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 446790

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.200	0.195		mg/L		97	80 - 120
Arsenic	0.200	0.200		mg/L		100	80 - 120
Barium	0.200	0.190		mg/L		95	80 - 120
Cadmium	0.200	0.203		mg/L		101	80 - 120
Chromium	0.200	0.201		mg/L		101	80 - 120
Copper	0.200	0.189		mg/L		94	80 - 120
Iron	10.0	10.01		mg/L		100	80 - 120
Lead	0.200	0.197		mg/L		99	80 - 120
Magnesium	10.0	9.83		mg/L		98	80 - 120
Manganese	0.200	0.200		mg/L		100	80 - 120

TestAmerica Buffalo

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 Details		Box 1	
Site No.	915043		
Site Name Pfohl Brothers Landfill			
Site Address: Aero Drive and Transit Road		Zip Code: 14225	
City/Town: Cheektowaga			
County: Erie			
Site Acreage: 94.000			
Reporting Period: February 12, 2018 to February 12, 2019			
		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.			
_____ Signature of Owner, Remedial Party or Designated Representative		_____ Date	

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

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82.03-4-10

Elizabeth L. McBride

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.

82.03-4-11

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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- A. Entire Site: i) Groundwater use prohibition, ii) Surface water use prohibition.
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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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- 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.

82.03-4-8

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.

82.03-4-9.11

Aero Land, Inc. c/o Jerome Hirsh

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:

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- 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.

82.03-4-9.12

Stuart Jenkins

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.

82.03-4-9.2

Aero Land, Inc. c/o Jerome Hirsh

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:

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- C. Cleared Portion within the Perimeter Barrier System: i) Only Commercial/Industrial Development is allowed. Construction restrictions.

Box 4

Description of Engineering Controls

<u>Parcel</u>	<u>Engineering Control</u>
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
Signature of ~~Owner, Remedial Party~~, or Designated Representative
Rendering Certification Site O & M Provider/Manager

2/19/19
Date

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
print name 275 Alexander Ave., Cheektowaga, NY 14211
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

2/19/19

Date