

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

Robert & 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 <u>Recommendations</u>

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

2.0 SITE OVERVIEW

2.1 <u>Site Description</u>

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 (μ g/L), slightly exceeding its standard of 3.0 μ g/L and bis(2-ethylhexyl)phthalate was detected in well GW-07D at an estimated concentration of 5.4 μ g/L, slightly exceeding its standard of 5.0 μ 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 <u>Surface Water/Sediment Sampling</u>

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 <u>Effluent Monitoring</u>

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 <u>Hydraulic Monitoring</u>

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 <u>Wetlands Monitoring</u>

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 <u>Institutional Controls</u>

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.

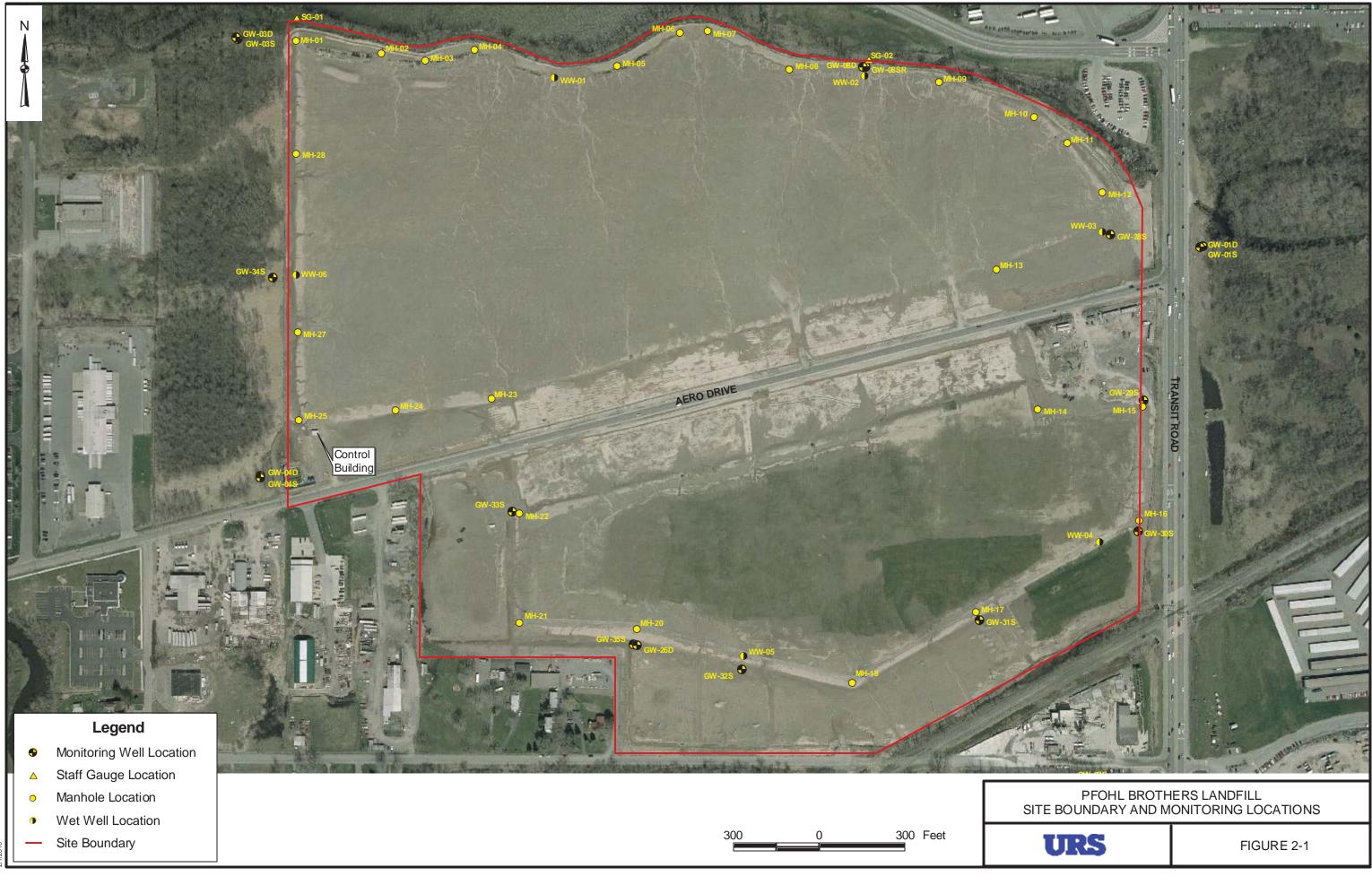
5.0 OPERATION & MAINTENANCE AND MONITORING PLAN COMPLIANCE

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

Robert & Murphy

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

Prepared by:

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> FEBRUARY 2019

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Table 3-2	Approved Revision of Table 3.2 from the O&M Plan

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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

Location ID	GW-01D	GW-01S	GW-03D	GW-03D	GW-03S		
Sample ID	GW-01D	GW-01S Groundwater	FD-051618	GW-03D	GW-03S Groundwater		
Matrix	Groundwater		Groundwater	Groundwater			
Depth Interval (f	t)		-	-	-	-	-
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		1.3
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		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.

C

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 (f	t)		-			-	-
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.

C

Location ID	GW-07S	GW-07S	GW-08D	GW-08SR	GW-26D		
Sample ID	GW-07S	GW-07S Groundwater	GW-08D	GW-08SR	GW-26D		
Matrix	Groundwater		Groundwater	Groundwater	Groundwater		
Depth Interval (f	t)		-	-	-	-	-
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		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.

C

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 Groundwater		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater			
Depth Interval (f	t)		-	-	-	-	-
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		9.9	4.6		
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.

C

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.

C

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- 31S GW- 32S GW- 33S GW- 34S

FREQUENCY

semi-annually for overburden and bedrock groundwater

PARAMETERS

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

bis(2-Ethylhexyl)phthalate

TABLE 3-2 (continued)

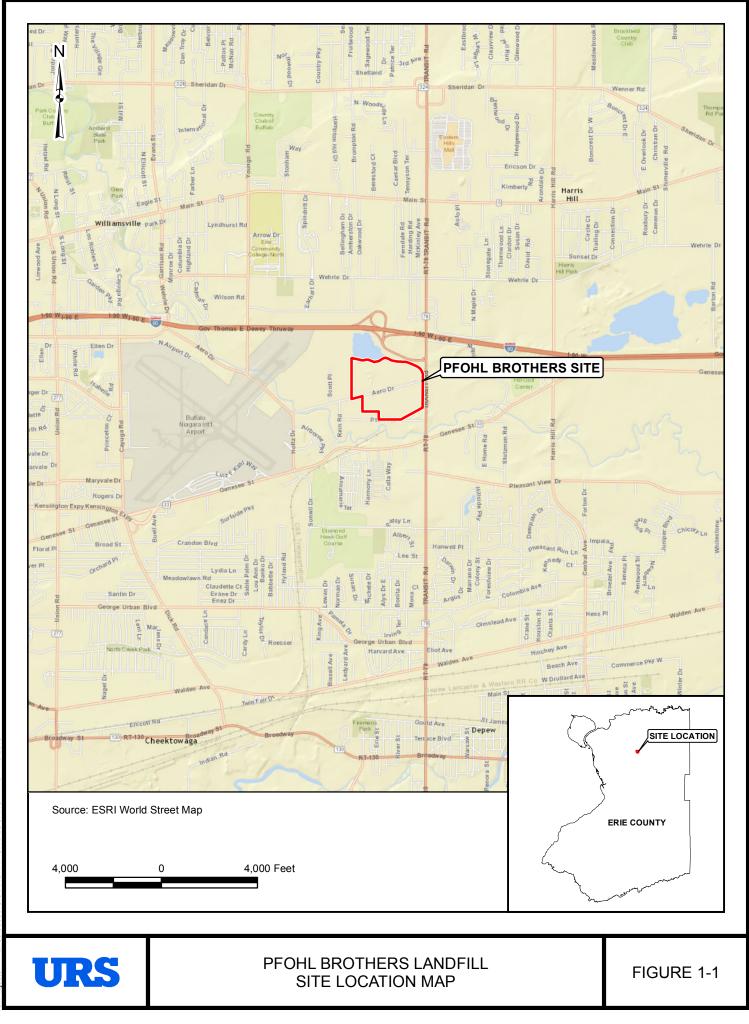
APPROVED REVISION OF TABLE 3.2 FROM THE O&M PLAN

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

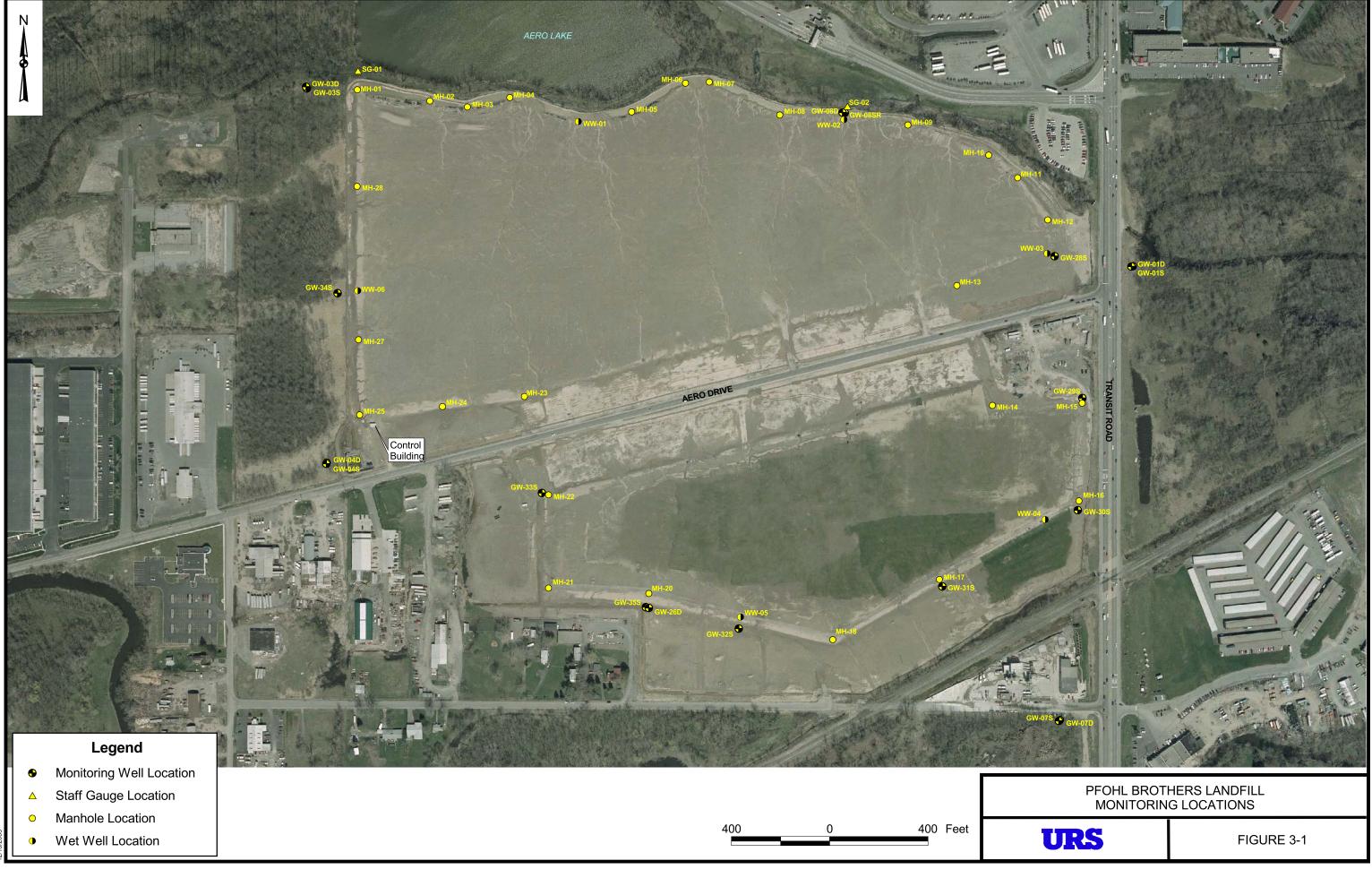
PARAMETERS (cont'd)

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

FIGURES



I:NProjects\11172700.00000\GIS\ARCMAP\SITE LOCATION.mxd_4/13/2015



APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

J:\Projects\11172700.00000\WORD\DRAFT\Semi Annual Report Jan-Jun18\Semi Annual Report Jan-Jun18.docx

Da <u>te</u> Time	2/3/18	• .	Town of Cheektowa Weather conditions Read by:	Cloby
··	Level of Water	 Flow	Flow Totals	Pump Run Time
•	from bottom (ft.)	gallons / minute	gallons	Hrs.
WW-3	<u> </u>	0	//38	2792
WW-2	4.7	0	- 4/0/3	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		30.2	2934170	19954
Flow Tota	lizer at Meter chambe	r .	101011427	
	pressor events trol Center	417025		
	- 	volts _amps	Which WW was running	?
Motor Con	trol Center 480	volts	-	?
Motor Con Filter	trol Center <u>Volts 480</u> Amps 10	_volts _amps Changed	-	?
Motor Con Filter	trol Center <u>Volts 480</u> Amps 10 Checked	_volts _amps Changed	-	?
Motor Con Filter	trol Center <u>Volts 480</u> Amps 6 Checked and/or Current Condition	volts _amps Changed	-	?
Motor Con Filter	trol Center <u>Volts 480</u> Amps 6 Checked and/or Current Condition	volts _amps Changed	-	?

• •

Date	gsheet <u>3/24/18</u>		Town of Cheektowa	Bant		
Time	1028		Read by:			
· · · · · · · · · · · · · · · · · · ·	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.		
/W-3	<u> </u>	<u> </u>	///38	2792		
NW-2	4.7		-4/0/3	162		
/W-1	4,0	and a start of the	11/2/08	<u></u>		
NW-6			3926933			
WW-4		25°. 0	-//670	7751		
NW-5		14.5	1 4041970	06_/_4		
Flow Tota	alizer at Meter chambe	r .	9224077			
Surge Su	opressor events	417059				
Motor Cor	ntrol Center <u>Volts</u> Amps	volts amps	Which WW was running $(1)^2 3/4/6)^6$?		
	Volts 480			?		
Filter	Volts 480 Amps	amps Changed	(1)23(4)5(6)	?		
Filter	Volts 4770 Amps Checked s and/or Current Conditio	amps Changed	(1)23(4)5(6)	5		
Filter	Volts 4 80 Amps 2 Checked	amps Changed ns	()23(4,56) N //4/10 -	5		
Filter	Volts 4 80 Amps 2 Checked	amps Changed ns	()23(4,56) N //4/10 -	5		

Daily Lo			S Landfill Site Town of Cheektowaga					
Date	5/2/18	<i>10</i> ~7)	Weather conditions	Alean				
Time	-1105	5	Read by:	-724				
-	Level of Water from bottom (ft.)	Flow gallons / minute	Flow ⊺otals gallons	Pump Run Time Hrs.				
WW-3	Greek J	0	1138	2792				
WW-2	4.7	0	-4/0/3	16 2000				
WW-1	4.5	0	1787884	6587				
WW-6	- Para	105.1	4587428	15888				
WW-4	6.9	0	-116620	7751				
WW-5	4.9	0	4796170	20929				
Flow Tota	alizer at Meter chambe	r .	11249788					
Surge Suj	Outside temp T = // Current A =	41712-3	<u>Set point SP = 40</u>					
	Current A = oppressor events ntrol Center Volts	volts		?				
	Current A = oppressor events ntrol Center			?				
Motor Cor Filter	Current A = oppressor events ntrol Center Volts Amps	volts amps Changed		?				
Motor Cor Filter	Current A = opressor events ntrol Center Volts Amps Checked s and/or Current Condition	volts amps Changed		?				
Motor Cor Filter	Current A = opressor events ntrol Center Volts Amps Checked s and/or Current Condition	volts amps Changed		?				
Motor Cor Filter	Current A = opressor events ntrol Center Volts Amps Checked s and/or Current Condition	volts amps Changed		?				
Motor Cor Filter	Current A = opressor events ntrol Center Volts Amps Checked s and/or Current Condition	volts amps Changed		?				

APPENDIX B

MONTHLY FLOW SUMMARIES JANUARY 2018 – JUNE 2018

Pat Bowen

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

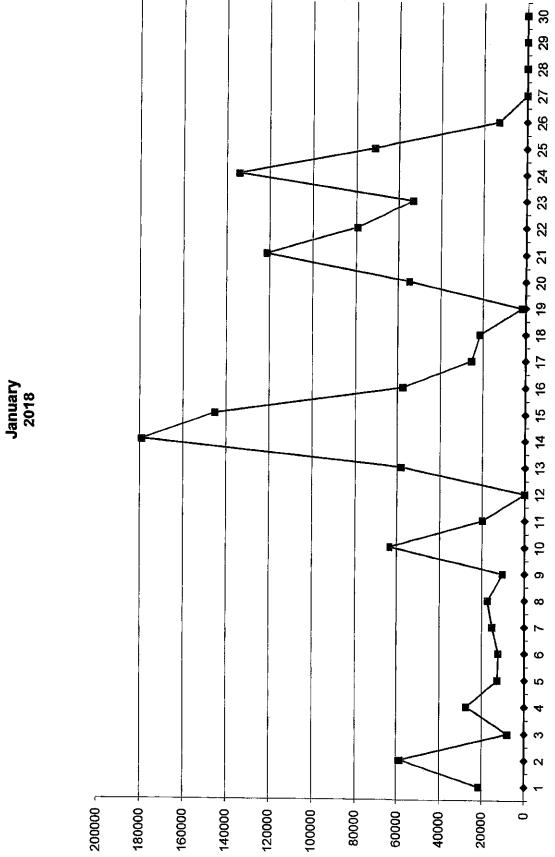
Jon W Nichy Superintendent Town of Cheektowaga Main Pump Station 171 Central Blvd. Cheektowaga, NY 14225

716 583-6508 cell 716 896-1777 office

jnichy@tocny.org

Direct Discharge Flow Data

12/31/20	Time;	5327820	57,387	
Jan-18	11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	
11		5,349,143	21,322	
2		5,407,875		
3		5,415,635		
4		5,442,870		
5		5,455,558	12,688	
6		<u> </u>	12,255	
7		5,482,919	15,106	
8		5,500,169	17,250	
9	_	5,510,430		
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	



The TOWN OF CHEEKTOWAGA



Jon W. Nichy Superintendent Joseph Glab Asst. Superintendent

March 10, 2018

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

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

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

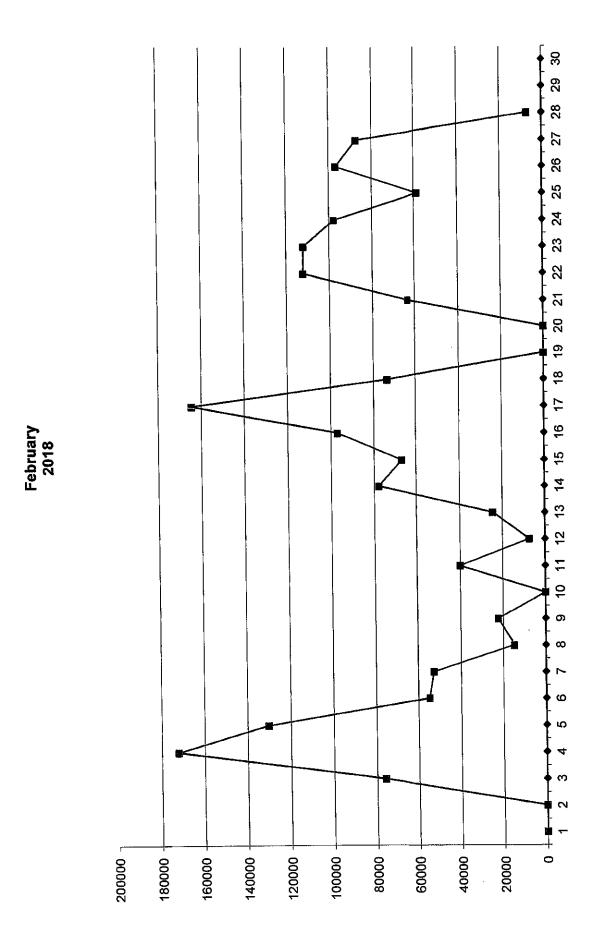
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly Jon W. Nick

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

Direct Discharge Flow Data

1/31/20		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	c	
21		7,749,361	63,772	. 09:48 enable
22		7,861,640	112,279)
23		7,973,687	112,047	7
24		8,071,518	97,831	21:24 inhibit
25		8,130,481	58,962	2 10:48 enable
26		8,227,208	96,727	7
27		8,314,504	87,296	δ
28		8,321,521	7,017	7
29				· ·
30				
31			<u></u>	
		1,711,125	5 1,711,11	9



The TOWN OF CHEEKTOWAGA



Jon W. Nichy Superintendent Joseph Glab Asst. Superintendent

April 14, 2018

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

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

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

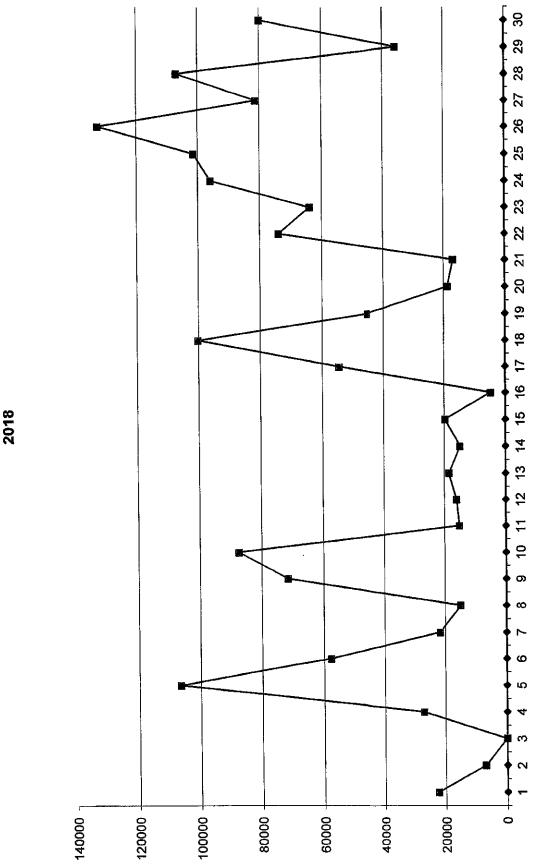
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly. Ron W. Nichy

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

Direct Discharge Flow Data

2/28/20	9	8321521	7,017	
Mar-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Galions)	
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	
1 1		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		15:30 inhibit
30		9,834,097	79,977	
31		9,930,793	96696	
		1,609,272	1	



March 2018

.

May 3, 2018

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

Re: Pfohl Bros. Flow Data

Dear Mr. Bowen,

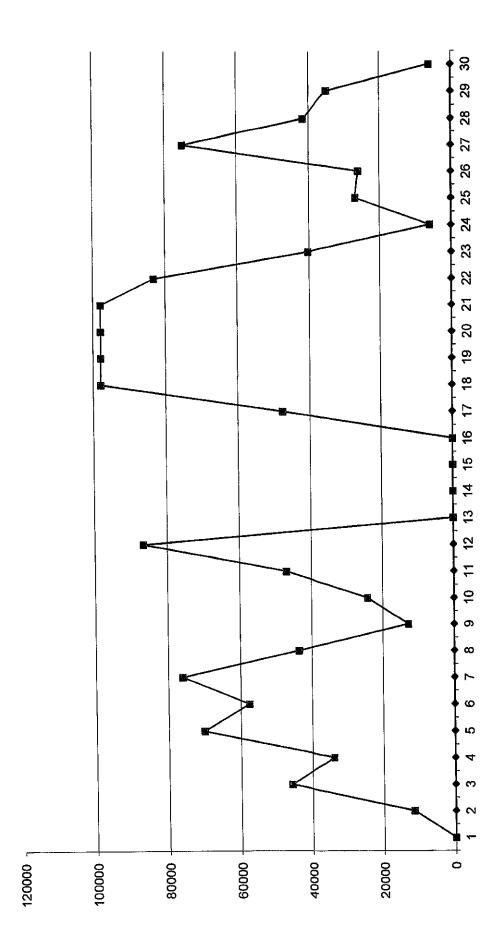
Enclosed for your review, please find a copy of the April 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

Yours truly, ha h thi Jon W. Nichy Superintendent Main Pump Station

Direct Discharge Flow Data

3/31/20		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		
5		10,092,288		
6		10,149,888		
7		10,225,982	76,094	
8		10,269,734	43,752	
9		10,282,473		
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	1
25		11,035,890	26,891	
26		11,061,868	3 25,978	3
27		11,136,943	3 75,075	5
28		11,178,570	41,627	7
29		11,213,44	8 34,878	3
30		11,219,46	9 6,02	1
31				
		1,288,67	6 1,288,67	6





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.

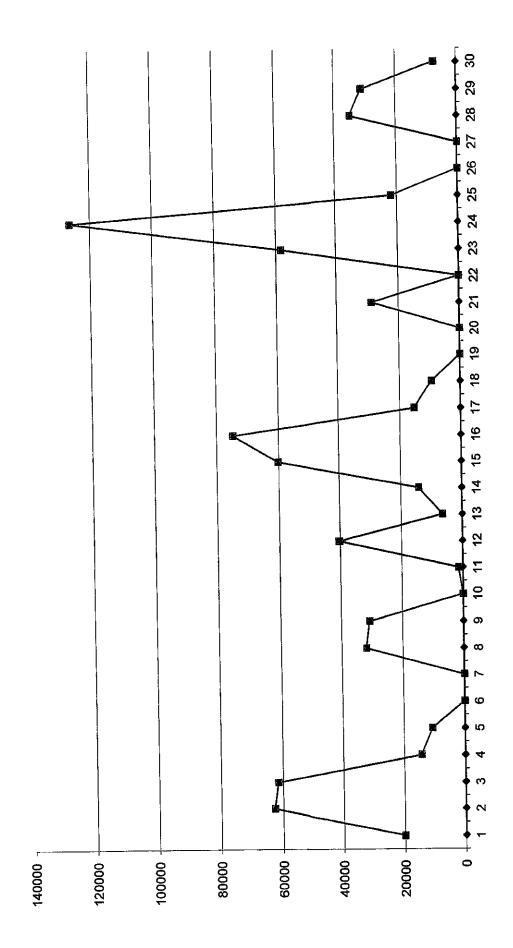
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yourș/truly, 4 hr

Jon W. Nichy Superintendent Main Pump Station

Direct Discharge Flow Data

4/30/20		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	(<u> </u>
27		11,910,152	(D
28		11,945,106	34,954	4
29		11,976,246	31,140	0
30		11,983,672	2 7,420	6
31		12,001,894	1822	2
k in the second s		782,425	5 782,42	5





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.

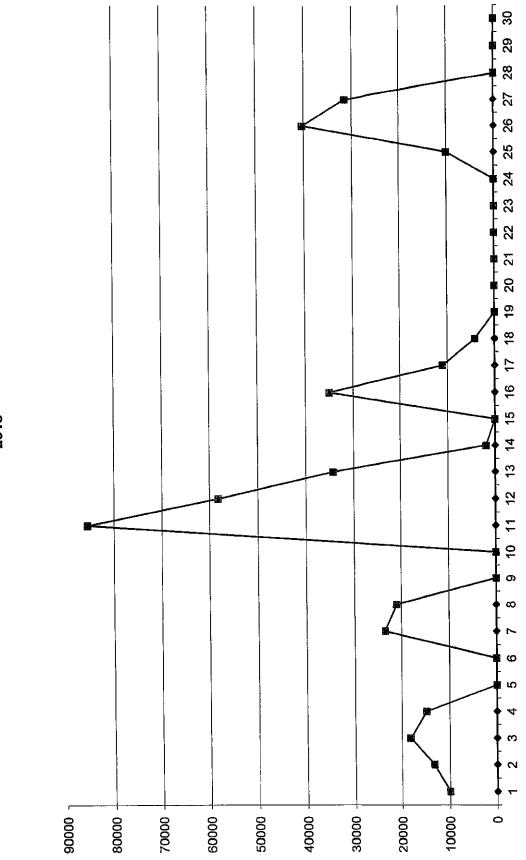
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly fon W. Nichy

Superintendent Main Pump Station

Direct Discharge Flow Data

5/31/20		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	<u> </u>
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	(
29		12,414,546	(
30		12,414,546	()
31				
		412,652	412,652	2



June 2018

APPENDIX C

HYDRAULIC MONITORING TABLES

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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						İ	l	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

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						İ	İ	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.

Page 2 of 7

Туре: МН

MNW

SG

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						İ	l	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.

Page 3 of 7

Type: MH

MNW

SG

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	1							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	1							3/26/2018 1342	11.28	688.12	0.00	688.12	
MH	1						1	5/16/2018 0840	11.23	688.17	0.00	688.17	
MH	1							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	1							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	1							3/26/2018 1352	14.43	688.58	0.00	688.58	
MH	1							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.



MNW

SG

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						
N	н							3/26/2018 1412	14.50	684.07	0.00	684.07	
N	Н							5/16/2018 0912	14.50	684.07	0.00	684.07	
N	H							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						
N	н							3/26/2018 1415	18.10	684.06	0.00	684.06	
N	н							5/16/2018 0917	18.12	684.04	0.00	684.04	
N	IH							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						
N	н							3/26/2018 1422	19.75	686.45	0.00	686.45	
N	н							5/16/2018 0924	19.75	686.45	0.00	686.45	
N	н							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						
N	н							3/26/2018 1426	9.07	688.98	0.00	688.98	
N	н							5/16/2018 0927	9.10	688.95	0.00	688.95	
N	н							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						
N	н							3/26/2018 1321	10.75	687.42	0.00	687.42	
N	н							5/16/2018 0826	10.19	687.98	0.00	687.98	
N	IH						1	6/12/2018 0841	10.90	687.27	0.00	687.27	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
s	G					l		3/26/2018 1331	-0.77	690.77	0.00	690.77	
S	G							5/16/2018 0837	-0.80	690.80	0.00	690.80	
S	G						1	6/12/2018 0850	DRY		NM		DRY

NM - No Measurement

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

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

Type: MH MNW

SG

Location 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						
	ΜΗ								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						
	мн								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						
	ΜΗ								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						
	ΜΗ								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						
	ΜΗ								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.



SG

Locatio Typ		Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)		Specific Gravity		Depth to Water (ft)	Water Elev. (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		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			(4.)	(ft areal)	(ft.omol)	(ft)		
3/26/2018	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(11)		
3/20/2018	(ft amsl) 686.45	(ft amsl) 694.30	(ft) 7.85	(it amsi) 688.98	(it amsi) 694.34	5.36		
5/16/2018	1	· · · /	<u> </u>		· · · /			

Notes:

* = No corresponding monitoring well.

NA = Not applicable

APPENDIX D

GROUNDWATER PURGE AND SAMPLE COLLECTION LOGS

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-01S	
Date:	5/16/2018	Sampling I	Personnel:	Sean Connelly, Kevin McGovern		_ Company: _	URS Corporation		
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	Depth to Well Bottom:	14.94'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainles	s Steel		Volume in 1 Well Casing (liters):	6.7	-	Estimated Purge Volume (liters):	11.3	
Sample ID: Sample		<u>GW-01S</u> VOCs, SVOCs, a	Ind TAL Meta	Sample Time:	14	:20	QA/QC:		
Othe	er Information:	Riser pipe is bulo	ed inwards.	could not remov	e stainless s	teel bailer fror	n within well, sar	npled around it.	

PURGE PARAMETERS

TIME	рН	TEMP (⁰C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:25	8.56	13.24	1.07	5.41	895	-154	225	4.65
13:30	8.00	11.12	1.05	1.73	736	-150	225	5.16
13:35	8.32	10.58	1.09	0.89	364	-148	200	5.33
13:40	8.31	10.66	1.12	0.77	337	-148	200	5.35
13:45	8.29	10.78	1.16	0.71	352	-148	200	5.37
13:50	8.29	10.00	1.17	0.60	271	-147	200	5.38
13:55	8.26	10.59	1.19	0.61	197	-145	200	5.39
14:00	8.24	10.62	1.21	0.58	144	-144	200	5.40
14:05	8.22	10.60	1.23	0.56	98.2	-142	200	5.42
14:10	8.21	10.64	1.24	0.53	108	-141	200	5.41
14:15	8.26	10.77	1.25	0.52	80.5	-140	200	5.41
14:20	8.20	10.71	1.20	0.51	43.0	-140	200	5.41
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. (vol_{evi} = π ²h)

Project:	60411174			Site:	Pfohl E	Brothers	Well I.D.:	GW-01D
Date:	5/16/2018	Sampling	Personnel:	Sean Conn	elly, Kevin I	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:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	90.4	-	Estimated Purge Volume (liters):	42.0
Sample ID:	Parameters	GW-01D VOCs, SVOCs, a	and TAL Met	Sample Time:	13	3:00	QA/QC:	MS/MSD
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:00	8.61	10.00	1.26	2.18	0.0	-146	700	3.10
12:05	8.47	10.02	1.26	1.23	0.0	-144	700	3.10
12:10	8.46	10.33	1.26	0.97	0.0	-145	700	3.10
12:15	8.42	10.38	1.26	0.84	0.0	-149	700	3.10
12:20	8.40	10.36	1.26	0.81	0.0	-157	700	3.10
12:25	8.38	10.28	1.26	0.76	0.0	-165	700	3.10
12:30	8.36	10.26	1.29	0.72	0.0	-173	700	3.10
12:35	8.36	10.29	1.29	0.70	0.0	-179	700	3.10
12:40	8.35	10.18	1.30	0.66	0.0	-182	700	3.10
12:45	8.35	10.23	1.29	0.60	0.0	-191	700	3.10
12:50	8.34	10.17	1.30	0.64	0.0	-193	700	3.10
12:55	8.35	10.23	1.29	0.60	0.0	-197	700	3.10
13:00	8.39	10.25	1.31	0.60	0.0	-198	700	3.10
Tolerance:	0.1		3%	10%	10%	+ or - 10		

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

Project:		60411174		Site:	Pfohl	Brothers	Well I.D.:	GW-03S
Date:	5/16/2018	Sampling	Personnel:	Sean Conr	elly, Kevin	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		_Tubing Type:	LDPE/	/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.37'	Depth to Well Bottom:	13.22'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	6.7	_	Estimated Purge Volume (liters):	6.0
	Parameters:			Sample Time:	7	:12	QA/QC:	
Othe	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:00	8.50	15.56	2.03	5.40	57.8	26	200	3.91
16:05	8.07	11.44	2.10	1.65	5.6	32	200	4.84
16:10	8.05	10.80	2.01	1.49	0.0	40	200	5.89
16:15	8.04	10.82	2.01	1.49	0.0	40	200	6.05
16:20	8.03	10.78	2.00	1.48	0.0	52	200	6.60
16:25	8.03	10.72	1.99	1.45	0.0	54	200	7.18
16:30	8.04	10.72	1.99	1.42	0.0	50	200	7.65
Tolerance:	0.1		3%	10%	10%	+ or - 10		

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

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-03D
Date:	5/16/2018	Sampling	Personnel:	Sean Conn	nelly, Kevin I	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.93'	Depth to Well Bottom:	35.70'	Well Diameter:	4"	Screen Length:
Casing Type:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	83.4	-	Estimated Purge Volume (liters):	36.0
Sample ID:		GW-03D		Sample Time:	17	7:40	QA/QC:	Duplicate (FD-051618)
	Parameters: r Information:	VOCs, SVOCs,	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:40	8.16	10.44	1.76	1.55	1.3	-81	600	1.93
16:45	8.14	10.25	1.74	0.85	0.0	-83	600	1.93
16:50	8.16	10.17	1.73	0.67	0.0	-85	600	1.93
16:55	8.13	10.10	1.72	0.57	0.0	-87	600	1.93
17:00	8.13	10.20	1.72	0.56	0.0	-88	600	1.93
17:05	8.13	10.10	1.72	0.52	0.0	-88	600	1.93
17:10	8.14	10.04	1.72	0.52	0.0	-89	600	1.93
17:15	8.13	10.05	1.72	0.52	0.0	-89	600	1.93
17:20	8.12	10.13	1.72	0.49	0.0	-90	600	1.93
17:25	8.11	10.20	1.72	0.48	0.0	-90	600	1.93
17:30	8.11	10.22	1.72	0.47	0.0	-90	600	1.93
17:35	8.11	10.19	1.72	0.47	0.0	-91	600	1.93
17:40	8.11	10.17	1.72	0.45	0.0	-91	600	1.93
Tolerance:	0.1		3%	10%	10%	+ or - 10		

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

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-04S				
Date:	5/17/2018	Sampling	Personnel:	Sean Co	nnelly, Kevin N	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:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	7.3		Estimated Purge Volume (liters):	11.4				
Sample ID:		GW-04S		Sample Time:		: 07:43 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).											
			PURG	E PARAM	ETERS							

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
7:48	7.03	14.21	0.593	9.71	0.6	164	Initial	
7:52	8.21	11.15	0.522	7.42	127	112	1 Gallon	
7:54	8.48	10.05	0.523	8.10	368	71	2 Gallon	
7:56	8.78	10.73	0.509	4.59	638	-32	3 Gallon	
9:12	9.56	15.41	0.517	5.07	458	-148		12.41
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	Brothers	Well I.D.:	GW-04D
Date:	5/17/2018	Sampling	Personnel:	Sean Conn	elly, Kevin	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		_Tubing Type:	LDPE/	/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	12.11'	Depth to Well Bottom:	45.57'	Well Diameter:	4"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	82.6	-	Estimated Purge Volume (liters):	11.0
Sample ID:	Parameters	GW-04D VOCs, SVOCs,	and TAL Met	Sample Time:	9	:07	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:12	8.29	11.56	1.89	3.58	0.0	-107	200	12.32
8:17	8.33	11.08	1.88	1.88	0.0	-117	200	12.58
8:22	8.35	11.02	1.89	1.33	0.0	-121	200	12.85
8:27	8.36	11.03	1.90	1.16	0.0	-144	200	13.06
8:32	8.36	11.05	1.91	0.98	0.0	-161	200	13.25
8:37	8.38	11.05	1.91	0.85	0.0	-171	200	13.41
8:42	8.39	11.06	1.92	0.79	0.0	-193	200	13.59
8:47	8.40	11.25	1.93	0.97	0.0	-221	200	13.75
8:52	8.39	11.24	1.94	0.75	0.0	-235	200	13.83
8:57	8.39	11.43	1.94	0.69	0.0	-268	200	13.90
9:02	8.39	11.39	1.95	0.60	0.0	-272	200	13.90
9:07	8.39	11.44	1.95	0.58	0.0	-276	200	13.90
Tolerance:	0.1		3%	10%	10%	+ or - 10		

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brot	hers Lar	ndfill					WELL NO.:	G\	GW-07S		
PROJECT NO.:	60411174	4										
STAFF:	Sean Cor	nnelly, K	evin McG	Govern								
DATE(S):	5/16/18	Ę	5/17/18									
1. TOTAL CASIN	G AND SCRE	EN I ENG	TH (FT.)			=	35.	33	WELL ID. 1"	VOL. (GAL/FT) 0.040		
2. WATER LEVE						=	5.0		2"	0.17		
3. NUMBER OF F)		=	30.		3"	0.38		
4. VOLUME OF V	VATER/FOOT	OF CASI	NG (GAL.)			=	0.1	17	4"	0.66		
5. VOLUME OF V	VATER IN CA	SING (GA	L.)(#3 x #4	-)		=	5.1	14	5"	1.04		
6. VOLUME OF V	VATER TO RE	EMOVE (G	GAL.)(#5 x	3)		=			6"	1.50		
7. VOLUME OF V	VATER ACTU	ALLY REM	MOVED (G	AL.)		=	8.	0	8"	2.60		
PARAMETERS		Initial	2	4	ACCUM 6	IULATED 8	VOLUME P Sample	PURGED (GA	LLONS)			
рН		8.93	8.88	8.87	8.86	8.78	8.91					
SPEC. COND. (mS	/cm)	0.704	0.700	0.707	0.706	0.685	0.749					
DO (mg/l)		2.10	11.37	3.64	12.42	4.52	6.50					
TEMPERATURE (⁰	C)	13.52	13.75	13.13	13.62	13.10	14.16					
TURBIDITY (NTU)		0.0	1.8	24.3	64.8	31.4	0.1					
ORP (millivolts)		-140	-97	-42	3	-25	-5					
TIME		10:59	11:04	11:12	11:20	11:25	9:35					
COMMENTS: 5/17/2018	9:40 - Fill \ 10:59 - Beg 11:25 - We 9:27 - Retu 9:35- Colle	gin hand ell dry afte urn to well	bailing we er removin I, depth to	ll. ng 7.5 gal water = {	lons. 5.18 feet.	3), PDB w	as installe	d on 3/26/1	8	· ·		

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brot							WELL NO.:	G\	GW-07D		
PROJECT NO.:	60411174	1										
STAFF:	Sean Cor	nnelly, K	evin McG	Govern								
DATE(S):	5/16/18	Ę	5/17/18									
1. TOTAL CASING	AND SCRE	EN LENG	TH (FT.)			=	60	.83	WELL ID. 1"	VOL. (GAL/FT) 0.040		
2. WATER LEVEL	BELOW TOP	P OF CAS	ING (FT.)			=	47	.05	2"	0.17		
3. NUMBER OF F	EET STANDI	NG WATE	ER (#1 - #2)		=	13	.78	3"	0.38		
4. VOLUME OF W			=	0.	66	4"	0.66					
5. VOLUME OF W	ATER IN CA	SING (GA	L.)(#3 x #4	-)		=	9.	09	5"	1.04		
6. VOLUME OF W	3)		=			6"	1.50					
7. VOLUME OF W		=	10).0	8"	2.60						
									, , , , , , , , , , , , , , , , , , ,	DIAMETER [INCHES]) ²		
PARAMETERS		Init	2.5	5	ACCUN 7	1ULATED 10.0	VOLUME I Sample	PURGED (GA	LLONS)			
рН		7.21	8.13	8.35	8.37	8.59						
SPEC. COND. (mS/	cm)	0.736	0.809	0.845	0.876	0.915	imeters					
DO (mg/l)		3.74	1.22	3.27	3.19	5.03	Well went dry, no sample parameters					
TEMPERATURE (°C	C)	15.71	13.69	14.75	15.69	15.27	no sam					
TURBIDITY (NTU)		0.0	0.0	0.0	0.0	7.9	ent dry,					
ORP (millivolts)		-34	-128	-165	-169	-170	Well w					
TIME		2:38	10:26	10:31	10:39	10:50						
COMMENTS: 5/17/2018	9:44 - Fill V 10:11 - Beg 10:50 - We 9:25 - retur 9:30 - Colle Strong S	gin hand II dry afte n to well, ect sampl	bailing we er removin depth to e for SVC	ell. ng 10 gallo water = 5	ons 9.33 feet.		as installe	ed on 3/26/18	3	· ·		

Project:		60411174		Site:	Site: Pfohl Brothers		Well I.D.:	GW-08SR
Date:	5/17/2018	Sampling	Personnel:	Sean Conr	nelly, Kevin	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	'Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.15'	Depth to Well Bottom:	13.02'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	4.9	-	Estimated Purge Volume (liters):	9.0
Sample ID:	Parameters	GW-8SR VOCs, SVOCs,	and TAL Met	Sample Time:	12	2:10	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:25	7.91	11.45	1.20	1.37	95.9	-55	200	6.68
11:30	7.88	11.20	1.19	0.94	15.0	-58	200	7.40
11:35	7.85	11.04	1.20	0.80	12.0	-65	200	7.90
11:40	7.81	10.89	1.22	0.72	5.5	-74	200	8.24
11:45	7.79	10.93	1.28	0.69	0.0	-79	200	8.39
11:50	7.76	11.21	1.35	0.73	0.0	-83	200	8.39
11:55	7.74	11.27	1.56	0.73	0.0	-86	200	8.39
12:00	7.73	11.07	1.70	0.72	0.0	-89	200	8.46
12:05	7.72	10.91	1.76	0.64	0.0	-90	200	8.45
12:10	7.72	11.02	1.79	0.66	0.0	-91	200	8.44
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-08D
Date:	5/17/2018	Sampling	Personnel:	Sean Conr	nelly, Kevin I	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.98'	Depth to Well Bottom:	36.54'	Well Diameter:	4"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	75.5	-	Estimated Purge Volume (liters):	42.0
		GW-8D VOCs, SVOCs,	and TAL Meta	Sample Time:	13	3:15	QA/QC:	
Othe	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:15	8.35	12.70	1.84	6.41	0.0	-43	700	6.00
12:20	8.25	11.13	1.77	1.31	0.0	28	700	6.00
12:25	8.23	10.97	1.77	0.73	0.0	41	700	6.00
12:30	8.21	10.95	1.77	0.57	0.0	48	700	6.00
12:35	8.22	11.07	1.77	0.51	0.0	52	700	6.00
12:40	8.22	10.82	1.78	0.49	0.0	56	700	6.00
12:45	8.21	10.88	1.78	0.48	0.0	58	700	6.00
12:50	8.21	10.96	1.79	0.47	0.0	60	700	6.00
12:55	8.22	10.97	1.79	0.47	0.0	65	700	6.00
13:00	8.21	10.92	1.79	0.52	0.0	64	700	6.00
13:05	8.20	10.90	1.79	0.46	0.0	65	700	6.00
13:10	8.20	10.85	1.79	0.46	0.0	65	700	6.00
13:15	8.20	11.01	1.79	0.45	0.0	60	700	6.00
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-26D
Date:	5/17/2018	Sampling	Personnel:	Sean Conr	nelly, Kevin I	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	'Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.83'	Depth to Well Bottom:	40.70'	Well Diameter:	4"	Screen Length:
Casing Type:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	83.7	-	Estimated Purge Volume (liters):	42.0
Sample ID:		GW-26D		Sample Time:	17	7:25	QA/QC:	
•	Parameters: r Information:	VOCs, SVOCs,	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:25	8.04	13.01	2.64	4.11	0.0	-58	700	6.84
16:30	7.97	12.62	2.64	4.01	0.0	-58	700	6.84
16:35	7.90	12.47	2.65	3.06	0.0	-60	700	6.84
16:40	7.88	12.56	2.65	1.19	0.0	-61	700	6.84
16:45	7.88	12.41	2.67	0.81	0.0	-63	700	6.84
16:50	7.87	12.58	2.68	0.90	0.0	-64	700	6.84
16:55	7.87	12.40	2.67	0.86	0.0	-64	700	6.84
17:00	7.88	12.48	2.66	0.96	0.0	-65	700	6.84
17:05	7.89	12.47	2.66	0.70	0.0	-66	700	6.84
17:10	7.89	12.45	2.66	0.58	0.0	-67	700	6.84
17:15	7.89	12.47	2.65	0.55	0.0	-68	700	6.84
17:20	7.89	12.46	2.66	0.50	0.0	-68	700	6.84
17:25	7.90	12.40	2.60	0.46	0.0	-69	700	6.84
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-28S
Date:	5/17/2018	Sampling	Personnel:	Sean Conn	ielly, Kevin I	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	9.55'	Depth to Well Bottom:	15.52'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	3.7	-	Estimated Purge Volume (liters):	5.0
Sample ID:		GW-28S VOCs, SVOCs,	and TAL Met	Sample Time:	13	3:12	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	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		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-29S
Date:	5/17/2018	Sampling	Personnel:	Sean Conr	nelly, Kevin I	McGovern	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.98'	Depth to Well Bottom:	20.04'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	6.8	-	Estimated Purge Volume (liters):	8.1
Sample ID:	Parameters:	GW-29S VOCs, SVOCs, a	and TAL Meta	Sample Time:	15	5:22	QA/QC:	
	r Information:							

PURGE PARAMETERS

ТІМЕ	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:37	8.09	17.14	1.19	2.26	190	-97	180	10.07
14:42	8.04	15.47	1.18	0.99	192	-101	180	10.71
14:47	8.06	14.97	1.13	0.68	163	-103	180	11.15
14:52	8.11	14.66	1.08	0.75	158	-102	180	11.61
14:57	8.10	14.62	1.08	0.79	146	-102	180	11.82
15:02	8.06	14.66	1.08	0.79	147	-102	180	12.04
15:07	8.04	14.61	1.09	0.73	118	-102	180	12.20
15:12	8.02	14.59	1.09	0.69	69.5	-102	180	12.32
15:17	8.01	14.52	1.10	0.64	69.5	-102	180	12.40
15:22	8.01	14.51	1.10	0.69	62.5	-102	180	12.40
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl B	orothers	Well I.D.:	GW-30S
Date:	5/18/2018	Sampling Pers	sonnel:	Sean Cor	nnelly, Rob	Murphy	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2	Tu	ibing Type:	LDPE/S	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water: 7.		Depth to ell Bottom:	17.97'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		olume in 1 /ell Casing (liters):	6.3		Estimated Purge Volume (liters):	9.0
Sample ID:	Parameters:	GW-30S VOCs, SVOCs, and T	AL Metals	Sample Time:	9:	52	QA/QC:	
Othe	r Information:	Orange particulates a	it start					

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:22	7.30	10.14	2.70	4.94	407	-62	300	7.85
9:27	7.62	9.66	1.53	1.43	190	-74	300	7.85
9:32	7.75	9.43	0.957	0.91	56.0	-85	300	7.85
9:37	7.79	9.38	0.907	0.78	21.2	-93	300	7.85
9:42	7.81	9.39	0.906	0.73	11.6	-96	300	7.85
9:47	7.83	9.33	0.908	0.68	1.6	-100	300	7.85
9:52	7.84	9.21	0.912	0.64	0.0	-103	300	7.85
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	Brothers	Well I.D.:	GW-31S
Date:	5/18/2018	Sampling	Personnel:	Sean Cor	nnelly, Rob	Murphy	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	Depth to Well Bottom:	9.57'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	3.4	-	Estimated Purge Volume (liters):	6.9
Sample ID:		GW-31S		Sample Time:	1(0:50	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs, a	and IAL Met	ais				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:10	8.13	11.83	0.605	2.97	0.0	3	250	4.12
10:15	8.01	11.26	0.603	1.14	0.0	-14	160	5.58
10:20	8.00	11.22	0.605	1.13	0.0	-25	160	5.71
10:25	7.99	11.20	0.607	1.11	0.0	-37	160	5.88
10:30	7.98	11.08	0.614	1.06	0.0	-46	160	5.97
10:35	7.98	11.06	0.628	0.93	0.0	-53	160	6.03
10:40	7.98	11.08	0.634	0.94	0.0	-57	160	6.08
10:45	7.98	11.03	0.642	0.87	0.0	-64	160	6.12
10:50	7.98	11.06	0.648	0.82	0.0	-67	160	6.16
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl	Brothers	Well I.D.:	GW-32S
Date:	5/18/2018	Sampling	Personnel:	Sean Co	nnelly, 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:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	3.6	-	Estimated Purge Volume (liters):	6.0
Sample ID:	Parameters:	GW-32S VOCs, SVOCs, a	and TAL Meta	Sample Time:	11	1:47	QA/QC: _	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:17	8.41	17.22	0.564	3.22	0.0	50	200	4.10
11:22	8.35	11.17	0.563	1.15	0.0	50	200	4.71
11:27	8.36	10.90	0.562	0.83	0.0	47	200	4.75
11:32	8.38	10.77	0.563	0.70	0.0	45	200	4.78
11:37	8.39	10.70	0.564	0.63	0.0	44	200	4.80
11:42	8.40	10.66	0.567	0.59	0.0	43	200	4.82
11:47	8.40	10.66	0.567	0.56	0.0	42	200	4.84
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	Brothers	Well I.D.:	GW-33S
Date:	5/18/2018	Sampling	Personnel:	Sean Cor	nnelly, Rob	Murphy	Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	'Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.52'	Depth to Well Bottom:	8.21'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	1.7	-	Estimated Purge Volume (liters):	4.5
Sample ID:		GW-33S		Sample Time:	12	2:53	QA/QC:	
	r Information:	VOCs, SVOCs, a	and IAL Meta	ais				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:18	8.40	13.09	0.670	3.94	0.0	82	150	5.52
12:23	8.30	12.92	0.659	2.94	0.0	85	125	6.42
12:28	8.30	12.83	0.660	2.91	0.0	85	125	6.53
12:33	8.27	12.70	0.647	1.80	0.0	83	125	6.68
12:38	8.27	13.09	0.627	1.16	0.0	82	125	6.76
12:43	8.27	12.79	0.633	1.01	0.0	77	125	6.87
12:48	8.27	12.76	0.634	0.93	0.0	70	125	7.00
12:53	8.27	12.75	0.634	0.90	0.0	67	125	7.06
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-34S
Date:	5/17/2018 Sampling Personnel:			Sean Connelly, Kevin McGovern			Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.65'	Depth to Well Bottom:	10.01'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	3.9	-	Estimated Purge Volume (liters):	7.0
Sample ID:	Parameters:	GW-34S VOCs, SVOCs, a	and TAL Meta	Sample Time:	10	:55	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:20	8.04	12.00	1.46	3.00	0.0	13	200	3.73
10:25	7.97	11.32	1.45	2.16	0.0	18	200	3.84
10:30	7.91	10.76	1.43	1.12	1.5	21	200	4.10
10:35	7.92	10.99	1.26	1.03	0.0	18	200	4.16
10:40	7.92	11.05	1.20	1.01	0.0	10	200	4.19
10:45	7.92	11.01	1.18	0.94	0.0	2	200	4.24
10:50	7.94	11.05	1.17	0.94	0.0	-4	200	4.26
10:55	7.94	11.09	1.16	0.90	0.0	-8	200	4.30
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	Brothers	Well I.D.:	GW-35S
Date:	5/17/2018	Sampling	Personnel:	Sean Connelly, Kevin McGovern			Company:	URS Corporation
Purging/ Sampling Device:		Geopump 2		Tubing Type:	LDPE/	'Silicone	Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.02'	Depth to Well Bottom:	7.46'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	2.1	-	Estimated Purge Volume (liters):	5.6
Sample ID:		GW-35S VOCs, SVOCs,	and TAL Met	Sample Time:	16	5:15	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:40	8.49	15.67	0.540	3.49	0.0	32	160	4.38
15:45	8.40	14.39	0.534	1.79	0.0	29	160	4.41
15:50	8.37	13.85	0.520	1.08	0.0	18	160	4.45
15:55	8.36	13.51	0.517	0.77	0.0	8	160	4.45
16:00	8.35	13.43	0.517	0.70	0.0	3	160	4.48
16:05	8.35	13.36	0.519	0.63	0.0	2	160	4.49
16:10	8.35	13.23	0.519	0.60	0.0	2	160	4.50
16:15	8.35	13.15	0.521	0.69	0.0	3	160	4.51
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174	
Sampling Crew Members:	<u>S. Connelly, K. McGovern</u>	Supervisor:	<u>R. Murphy</u>	
Date of Sampling:	<u>May 16, 2018</u>			
Well				Chain-of-

Sample I.D. Number	Well Number	Vien Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Custody Number
GW-01D	GW-01D	90.4	42.0	13:00	Groundwater		Not Applicable
GW-01D-MS	GW-01D	90.4	42.0	13:00	Groundwater	VOCs/SVOCs/ Metals	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	1	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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>S. Connelly, K. McGovern</u>	Supervisor:	<u>R. Murphy</u>

Date of Sampling:

<u>May 16, 2018</u>

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.

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Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>S. Connelly, K. McGovern</u>	Supervisor:	<u>R. Murphy</u>
Date of Sampling:	<u>May 17, 2018</u>		

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/	Not Applicable
GW-04D	GW-04D	82.6	11.0	9:07	Groundwater	Metals	Not Applicable
GW-07D	GW-07D	34.4	37.9	9:25	Groundwater	SVOCs/	Not Applicable
GW-07S	GW-07S	19.5	30.3	9:27	Groundwater	Metals	Not Applicable
GW-34S	GW-34S	3.9	7.0	10:55	Groundwater		Not Applicable
GW-08SR	GW-08SR	4.9	9.0	12:10	Groundwater	VOCs/SVOCs/ Metals	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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>S. Connelly, K. McGovern</u>	Supervisor:	<u>R. Murphy</u>
Date of Sampling:	<u>May 17, 2018</u>		

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		Not Applicable
GW-29S	GW-29S	6.8	8.1	15:22	Groundwater	VOCs/SVOCs/	Not Applicable
GW-35S	GW-35S	2.1	5.6	16:15	Groundwater	Metals	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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>R. Murphy, S. Connelly</u>	Supervisor:	<u>R. Murphy</u>
Date of Sampling:	May 18, 2018		

Chain-of-Well Well Volume Purged Sample Analysis Sample I.D. Sample Time Custody Volume Number Number (liters) Description Required (liters) Number **GW-30S GW-30S** 6.3 Groundwater Not Applicable 9.0 9:52 Not Applicable GW-31S **GW-31S** 3.4 6.9 10:50 Groundwater VOCs/SVOCs/ Metals 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 Trip Blank VOCs Not Applicable TB-051818 ____ ____ ____

Additional Comments:

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

APPENDIX E

GROUNDWATER TREND ANALYSIS

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

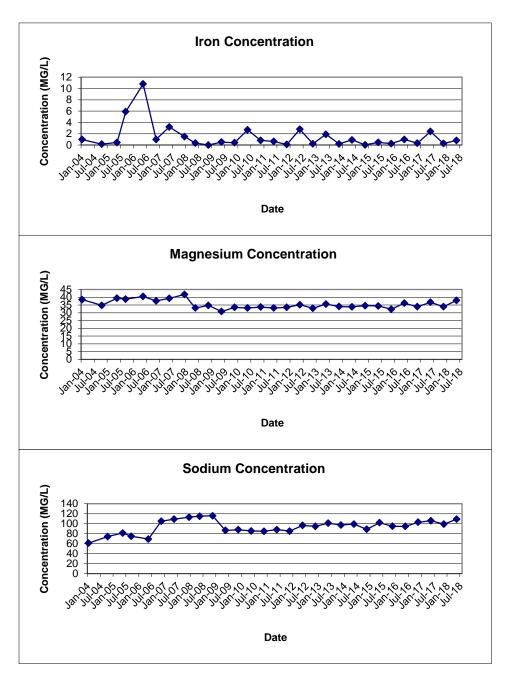


FIGURE E-2 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-01S

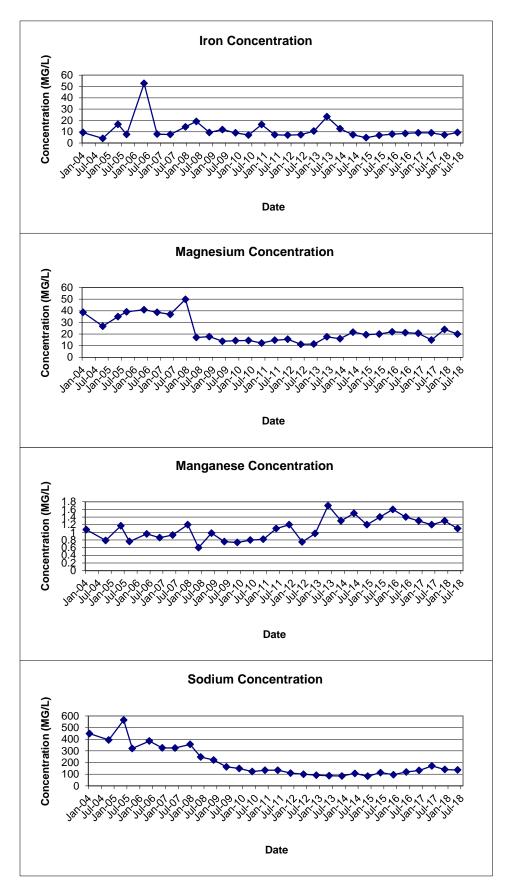


FIGURE E-3 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03D

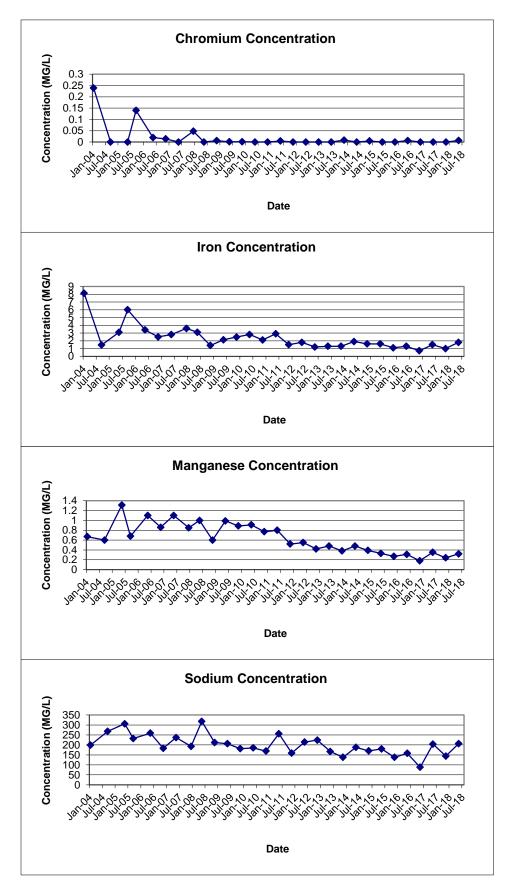


FIGURE E-4 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03S

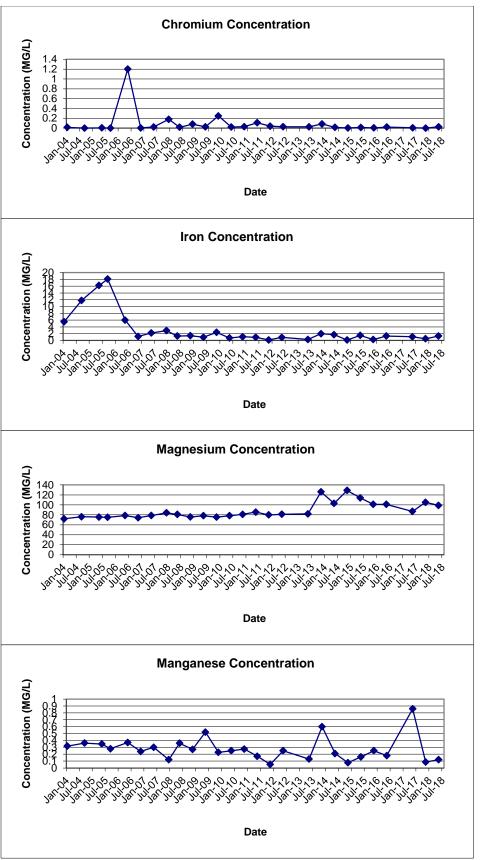


FIGURE E-4 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03S

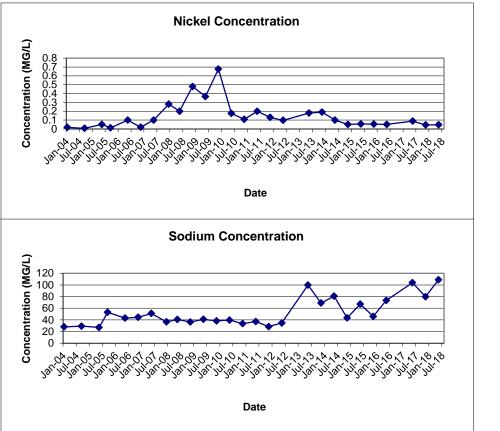


FIGURE E-5 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-04D

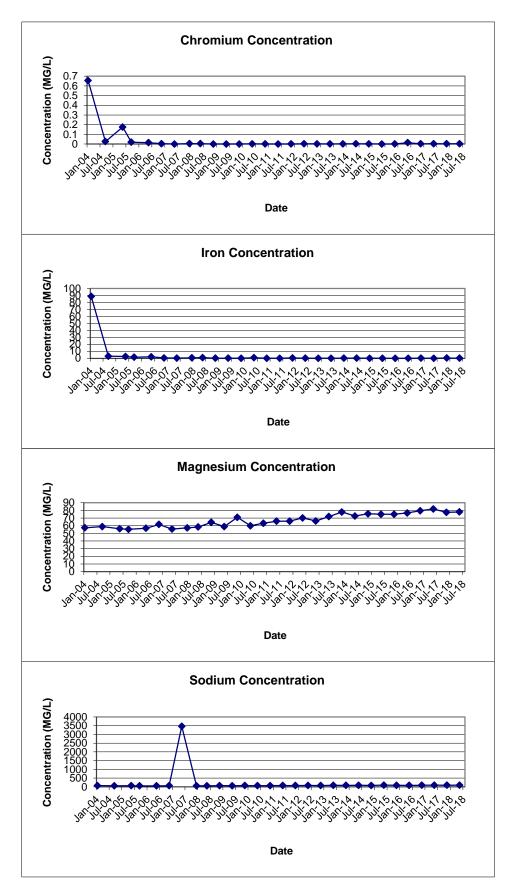


FIGURE E-6 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-04S

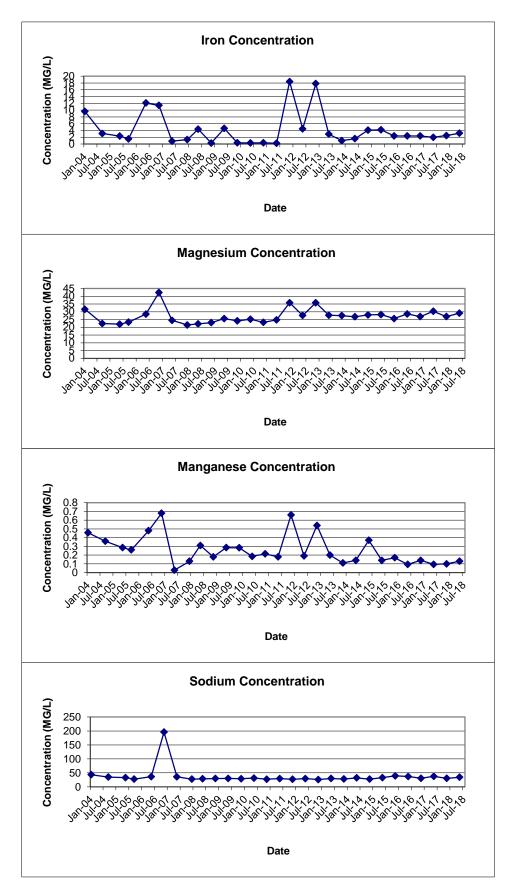


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

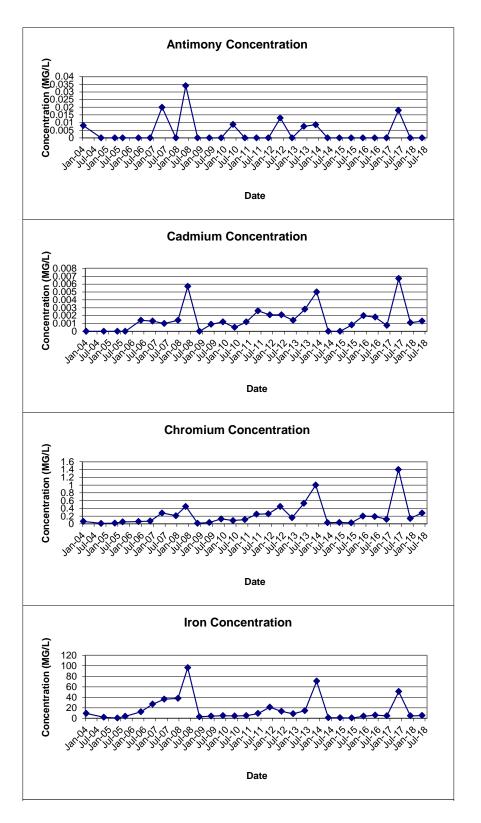


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

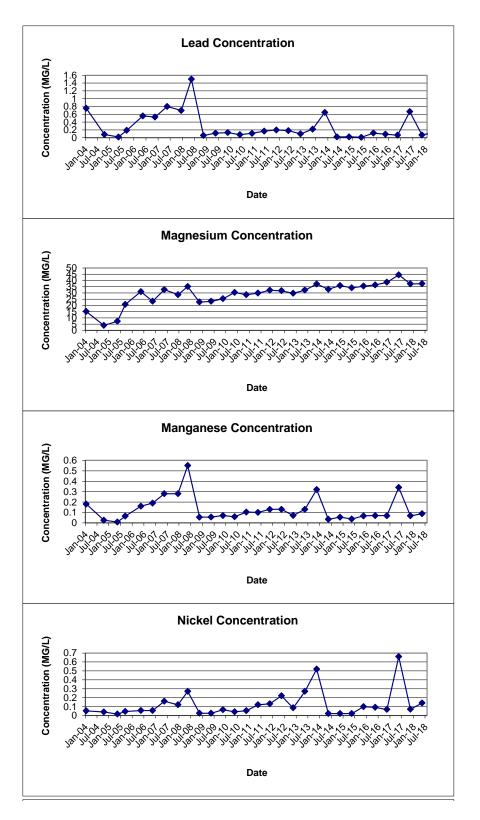


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

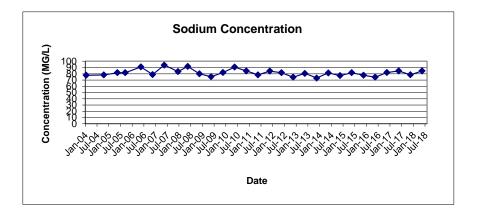


FIGURE E-8 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07S

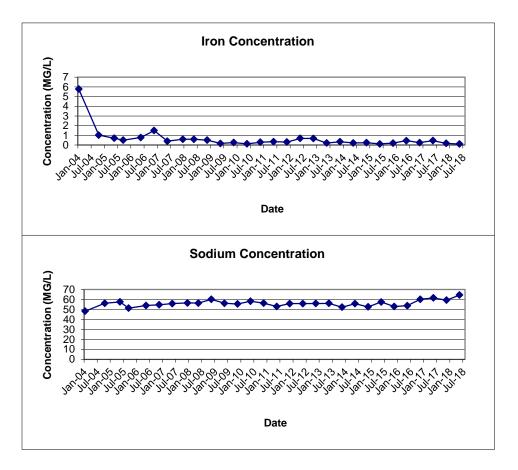


FIGURE E-9 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-08D

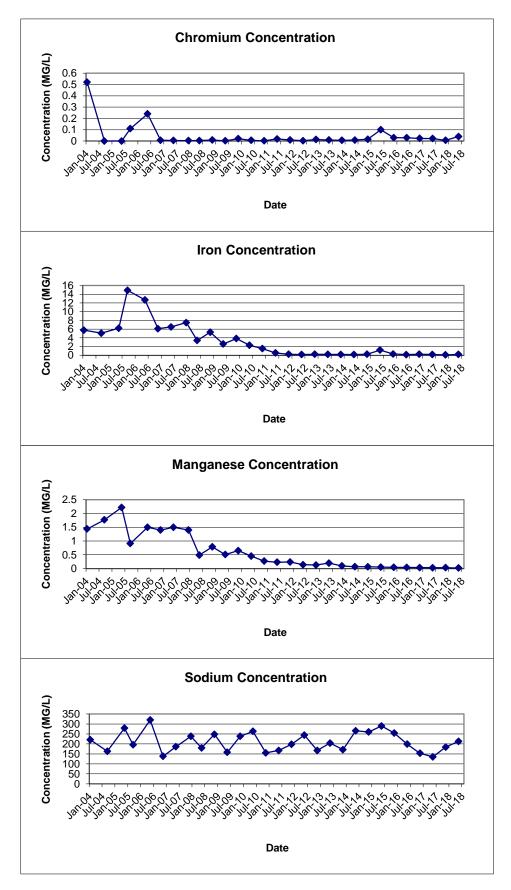


FIGURE E-10 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-08SR

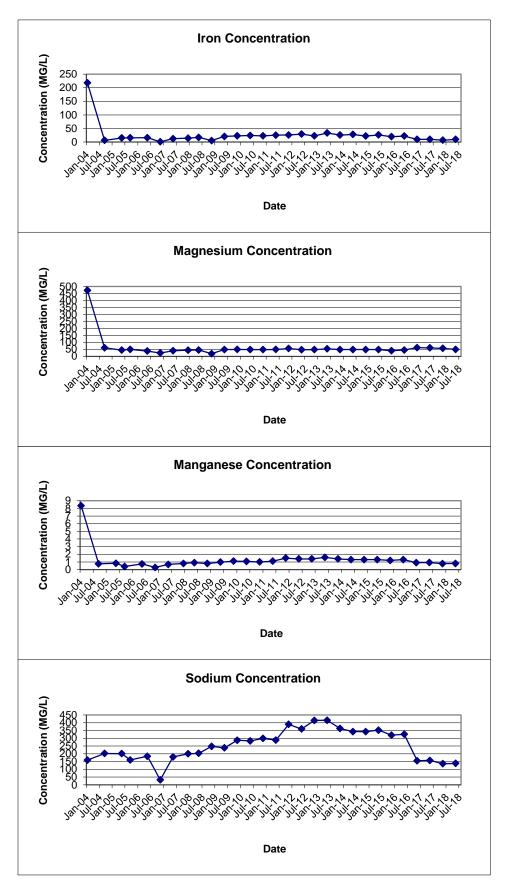


FIGURE E-11 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-26D

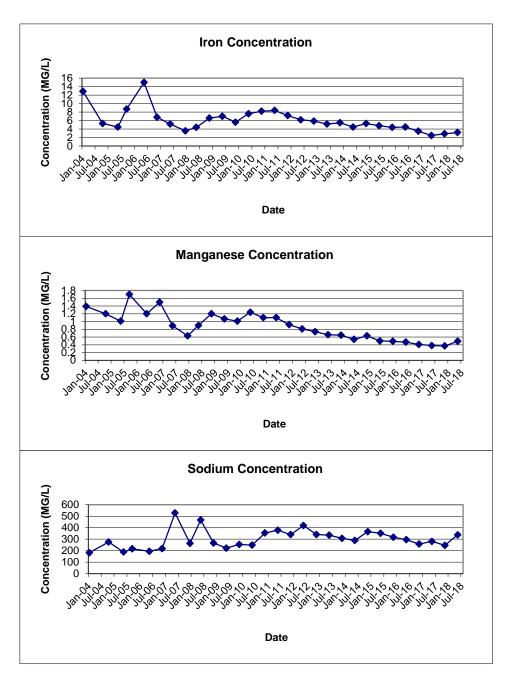


FIGURE E-12 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-28S

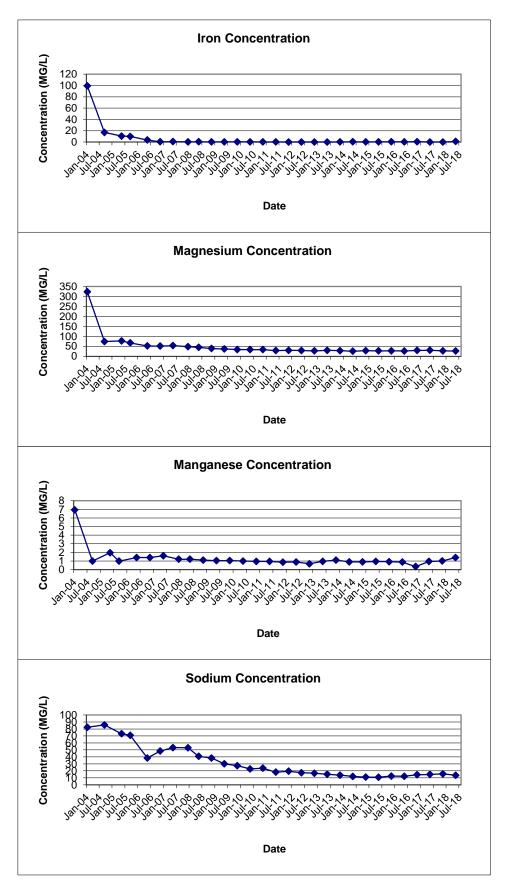


FIGURE E-13 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-29S

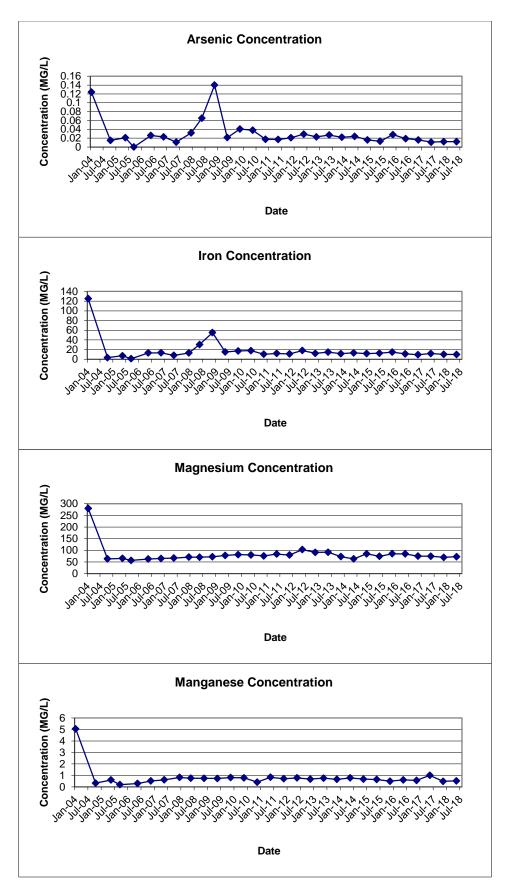


FIGURE E-13 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-29S

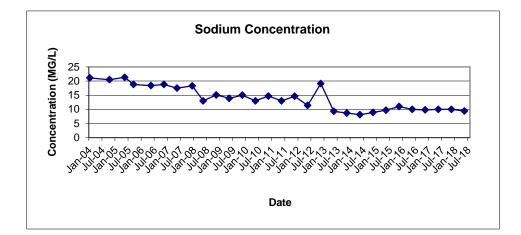


FIGURE E-14 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-30S

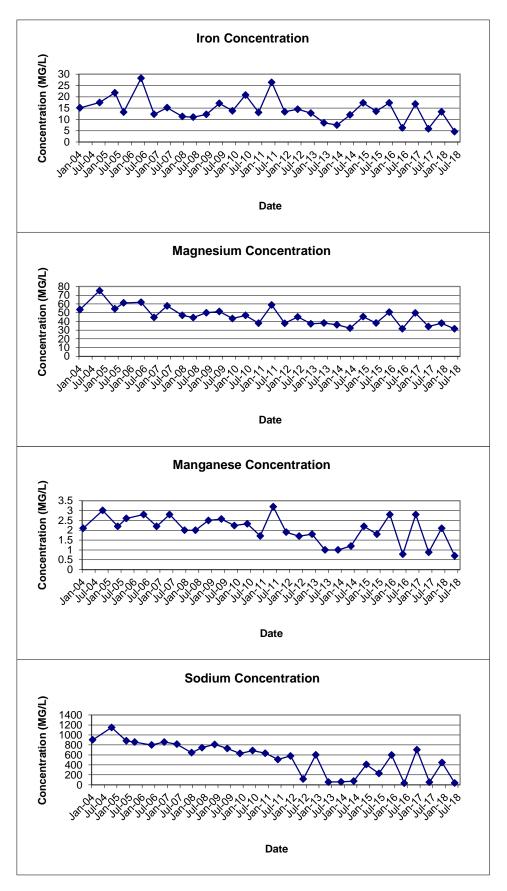


FIGURE E-15 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-31S

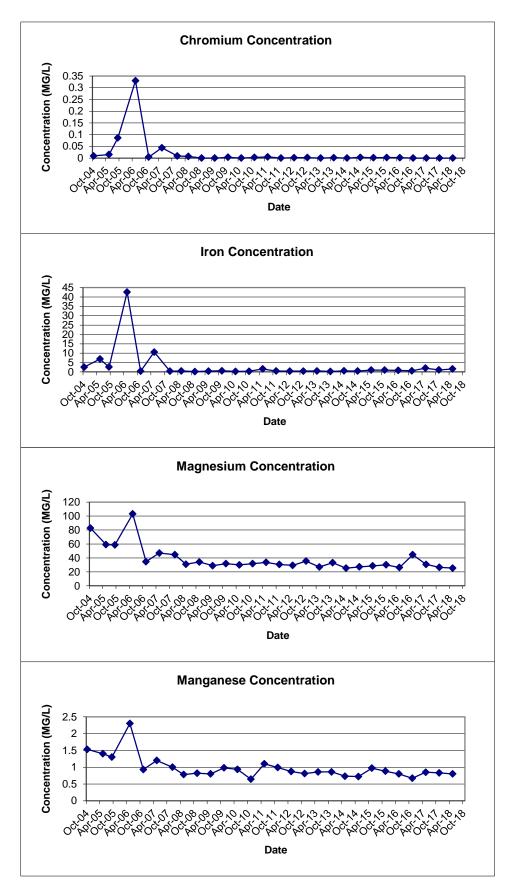


FIGURE E-16 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-32S

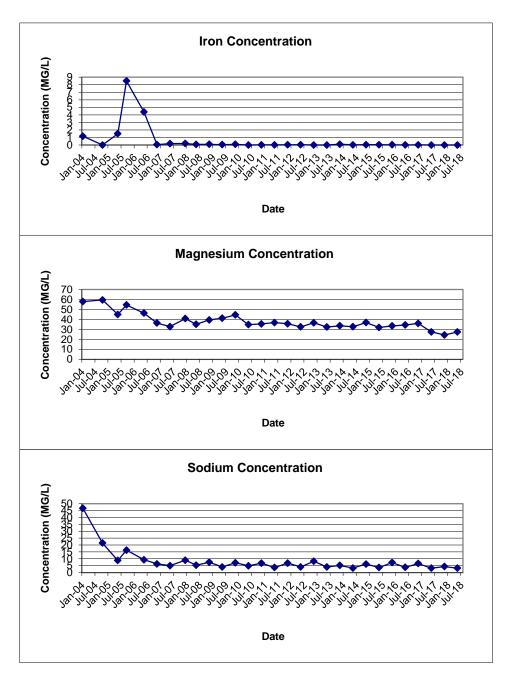


FIGURE E-17 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-33S

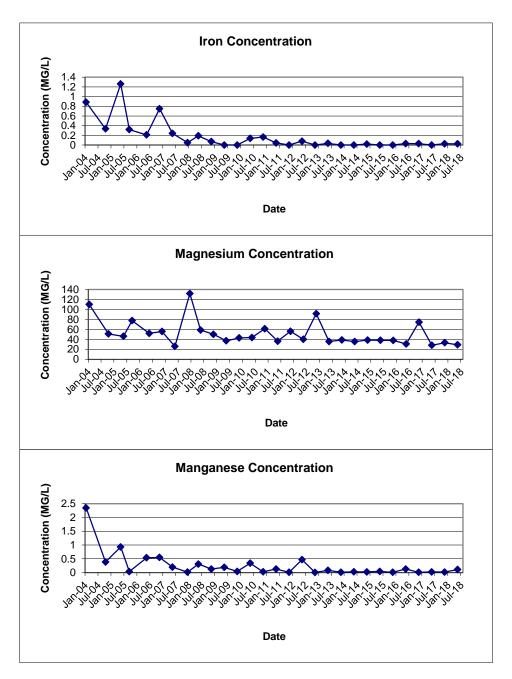


FIGURE E-18 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-34S

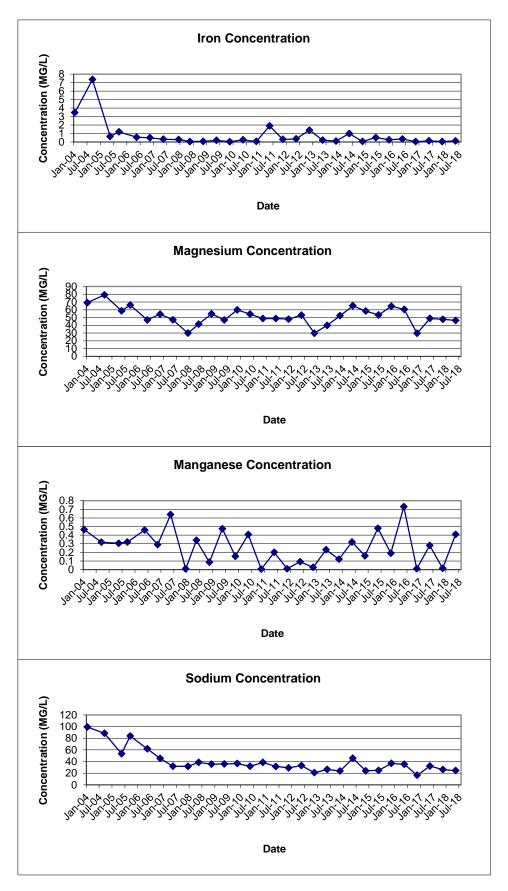
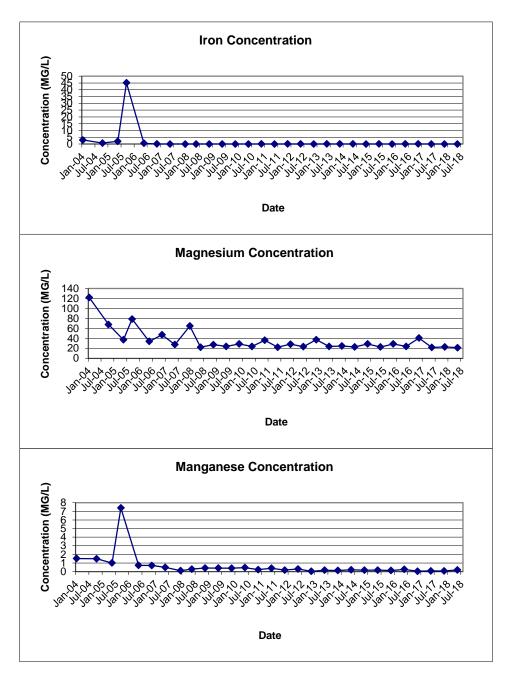


FIGURE E-19 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-35S



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 day of

PAGE 1 OF 6

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		Discharge Limitations ⁽¹⁾	Samp	ling Requirements
Point	Parameter	Daily Max	Period	Туре
001	pН	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	250 mg/l	1 day	Composite ²
	Solids ⁵			
	Total Flow	140,100 gallons ⁶	1 day	Discharge meter reading

Footnotes are explained on page 5.

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A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS

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

Sample		Discharge Limitations ⁽¹⁾	Sampli	ng Requirements
Point	Parameter	Daily Max	Period	Туре
001	Total Mercury USEPA Test	0.001 lbs.	1 day	Composite ²
	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.

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B. DISCHARGE MONITORING REPORTING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported **quarterly** by the permittee on the days specified below:

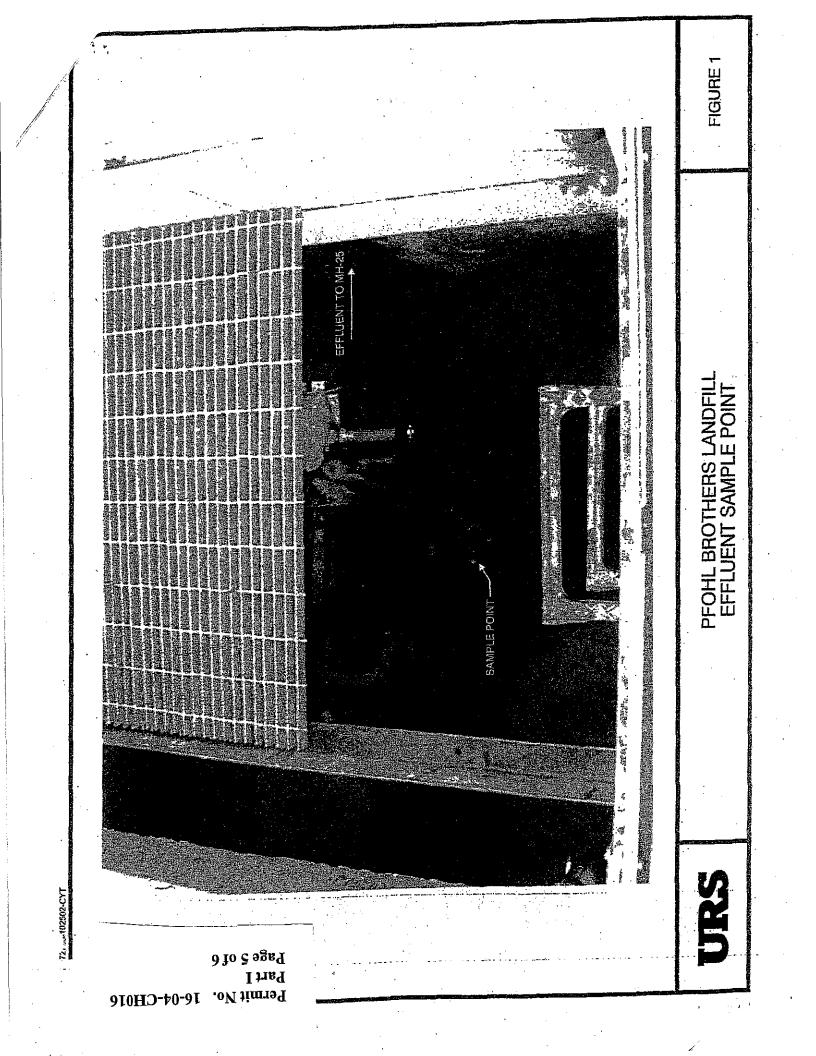
Sample		Reporting Requirements				
Point 001	Parameter All except USEPA Test Methods 608, 624, 625 & T Mercury	Initial Report June 30, 2016	Subsequent Reports Every March 31 st , June 30 th , September 30 th and December 31 st			
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016				

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

C. SPECIAL REQUIREMENTS

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- 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.



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

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1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit and with the information contained in the TC/BPDES Permit Application on which basis this permit is granted. In the event of any facility expansions, production increases, process modifications or the installation, modification or repair of any pretreatment equipment which may result in new, different or increased discharges of pollutants, a new TC/BPDES Permit Application must be submitted prior to any change. Following receipt of an amended application, the BSA may modify this permit to specify and limit any pollutants not previously limited. In the event that the proposed change will be covered under an applicable Categorical Standard, a Baseline Monitoring Report must be submitted at least ninety (90) days prior to any discharge.

2. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed, calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation shall be retained at this facility for a minimum of three (3) years, or longer if requested by the General Manager and/or Town Engineer.

3. Slug Control Plan

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

4. Notification of Slug, Accidental Discharge or Spill

In the event that a slug, accidental discharge or any spill occurs at the facility for which this permit is issued, it is the responsibility of the Permittee to immediately notify the B.S.A. Treatment Plant of the quantity and character of such discharge. During normal business hours, Monday-Friday, 7:30 AM – 3:00 PM call 716-851-4664, ext 5374. After normal business hours call 716-851-4664, ext 600. For all slug discharges, and when requested by the B.S.A. following an accidental discharge or spill, within five (5) days following all such discharges, the Permittee shall submit a report describing the character and duration of the discharge, the cause of the discharge, and measures taken or that will be taken to prevent a recurrence of such discharge.

5. Noncompliance Notification

If, for any reason, the Permittee does not comply with or will be unable to comply with any discharge limitation specified in this permit, the Permittee or their assigns must verbally notify the Industrial Waste Section at 716-851-4664 ext. 5374 within twenty-four (24) hours of becoming aware of the violation. The Permittee shall provide the Industrial Waste Section with the following information, in writing, within five (5) days of becoming aware of such condition:

- a. a description of the discharge and cause of noncompliance and;
- b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

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

6. Adverse Impact

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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

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Part II Page 4 of 6

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

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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

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APPENDIX G

DISCHARGE REPORT SUMMARY TABLES

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SAMPLING FIELD SHEET



Aero Drive, Cheektow								
	Aero Drive, Cheektowaga, NY							
Patrick T. Bowen, P.E	Phone:	716-897-7288						
SP-001								
Meter Chamb	er - ball valve on 6" HDP	E forcemain						
3/26/18 Crew:	R. Murphy, K. McGov	ern, T. Urban						
47° F, Clear								
NA								
on: 13:10	Type of Sample:	Composite						
NA	Sample Volume:	NA						
3/27/18 Crew:	R. Murphy, S. Moeller	, T. Urban						
<u>3/27/18</u> Crew: 41 [°] F, Cloudy n: <u>13:10</u>	R. Murphy, S. Moeller	, T. Urban						
41° F, Cloudy n: <u>13:10</u> Ints:			10					
41° F, Cloudy n: 13:10	pH Calibration: Buffer 7-	- <u>7</u> Buffer 4- <u>4</u> Buffer 10-	10					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM	pH Calibration: Buffer 7- pH Measurement:	- <u>7</u> Buffer 4- <u>4</u> Buffer 10- 8.49	10					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM nitial)	pH Calibration: Buffer 7-	- <u>7</u> Buffer 4- <u>4</u> Buffer 10-	10					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM nitial) EFF-032718	pH Calibration: Buffer 7- pH Measurement: Temperature:	- 7 Buffer 4- 4 Buffer 10- 8.49 7.6 [°] C	10					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM nitial) EFF-032718	pH Calibration: Buffer 7- pH Measurement:	- 7 Buffer 4- 4 Buffer 10- 8.49 7.6 [°] C	- <u>10</u>					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM nitial) EFF-032718	pH Calibration: Buffer 7- pH Measurement: Temperature:	- 7 Buffer 4- 4 Buffer 10- 8.49 7.6 [°] C	- <u>10</u>					
41° F, Cloudy n: <u>13:10</u> Ints: /RJM /RJM /RJM /RJM /RJM /RJM /RJM /RJM	pH Calibration: Buffer 7- pH Measurement: Temperature: NY	- <u>7</u> Buffer 4- <u>4</u> Buffer 10- 8.49 <u>7.6°C</u> collection.						
41° F, Cloudy n: <u>13:10</u> ints: /RJM nitial) EFF-032718 itions: <u></u> estAmerica, Buffalo, I /ell WW-06 was runn /olumes: WW-01 (1,	pH Calibration: Buffer 7- pH Measurement: Temperature: NY ing at the time of sample 199,996 gals), WW-02 (-4	- <u>7</u> Buffer 4- <u>4</u> Buffer 10- 8.49 7.6°C						
	<u>3/26/18</u> Crew: 47° F, Clear : <u>NA</u> on: <u>13:10</u> <u>NA</u> Observations: <u>Wells</u> volumes: WW-01 (1,	Meter Chamber - ball valve on 6" HDP 3/26/18 Crew: R. Murphy, K. McGove 47° F, Clear . : NA on: 13:10 Type of Sample: NA Sample Volume: Dbservations: Wells WW-05 and WW-06 wer volumes: WW-01 (1,199,996 gals), WW-02 (Meter Chamber - ball valve on 6" HDPE forcemain 3/26/18 Crew: R. Murphy, K. McGovern, T. Urban 47° F, Clear : NA pn: 13:10 Type of Sample: NA Sample Volume: NA					

TABLE 1

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

Sample ID				EFI	F-032718				
Matrix		Effluent Water							
Date Sampled		3/27/2018							
Parameter		Result	Ma	ass 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			
рН ⁽⁴⁾		8.49		NA	5.0 - 12.0	No			
Total Flow ⁽⁵⁾				98,249	140,100	No			

Notes:

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

(2) NA = Not Applicable

- (3) Discharge Limitation in units of mg/L
- (4) pH measurement and Discharge Limitation in Standard Units
- (5) Total Flow reported in gallons, sample was collected over a 24 hour period

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

SAMPLING FIELD SHEET



Client Name:	Pfohl Brothers La	andfill		
Address:	Aero Drive, Chee	ektowaga, NY		
Contact:	Patrick T. Bower	n, P.E. Phon	e: 716-897-7288	
Installation:				
Sample Point:	SP-001			
Sample Locati	on: Meter Ch	namber - ball valve on 6" HI	DPE forcemain	
Date:	<u>6/12/18</u> C	rew: R. Murphy, K. McG	overn, T. Urban	
Weather:	69° F, Clear			
Sampling Devi	ce: NA			
Time of Installa	ation: 08:25	5 Type of Sampl	e: Composite	
Sample Interva	al: NA	Sample Volum	e: NA	
	16,620 gals), WW		: (-4,613 gals), WW-03 (1,138 gal D6 (5,051,021 gals) & MH-25 (12, overn, T. Urban	
WW-04 (-1 Date: Weather: Time of Collec	16,620 gals), WW 6/13/18 C 69° F, Cloudy, liç tion: 08:25	-05 (5,294,887 gals), WW- rew:R. Murphy, K. McG ght rain	06 (5,051,021 gals) & MH-25 (12,;	
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08::	<u> 6/13/18</u> C <u>69° F, Cloudy, lig</u> tion: <u>08:24</u> ments: 25/RJM	-05 (5,294,887 gals), WW- rew:R. Murphy, K. McG ght rain	06 (5,051,021 gals) & MH-25 (12,;	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08::	<u>6/13/18</u> C <u>6/13/18</u> C <u>69^o F, Cloudy, lic</u> tion: <u>08:24</u> ments:	-05 (5,294,887 gals), WW- rew:R. Murphy, K. McG ght rain	06 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer ⁻	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08::	<u> 6/13/18</u> C <u>69° F, Cloudy, lig</u> tion: <u>08:24</u> ments: 25/RJM	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe	06 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer ⁻	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08:: (tin	<u> 6/13/18</u> C <u>69° F, Cloudy, lig</u> tion: <u>08:24</u> ments: 25/RJM	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe pH Measurement:	06 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer ⁻ 6.90	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08:: (tin	16,620 gals), WW 6/13/18 C 69° F, Cloudy, lig tion: 08:25 ments: 25/RJM te/initial) EFF-061318	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe pH Measurement:	D6 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer 7 6.90 17.2°C	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08: (tin Identification: Physical Obse	16,620 gals), WW 6/13/18 C 69° F, Cloudy, lig tion: 08:25 ments: 25/RJM te/initial) EFF-061318	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe pH Measurement: Temperature:	D6 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer 7 6.90 17.2°C	219,290 gals).
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08: (tin Identification: Physical Obse Laboratory: Comments:	16,620 gals), WW 6/13/18 C 69° F, Cloudy, lig tion: 08:24 ments: 25/RJM 25/RJM 0 nevinitial) 0 TestAmerica, Buff Well WW-06 was	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe pH Measurement: Temperature: alo, NY running at the time of samp	06 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer 7 <u>6.90</u> 17.2°C	219,290 gals). 10- <u>10</u>
WW-04 (-1 Date: Weather: Time of Collec Field Measure 08: (tin Identification: Physical Obse Laboratory: Comments: PLC displa	16,620 gals), WW 6/13/18 C 69° F, Cloudy, lig tion: 08:23 ments: 25/RJM 25/RJM ne/initial) EFF-061318 rvations: TestAmerica, Buff Well WW-06 was y volumes: WW-0	-05 (5,294,887 gals), WW- rew: <u>R. Murphy, K. McG</u> ght rain 5 pH Calibration: Buffe pH Measurement: Temperature: alo, NY running at the time of samp 1 (1,787,884 gals), WW-02	06 (5,051,021 gals) & MH-25 (12, overn, T. Urban r 7- <u>7</u> Buffer 4- <u>4</u> Buffer 7 6.90 17.2°C	219,290 gals). 10- <u>10</u> s),

TABLE 1

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

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

Notes:

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

(2) NA = Not Applicable

- (3) Discharge Limitation in units of mg/L
- (4) pH measurement and Discharge Limitation in Standard Units
- (5) Total Flow reported in gallons, sample was collected over a 24 hour period

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

APPENDIX H

MONITORING WELL INSPECTION LOGS

	WELL INSPECTION SUMMARY								
Project Name:				Pfohl Brothers Landfill		Project Number:	60411174		
Insp	ection Crew Members	:		<u>K. McGovern, S. C</u>	Connelly	Supervisor:	<u>R. Murphy</u>		
Date	e(s) of Inspection:			<u>May 16, 2018</u>					
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments	
	GW-01S	ОК	ОК	ОК	Bulged	4.12	14.94		
	GW-01D	ОК	ОК	OK	Bulged	3.07	39.65		
	GW-03S	ОК	ОК	OK	ОК	2.37	13.22		
	GW-03D	ОК	ОК	OK	ОК	1.93	35.70		
	GW-04S	ОК	ОК	ОК	ОК	4.31	16.23		
	GW-04D	OK	ОК	ОК	OK	12.08	45.57		
	GW-07S	ОК	ОК	ОК	OK	5.09	35.33		
	GW-07D	OK	ОК	ОК	Damaged	47.05	60.83		

Additional Comments:

oj	ect Name:			Pfohl Brothers Lar	<u>ndfill</u>	Project Number:	60411174	_
nspection Crew Members:			K. McGovern, S. Connelly		Supervisor:	<u>R. Murphy</u>		
Date	e(s) of Inspection:			<u>May 16, 2018</u>				
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
	GW-08SR	ОК	ОК	ОК	ОК	5.06	13.02	
	GW-08D	ОК	ОК	ОК	ОК	5.89	36.54	
	GW-26D	ОК	ОК	ОК	ОК	6.72	40.70	
	GW-28S	ОК	ОК	ОК	ОК	5.55	15.52	
	GW-29S	ОК	ОК	ОК	ОК	8.88	20.04	
	GW-30S	ОК	ОК	ОК	ОК	7.71	17.97	
	GW-31S	ОК	ОК	OK	ОК	3.49	9.57	
	GW-32S	ОК	ОК	ОК	OK	3.45	9.93	

	WELL INSPECTION SUMMARY								
Pro	roject Name:			Pfohl Brothers Landfill		Project Number:	Project Number: <u>60411174</u>		
Insp	pection Crew Members	8:		<u>K. McGovern, S. (</u>	Connelly	Supervisor:	<u>R. Murphy</u>		
Dat	e(s) of Inspection:			<u>May 16, 2018</u>					
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments	
	GW-33S	ОК	ОК	ОК	ОК	4.76	8.21		
	GW-34S	ОК	ОК	ОК	ОК	2.51	10.01		
	GW-35S	OK	ОК	ОК	ОК	3.71	7.46		

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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IV.	SAMPLE RECEIPT/PRESERVATION/HOLDING TIMES	2
V.	NON-CONFORMANCES	2
VI.	SAMPLE RESULTS AND REPORTING	3
VII.	SUMMARY	3

TABLES

(Following Text)

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

APPENDICES

Appendix A – Validated Sample Reporting Forms

Appendix B – Support Documentation

-i-

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

Prepared By: Ann Marie Kropovitch, Chemist Date: 6/14/18 Reviewed by: George E. Kisluk, Senior Chemist (PK 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.

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

Location ID	_	GW-01D	GW-01S	GW-03D	GW-03D	GW-03S
Sample ID Matrix Depth Interval (ft)		GW-01D	GW-01D GW-01S FD-	FD-051618	GW-03D	GW-035
		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			•	-	-	-
Date Sampled		05/16/18	05/16/18	05/16/18	05/16/18	05/16/18
Parameter	Units			Field Duplicate (1-1)	4	
Metals						
Silver	MG/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Godium	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

> Advanced Selection: AMK-TEMP J:Projecta\11172700.00000/GISdBI/Program/EDMS.mde Printad: 6/14/2018 9:35:18 AM [LOGDATE] > 65/1/2018# AND [SACODE] < TB'

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	8	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

Location ID	1	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				2		
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

> Advanced Selection: AAK-TEMP J\Projects\11172700.00000435XdB\Program\EDMS.mde Printed: 6/14/2018 9:35:18 AM [LOGDATE] > 65/1/20189 AND [SACODE] < 'TB'

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TABLE 1VALIDATED GROUNDWATER SAMPLE RESULTSPFOHL 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

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	3	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	i 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

Location ID		GW-28S	GW-29S	GW-30S	GW-31S	GW-32S
Sample ID		GW-28S	GW-295	GW-305	GW-31S	GW-325
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					2
Volatile Organic Compounds	_		8			
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

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

> Advanced Selecton: ANK-TEMP J\Projects\11172700.00000435V8BProgramEDMS.mde Printed: 6/14/2018 9-35:18 AM [LOGDATE] > 65/1/2018# AND [SACODE] ⇔ 118

Location ID	3	GW-33S	GW-34S	GW-35S	
Sample ID		GW-335	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	
Vinyi 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	
Nickei	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

Location ID		GW-33S	GW-34S	GW-35S
Sample ID		GW-33S	GW-34S	GW-35\$
Matrix	Groundwater	Groundwater	Groundwater	
Depth Interval (ft)	-	-	-	
Date Sampled		05/18/18	05/17/18	05/17/18
Parameter	Units			
Metals				3
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

> Advanced Selection: AMX-TEMP J:\Proyects\11172700.00000(3)SVBN/Program(EDMS.mde Printed: 6/14/2018 9:35:18 AM [LOGDATE] > #5/1/2018# AND [SACODE] < 'TB'

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-Dichloroethene (total)	UG/L	2.0 U	2.0 U
Acetone	UG/L	10 U	10 U
Benzene	UG/L	1.0 U	ີ 1.0 ປ
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

J:\Projecta\11172700.0000VGIS\dB\Program\EDMS.mde Printed: 8/14/2018 9:36:16 AM [LOGDATE] > 65/1/20186 AND [SACODE] = 'TB'

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

lient Sample ID: GW-01D			Nobel			alle da dhe le bhadhde i bhe sal	Lab Samp	le ID: 480-13	6037-
ate Collected: 05/16/18 13:00							-	Matrix	x: Wate
ate Received: 05/16/18 18:35		-	FF (Allentis have use summer Advance additional Network)						
Method: 8260C - Volatile Organ		by GC/MS Qualifier		MDI	Unit		Beenerad	Anabarad	Dii Fi
Analyte		Quanner				<u>D</u>	Prepared	Analyzed 05/23/18 06:29	
I,1,2-Trichloroethane			2.0	0.23	ug/L ug/L				
I,2-Dichloroethene, Total	nD ND		2.0 10		-			05/23/18 06:29 05/23/18 06:29	
Acetone	ND				ug/L ug/L			05/23/18 06:29	
3enzene /inyl chloride	ND		1.0 1.0		ug/L			05/23/18 06:29	
					ŭ		_		
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
I,2-Dichloroethane-d4 (Surr)	98		77 - 120					05/23/18 06:29	
Foluene-d8 (Surr)	105		80 - 120					05/23/18 06:29	
l-Bromofluorobenzene (Surr)	101		73 - 120					05/23/18 06:29	
Dibromofluoromethane (Surr)	101		75 - 123					05/23/18 06:29	
Method: 8270D - Semivolatile C	Organic Compou	nds (GC/MS	i)						
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII F
,3-Dichlorobenzene	ND	· · · · ·	10	0.48	ug/L		05/17/18 14:30	05/22/18 19:59	
4-Dichlorobenzene	ND		10	0.46	ug/L		05/17/18 14:30	05/22/18 19:59	
iis(2-ethyihexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 19:59	
Phenoi	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 19:59	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dii F
,4,6-Tribromophenol			41 - 120				05/17/18 14:30	05/22/18 19:59	
-Fluorobiphenyl	71		48 - 120				05/17/18 14:30	05/22/18 19:59	
-Fluorophenol	48		35 _ 120				05/17/18 14:30	05/22/18 19:59	
litrobenzene-d5	66		46 - 120				05/17/18 14:30	05/22/18 19:59	
henol-d5	35		22 - 120				05/17/18 14:30	05/22/18 19:59	
-Terphenyl-d14	99		59 - 136				05/17/18 14:30	05/22/18 19:59	
fethod: 6010C - Metals (ICP)									
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii F
ntimony	ND		0.020	0.0068	mg/L	<u>_</u>	05/18/18 09:24	05/22/18 04:16	
rsenic	ND		0.010	0.0056	-		05/18/18 09:24	05/22/18 04:16	
arium	0.084		0.0020	0.00070			05/18/18 09:24	05/22/18 04:16	
admium	ND		0.0010	0.00050	-		05/18/18 09:24	05/22/18 04:16	
hromium	0.0067		0.0040	0.0010	-		05/18/18 09:24	05/22/18 04:16	
opper	ND		0.010	0.0016	_		05/18/18 09:24	05/22/18 04:16	
on	0.82		0.050	0.019	11000		05/18/18 09:24	05/22/18 04:16	
ad	ND		0.0050	0.0030	-		05/18/18 09:24	05/22/18 04:16	
agnesium	38.0		0.20	0.043			05/18/18 09:24	05/22/18 04:16	
anganese	0.020		0.0030	0.00040			05/18/18 09:24	05/22/18 04:16	
ickel	ND		0.010	0.0013			05/18/18 09:24	05/22/18 04:16	
liver	ND		0.0030	0.0017			05/18/18 09:24	05/22/18 04:16	
	A REAL PROPERTY AND A REAL PROPERTY.	1 8	1.000		100 K 100				
odium	109		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:16	

Method: /4/0A - Mercury (CVAA)
Analyte
Mercury
ND
Result
Qualifier

ŧ.

RL M 0.00020 0.000

MDL Unit 0.00012 mg/L Prepared

D

TestAmerica Buffalo

Analyzed

05/24/18 13:10 05/24/18 17:33

Dil Fac

1

Client: AECOM

Project/Site: Pfohl Brothers Landfill GW Monitoring

6

Client Sample ID: GW-01S Date Collected: 05/16/18 14:20 Date Received: 05/16/18 18:35							Lab Samp	ole ID: 480-13 Matri	6037-8 x: Water
Method: 8260C - Volatile Organic	-	-							
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.23	-			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		ug/L			05/22/18 15:30	o
Benzene	ND		1.0		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	Dil 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 (Suπ)	102		73 - 120					05/22/18 15:30	1
Dibromofluoromethane (Surr)	100		75 - 123					05/22/18 15:30	1
Method: 8270D - Semivolatile Org	janic Compou	nds (GC/MS	5)						
Analyte		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 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	ssile s 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	Dil 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	Dil Fac
Antimony	ND		0.020	0.0068	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	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:46	1

6

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

Client Sample ID: GW-03D Date Collected: 05/16/18 17:40							Lan Samb	le ID: 480-13 Matri	x: Wate
ate Received: 05/16/18 18:35									
Method: 8260C - Volatile Organic Co	mpounds	by GC/MS							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/22/18 13:24	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 13:24	
Acetone	ND		10	3.0	ug/L			05/22/18 13:24	
Benzene	ND		1.0	0.41	ug/L			05/22/18 13:24	
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 13:24	
Surrogate	%Recovery	Qualifier	Limits		12		Prepared	Analyzed	DII F
1,2-Dichloroethane-d4 (Surr)	90		77 - 120					05/22/18 13:24	
Toluene-d8 (Surr)	95		80 - 120					05/22/18 13:24	
4-Bromofluorobenzene (Surr)	92		73 - 120					05/22/18 13:24	
Dibromofluoromethane (Surr)	90		75 - 123					05/22/18 13:24	
Method: 8270D - Semivolatile Organi	с Сотрои	inds (GC/MS)							
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	1.7	J	10	0.48	ug/L		05/17/18 14:30	05/22/18 22:53	
1,4-Dichlorobenzene	2.4	J	10	0.46	ug/L		05/17/18 14:30	05/22/18 22:53	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 22:53	
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 22:53	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
2,4,6-Tribromophenol	98		41 - 120				05/17/18 14:30	05/22/18 22:53	
2-Fiucrobiphenyl	96		48 - 120				05/17/18 14:30	05/22/18 22:53	
2-Fluorophenol	71		35 - 120				05/17/18 14:30	05/22/18 22:53	
Nitrobenzene-d5	88		46 - 120				05/17/18 14:30	05/22/18 22:53	
Phenol-d5	51		22 - 120				05/17/18 14:30	05/22/18 22:53	
p-Terphenyl-d14	99		59 - 136				05/17/18 14:30	05/22/18 22:53	
Method: 6010C - Metals (ICP)		-2							
Analyte	2.231	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:50	
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:50	
Barlum	0.096		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:50	
Cadmium	ND		0.0010	0.00050	mg/L		05/18/18 09:24	05/22/18 04:50	
Chromium	0.0069		0.0040	0.0010	•		05/18/18 09:24	05/22/18 04:50	
Copper	ND		0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:50	
ron	1.8		0.050	0.019			05/18/18 09:24	05/22/18 04:50	
ead	ND		0.0050	0.0030			05/18/18 09:24	05/22/18 04:50	
lagnesium	17.9		0.20	0.043	A 1 1 1 1 1 1 1		05/18/18 09:24	05/22/18 04:50	
langanese	0.31		0.0030	0.00040	-		05/18/18 09:24	05/22/18 04:50	
lickel	0.0051	J	0.010	0.0013	-		05/18/18 09:24	05/22/18 04:50	
Silver	ND		0.0030	0.0017			05/18/18 09:24	05/22/18 04:50	
Sodium	199		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:50	
linc	0.0031	J	0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:50	
Method: 7470A - Mercury (CVAA)									
Anaiyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Mercury	ND		0.00020	0.00012	mg/L		05/24/18 13:10	05/24/18 17:42	

GW-03D

Client: AECOM Project/Site: Pfohl Brothers Landfill GW Monitoring TestAmerica Job ID: 480-136037-1

6

Client Sample ID: FD-051618							Lab Samp	le ID: 480-13	6037-
ate Collected: 05/16/18 00:00							1020 ·		x: Wate
ate Received: 05/16/18 18:35			1914 VIIIS (81444						
Method: 8260C - Volatile Organic C	ompounds	by GC/MS							
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/22/18 13:50	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 13:50	
Acetone	ND		10	3.0	ug/L			05/22/18 13:50	
Benzene	ND		1.0	0.41	ug/L			05/22/18 13:50	
/inyl chioride	ND		1.0	0.90	ug/L			05/22/18 13:50	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	D F
1,2-Dichloroethane-d4 (Surr)	96		77 - 120					05/22/18 13:50	
Toluene-d8 (Surr)	103		80 - 120					05/22/18 13:50	
4-Bromofluorobenzene (Surr)	102		73 - 120					05/22/18 13:50	
Dibromofluoromethane (Surr)	97		75 - 123					05/22/18 13:50	
Method: 8270D - Semivolatile Orga	nic Compou	nds (GC/M	S)						
Analyte	Result	Qualifier	RL	1999	Unit	<u>D</u>	Prepared	Analyzed	Dil F
,3-Dichlorobenzene	1.9	J	10	0.48	ug/L		05/17/18 14:30	05/22/18 23:23	
,4-Dichlorobenzene	2.7	J	10		ug/L		05/17/18 14:30	05/22/18 23:23	
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		05/17/18 14:30	05/22/18 23:23	
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 23:23	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
2,4,6-Tribromophenol	107		41 - 120				05/17/18 14:30	05/22/18 23:23	
2-Fluorobiphenyl	106		48 - 120				05/17/18 14:30	05/22/18 23:23	
2-Fluorophenol	81		35 - 120				05/17/18 14:30	05/22/18 23:23	
Nitrobenzene-d5	99		46 - 120				05/17/18 14:30	05/22/18 23:23	
Phenol-d5	58		22 - 120				05/17/18 14:30	05/22/18 23:23	
p-Terphenyl-d14	108		59 - 136				05/17/18 14:30	05/22/18 23:23	
Method: 6010C - Metals (ICP)						_	-		
Analyte		Qualifier	RL	MDL		D	Prepared		Dil F
Antimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:54	
Arsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:54	
larlum Nodmium	0.099		0.0020	0.00070			05/18/18 09:24	05/22/18 04:54 05/22/18 04:54	
Cadmium	ND 0.0046		0.0010	0.00050	-		05/18/18 09:24 05/18/18 09:24	05/22/18 04:54	
Chromium			0.0040	0.0010	-		05/18/18 09:24	05/22/18 04:54	
Copper	ND 1 R		0.010	0.0016 0.019	-		05/18/18 09:24	05/22/18 04:54	
ron ead	1.8 ND		0.0050	0.0030			05/18/18 09:24	05/22/18 04:54	
fagnesium	18.8		0.000	0.0030	-		05/18/18 09:24	05/22/18 04:54	
And the second of the second second second	0.32		0.0030	0.00040			05/18/18 09:24	05/22/18 04:54	
langanese lickel	0.0052	л	0.010	0.0013	-		05/18/18 09:24	05/22/18 04:54	
Silver	0.0052 ND	-	0.0030	0.0013	-		05/18/18 09:24	05/22/18 04:54	
iodium	206		1.0		mg/L		05/18/18 09:24	05/22/18 04:54	
linc	0.0037	J	0.010	0.0015			05/18/18 09:24	05/22/18 04:54	
		-			-				
Method: 7470A - Mercury (CVAA) Analyte	DoouH	Qualifier	RL.	MDL	Linit	D	Prepared	Analyzed	Dil Fa

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

Mercury

Client Sample ID: GW-03S							Lab Samp	le ID: 480-13	6037-
ate Collected: 05/16/18 16:30							-		c: Wate
ate Received: 05/16/18 18:35				. and second to be over 1. over-1					
Method: 8260C - Volatile Organic C	ompounds	by GC/MS							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/22/18 12:59	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/22/18 12:59	
Acetone	ND		10	3.0	ug/L			05/22/18 12:59	
Benzene	ND		1.0	0.41	ug/L			05/22/18 12:59	
Vinyl chloride	ND		1.0	0.90	ug/L			05/22/18 12:59	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
1,2-Dichloroethane-d4 (Surr)	98		77 - 120					05/22/18 12:59	
Toluene-d8 (Surr)	105		80 - 120					05/22/18 12:59	
4-Bromofluorobenzene (Surr)	103		73 - 120					05/22/18 12:59	
Dibromofluoromethane (Surr)	99		75 - 123					05/22/18 12:59	
Method: 8270D - Semivolatile Orga	nic Compou	nds (GC/MS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii F
,3-Dichlorobenzene	ND		10	0.48	ug/L		05/17/18 14:30	05/22/18 22:24	
I,4-Dichlorobenzene	ND		10	0.46	ug/L		05/17/18 14:30	05/22/18 22:24	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/17/18 14:30	05/22/18 22:24	
Phenol	ND		5.0	0.39	ug/L		05/17/18 14:30	05/22/18 22:24	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dii i
2,4,6-Tribromophenol	95		41 - 120				05/17/18 14:30	05/22/18 22:24	
2-Fluorobiphenyl	94		48 - 120				05/17/18 14:30	05/22/18 22:24	
2-Fluorophenol	73		35 - 120				05/17/18 14:30	05/22/18 22:24	
Nitrobenzene-d5	89		46 - 120				05/17/18 14:30	05/22/18 22:24	
Phenol-d5	55		22 - 120				05/17/18 14:30	05/22/18 22:24	
o-Terphenyl-d14	100		59 - 136				05/17/18 14:30	05/22/18 22:24	
Method: 6010C - Metals (ICP)									
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Intimony	ND		0.020	0.0068	mg/L		05/18/18 09:24	05/22/18 04:46	
vsenic	ND		0.010	0.0056	mg/L		05/18/18 09:24	05/22/18 04:46	
Barium	0.11		0.0020	0.00070	mg/L		05/18/18 09:24	05/22/18 04:46	
Cadmium	0.0030		0.0010	0.00050	-		05/18/18 09:24	05/22/18 04:46	
Chromium	0.026		0.0040	0.0010	mg/L		05/18/18 09:24	05/22/18 04:46	
Sopper	0.0022	J	0.010	0.0016	mg/L		05/18/18 09:24	05/22/18 04:46	
ron	1.3		0.050	0.019			05/18/18 09:24	05/22/18 04:46	
ead	ND		0.0050	0.0030	mg/L		05/18/18 09:24	05/22/18 04:46	
lagnesium	98.9		0.20	0.043	mg/L		05/18/18 09:24	05/22/18 04:46	
langanese	0.12		0.0030	0.00040	mg/L		05/18/18 09:24	05/22/18 04:46	
lickel	0.047		0.010	0.0013	mg/L		05/18/18 09:24	05/22/18 04:46	
liver	ND		0.0030	0.0017	mg/L		05/18/18 09:24	05/22/18 04:46	
Sodium	109		1.0	0.32	mg/L		05/18/18 09:24	05/22/18 04:46	
linc	0.017		0.010	0.0015	mg/L		05/18/18 09:24	05/22/18 04:46	
Method: 7470A - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii F
Mercury	ND		0.00020	0.00012	mal		05/24/18 13:10	05/24/18 17:40	

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05/24/18 13:10 05/24/18 17:40

0.00012 mg/L

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

/lethod: 7470A - Mercury (CV/ Malyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
					-				
linc	0.015		0.010	0.0015			05/21/18 18:49		
odium	95.6	155	1.0	0.32			05/21/18 18:49		
Silver	ND	2	0.0030	0.0017	-		05/21/18 18:49		
lickel	0.0016		0.010	0.0013			05/21/18 18:49		
fanganese	0.022	B	0.0030	0.00040			05/21/18 18:49		
lagnesium	78.0		0.0050	0.0030			05/21/18 18:49		
ead	ND		0.0050	0.0030			05/21/18 18:49		
on	0.17		0.050	0.019			05/21/18 18:49		
Copper	0.0030 ND	-	0.010	0.0016	•		05/21/18 18:49		
Chromium	0.0036	.1	0.0040	0.0010	-		05/21/18 18:49		
Cadmium	ND		0.0010	0.00050	-		05/21/18 18:49		
larium	0.090		0.0020	0.00070	-		05/21/18 18:49		
rsenic	ND		0.010	0.0056	-		05/21/18 18:49	05/25/18 20:35	
ntimony	ND		0.020	0.0068			05/21/18 18:49	05/25/18 20:35	
Method: 6010C - Metals (ICP)	Recult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
o-Terphenyl-d14	87		59 - 136				05/21/18 14:17	05/24/18 11:55	
Phenol-d5	47		22 - 120					05/24/18 11:55	
Nitrobenzene-d5	74		46 - 120					05/24/18 11:55	
2-Fluorophenol	63		35 - 120					05/24/18 11:55	
2-Fluorobiphenyl	84		48 - 120					05/24/18 11:55	
2,4,6-Tribromophenol	83		41 - 120					05/24/18 11:55	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
Phenoi	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 11:55	
Bis(2-ethylhexyl) phthalate	11 B15500 1		5.0		ug/L			05/24/18 11:55	
,4-Dichlorobenzene	ND ND		10	0.46	•		05/21/18 14:17		
,3-Dichlorobenzene	ND		10		ug/L		05/21/18 14:17	05/24/18 11:55	
Analyte	Result	Qualifier	ŔL		Unit	D	Prepared	Analyzed	Dil F
Method: 8270D - Semivolatile	Organic Co	mnounds	(GC/MS)						
Dibromofluoromethane (Surr)	93		75-123					05/24/18 03:03	
4-Bromofluorobenzene (Surr)	93		73 - 120					05/24/18 03:03	
Toluene-d8 (Surr)	86		80 - 120					05/24/18 03:03	
1,2-Dichloroethane-d4 (Surr)	101		77 - 120					05/24/18 03:03	Dir
Surrogate	%Recoverv	Qualifier	Limits		-3-		Prepared	Analyzed	Dil F
Vinyl chloride	ND		1.0		ug/L			05/24/18 03:03	
Benzene	ND		1.0	0.41	-			05/24/18 03:03	
Acetone	ND	1	10		ug/L			05/24/18 03:03	
1,2-Dichloroethene, Total	ND		2.0		ug/L			05/24/18 03:03	
1,1,2-Trichloroethane	ND		1.0	0.20		Ľ	Frepareu	05/24/18 03:03	DIIF
				MDI	11-14		Deserved	Andhanad	
Method: 8260C - Volatile Orga Analyte	Result	Qualifier	RL	0.20	Unit	D	Prepared	Analyzed	D

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

Client Sample ID: GW-04S Date Collected: 05/17/18 07:43 Date Received: 05/17/18 18:35 Lab Sample ID: 480-136147-1 Matrix: Water

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, Totai	^e ND		2.0	0.81	ug/L			05/24/18 02:35	1
Acetone	ND	1	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
Vinyi 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			2	6 - C	05/24/18 02:35	1
Toluene-d8 (Suπ)	93	12	80 - 120					05/24/18 02:35	1
4-Bromofluorobenzene (Surr)	92		73 <u>- 120</u>					05/24/18 02:35	1
Dibromofluoromethane (Surr)	96		75-123					05/24/18 02:35	1

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

Client Sample ID: GW-04S Date Collected: 05/17/18 09:12 Date Received: 05/17/18 18:35						L	ab Sample	ID: 480-136 Matrix	6147-3 : Water
Method: 8270D - Semivolatile O Analyte		ompounds Qualifier	(GC/MS) 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		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	Pocult	Qualifier	RL	MDi	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	duamer	0.020	0.0068			05/21/18 18:49	05/25/18 20:39	1
Arsenic	ND		0.010	0.0056	-		05/21/18 18:49	05/25/18 20:39	1
Barium	0.13		0.0020	0.00070	-		05/21/18 18:49	05/25/18 20:39	1
Cadmium	ND		0.0010	0.00050			05/21/18 18:49	05/25/18 20:39	
Chromium	0.0050		0.0040	0.0010			05/21/18 18:49	05/25/18 20:39	1
Copper	0.0053	Л	0.010	0.0016	•		05/21/18 18:49	05/25/18 20:39	1
iron	3.2		0.050	0.019			05/21/18 18:49	05/25/18 20:39	1
Lead	ND		0.0050	0.0030	-		05/21/18 18:49	05/25/18 20:39	1
Magnesium	29.1		0.20	0.043	-		05/21/18 18:49	05/25/18 20:39	1
Manganese	0.13	B	0.0030	0.00040	•		05/21/18 18:49	05/25/18 20:39	1
Nickel	0.0056	/	0.010	0.0013	-		05/21/18 18:49	05/25/18 20:39	÷ 1
Silver	ND	21	0.0030	0.0017	0		05/21/18 18:49	05/25/18 20:39	1
Sodium	34.2	NSY	1.0	0.32	mg/L		05/21/18 18:49	05/25/18 20:39	<u> </u>
Zinc	0.013	-	0.010	0.0015	-		05/21/18 18:49	05/25/18 20:39	1
Method: 7470A - Mercury (CVAA Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	i condit						· · · operiod	A I III Y NO U	2011.00

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

Client Sample ID: GW-07D						Lab Sam	ple ID: 480-13	6037-6
Date Collected: 05/16/18 09:44							Matrix	k: Water
Date Received: 05/16/18 18:35								
Method: 8260C - Volatile Orga	nic Compounds by	GC/MS						
Analyte	Result Q	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Díl 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
Viny! chloride	ND	1.0	0.90	ug/L			05/22/18 14:40	1

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil 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

Client Sample ID: GW-07D

Project/Site: Pfohl Brothers Landfill GW Monitoring

Date Collected: 05/17/18 09:25 Date Received: 05/17/18 18:35

Client: AECOM

Lab Sample ID: 480-136147-4 Matrix: Water

6

Analyte		ompounds Qualifler	ŔL	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	x-55	1.0	0.32	mg/L		05/21/18 18:49	05/25/18 20:42	<u> </u>
Zinc	0.082		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 20:42	1
Method: 7470A - Mercury (CV/ Analyte		Qualifier	RL	MDL	Linit	D	Prepared	Analyzed	Dil Fac

OB- Water

lient Sample ID: GW-07S						Lab Sample ID: 480-136037-5					
Date Collected: 05/16/18 09:47								Matrix	c: Water		
Date Received: 05/16/18 18:35					1-100-1-1-10-10-10-10-10-10-10-10-10-10-						
Method: 8260C - Volatile Orga	nic 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		
1,1,2-Trichloroethane 1,2-Dichloroethene, Totai	ND ND		1.0 2.0	0.23 0.81	•			05/22/18 14:15 05/22/18 14:15	1		
				0.81	•				1 1 1		

Vinyi chioride	ND	1.0	0.90 ug/L		05/22/18 14:15	1
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil 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		0 · · · · ·	05/22/18 14:15	1
Dibromofluoromethane (Surr)	101	75 - 123			05/22/18 14:15	1

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

Client Sample ID: GW-07S

Date Collected: 05/17/18 09:27 Date Received: 05/17/18 18:35

Lab Sample ID: 480-136147-5 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/21/18 14:17	05/24/18 13:23	
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 13:23	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 13:23	
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 13:23	
Surrogate	%Recovery	Qualifier	Limits			9.10	Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	92		41 - 120				05/21/18 14:17	05/24/18 13:23	
2-Fluorobiphenyl	94		48 - 120				05/21/18 14:17	05/24/18 13:23	
2-Fluorophenol	77		35 - 120				05/21/18 14:17	0 5/24 /18 13:23	
Nitrobenzene-d5	85		46 - 120				05/21/18 14:17	05/24/18 13:23	
Phenol-d5	56		22 - 120				05/21/18 14:17	05/24/18 13:23	
p-Terphenyl-d14	109		59 - 136				05/21/18 14:17	05/24/18 13:23	
Method: 6010C - Metals (ICP)	D#	0				_		· · ·	
		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:11	
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:11	
Barium	0.46	n, 100 moo	0.0020	0.00070	1110 J. Co. 1		05/21/18 18:49	05/25/18 21:11	
Cadmium	0.00057	J	0.0010	0.00050			05/21/18 18:49	05/25/18 21:11	
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:11	
Copper	ND		0.010		mg/L		05/21/18 18:49	05/25/18 21:11	
ron	0.11		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:11	
ead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:11	
lagnesium	47.0	1	0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:11	
langanese	0.062	18	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:11	
lickel	0.016		0.010	0.0013	-		05/21/18 18:49	05/25/18 21:11	
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:11	
Sodium	64.5		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:11	-
linc	0.0059	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:11	
lethod: 7470A - Mercury (CV/	AA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	ma/L		05/25/18 14:45	05/25/18 18:10	1

118, 12 18

Lab Sample ID: 480-136147-8

Matrix: Water

6

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

С	lie	nt	Sa	am	ple	ID:	GV	V-0	8D
-		~							

Date Collected: 05/17/18 13:15 Date Received: 05/17/18 18:35

Method: 8260C - Volatile O Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	NC		1.0	0.23	ug/L		•	05/24/18 13:22	
1,2-Dichloroethene, Totai	ND	I	2.0	0.81	ug/L			05/24/18 13:22	
Acetone	ND		10	3.0	ug/L			05/24/18 13:22	
Benzene	ND		1.0		ug/L			05/24/18 13:22	
Vinyl chloride	ND		1.0		ug/L			05/24/18 13:22	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	101		77 - 120					05/24/18 13:22	
Toluene-d8 (Surr)	106		80 - 120					05/24/18 13:22	
4-Bromofluorobenzene (Surr)	102		73 - 120					05/24/18 13:22	
Dibromofluoromethane (Surr)	100		75 - 123					05/24/18 13:22	
Method: 8270D - Semivolat	ile Organic Co	ompounds	(GC/MS)						
Analyte		Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND	1	10	0.48	ug/L		05/21/18 14:17	05/24/18 14:50	
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 14:50	
3is(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 14:50	
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 14:50	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
2,4,6-Tribromophenol	87		41 - 120				05/21/18 14:17	05/24/18 14:50	·
P-Fluorobiphenyl	84		48 - 120				05/21/18 14:17	05/24/18 14:50	
P-Fluorophenol	63		35 - 120				05/21/18 14:17	05/24/18 14:50	
litrobenzene-d5	72		46 - 120				05/21/18 14:17	05/24/18 14:50	
Phenol-d5	47		22 - 120				05/21/18 14:17	05/24/18 14:50	
o-Terphenyl-d14	110		59 - 136				05/21/18 14:17	05/24/18 14:50	
Vethod: 6010C - Metals (ICI									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dii Fa
ntimony	ND		0.020				05/21/18 18:49	05/25/18 21:22	
rsenic	ND		0.010	0.0056	-		05/21/18 18:49	05/25/18 21:22	
Barlum	0.070		0.0020	0.00070	-			05/25/18 21:22	
admium	ND		0.0010	0.00050	-		05/21/18 18:49	05/25/18 21:22	
hromium	0.040		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:22	
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:22	
ron	0.21		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:22	
ead	ND		0.0050	0.0030	•		05/21/18 18:49	05/25/18 21:22	
lagnesium	16.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:22	
langanese	0.022	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:22	
ickel	0.0065	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:22	
ilver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:22	
odium	213		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:22	
Inc	0.012		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:22	
lethod: 7470A - Mercury (C									
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa



Client: AECOM

Mercury

Project/Site: Pfohl Brothers Landfill GW Monitoring

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Client Sample ID: GW-085 Date Collected: 05/17/18 12:10	SR					La	ab Sample	ID: 480-130	
Date Received: 05/17/18 18:35								Matrix	: wate
Method: 8260C - Volatile Orga Analyte		ounds by C Qualifier	GC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/24/18 12:57	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/24/18 12:57	
Acetone	ND		10	3.0	ug/L			05/24/18 12:57	
Benzene	ND		1.0	0.41	ug/L			05/24/18 12:57	
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 12:57	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	102		77 - 120					05/24/18 12:57	
Toluene-d8 (Surr)	105		80 - 120					05/24/18 12:57	
4-Bromofluorobenzene (Surr)	101		73 - 120					05/24/18 12:57	
Dibromofluoromethane (Surr)	100		75 - 123					05/24/18 12:57	
Method: 8270D - Semivolatile	Organic Co	mpounds	(GC/MS)						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		10	0.48	ug/L		05/21/18 14:17	05/24/18 14:21	
1,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 14:21	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 14:21	
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 14:21	
Surrogate	%Recovery		Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	96		41 - 120				05/21/18 14:17	05/24/18 14:21	
2-Fluorobiphenyl	92		48 - 120				05/21/18 14:17	05/24/18 14:21	
2-Fluorophenol	72		35 - 120				05/21/18 14:17	05/24/18 14:21	
Nitrobenzene-d5	79		46 - 120				05/21/18 14:17	05/24/18 14:21	
Phenol-d5	54		22 - 120				05/21/18 14:17	05/24/18 14:21	
p-Terphenyl-d14	100		59 - 136				05/21/18 14:17	05/24/18 14:21	
Method: 6010C - Metals (ICP)									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	-		05/21/18 18:49	05/25/18 21:19	
Arsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:19	
Barium	0.10		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:19	
Cadmium	ND		0.0010	0.00050	-		05/21/18 18:49	05/25/18 21;19	
Chromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:19	
Copper	ND		0.010	0.0016	-		05/21/18 18:49	05/25/18 21:19	
ron	10.0		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:19	
ead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:19	
flagnesium	49.4		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:19	
langanese	0.80	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:19	
Nickel	0.0016	J	0.010	0.0013			05/21/18 18:49	05/25/18 21:19	
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:19	
Sodium	138		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:19	
Zinc	0.0023	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:19	
Wethod: 7470A - Mercury (CVA		0			11-14	8	Base and the	t.	
Analyte	rtesult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

0.00012 mg/L 05/25/18 14:45 05/25/18 18:13

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0.00020

ND

Client: AECOM

Project/Site: Pfohl Brothers Landfill GW Monitoring

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Date Collected: 05/17/18 17: Date Received: 05/17/18 18:								Watrix	: Wate
Method: 8260C - Volatile O	rganic Compo	unds by G	C/MS						11 M (11) 10 (17) 1 (1)
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dii Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/24/18 04:52	
1,2-Dichloroethene, Total	0.82	J	2.0	0.81	ug/L			05/24/18 04:52	
Acetone	ND	1	10	3.0	ug/L			05/24/18 04:52	•
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 Fa
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	
Method: 8270D - Semivolat	ile Organic Co	mpounds	(GC/MS)						
Analyte		Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
,3-Dichlorobenzene	ND		10	0.48	ug/L		05/21/18 14:17	05/24/18 16:47	8 - 8 -
,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 16:47	1
3is(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
?-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
litrobenzene-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
o-Terphenyl-d14	113		59 - 136				05/21/18 14:17	05/24/18 16:47	1
Method: 6010C - Metals (IC	P)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ntimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:48	1
rsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:48	1
larium	0.14		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:48	1
admium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:48	ି 1
hromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:48	1
opper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:48	1
ron	3.2		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:48	1
ead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:48	1
lagnesium	19.9	- X	0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:48	1
langanese	0.49	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:48	1
lickel	0.0024	J	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:48	1
ilver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:48	1
odium	338		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:48	1
linc	ND		0.010	0.0015	-		05/21/18 18:49	05/25/18 21:48	1
lethod: 7470A - Mercury (C	CVAA)								
nalyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	DII Fac
Aercury	ND		0.00020	0.00012	mall	- 15 98	05/25/19 14-45	00000140 40.07	-

Mercury ND 0.00020 0.00012 mg/L 05/25/18 14:45 05/25/18 18:27

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

Client Sample ID: GW-2						Li	ab Sample	ID: 480-13	
Date Collected: 05/17/18 13:5 Date Received: 05/17/18 18:3								Matrix	: Wate
Method: 8260C - Volatile Or	ganic Compo	unds by G	ic/MS						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/24/18 13:47	
1,2-Dichloroethene, Totai	ND		2.0		ug/L			05/24/18 13:47	
Acetone	ND		10		ug/L			05/24/18 13:47	
Benzene	ND		1.0		ug/L			05/24/18 13:47	
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/18 13:47	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dii F
1,2-Dichloroethane-d4 (Surr)	98		77 - 120	- 18				05/24/18 13:47	
Toluene-d8 (Surr)	105		80 - 120					05/24/18 13:47	
4-Bromofluorobenzene (Surr)	98		73 - 120					05/24/18 13:47	
Dibromofluoromethane (Surr)	99		75 - 123					05/24/18 13:47	
Method: 8270D - Semivolati			• •						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		10		ug/L		05/21/18 14:17	05/24/18 15:19	
1,4-Dichlorobenzene	ND		10		ug/L		05/21/18 14:17	05/24/18 15:19	
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		05/21/18 14:17	05/24/18 15:19	
Phenol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 15:19	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
2,4,6-Tribromophenol	95		41 - 120				05/21/18 14:17	05/24/18 15:19	
2-Fluorobiphenyl	96		48 - 120				05/21/18 14:17	05/24/18 15:19	
2-Fluorophenol	72		35 - 120				05/21/18 14:17	05/24/18 15:19	
Nitrobenzene-d5	84		46 - 120				05/21/18 14:17	05/24/18 15:19	
Phenol-d5	52		22 - 120				05/21/18 14:17	05/24/18 15:19	
o-Terphenyl-d14	110		59 - 136				05/21/18 14:17	05/24/18 15:19	
Method: 6010C - Metals (ICF	•								
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	-		05/21/18 18:49		
Arsenic	ND		0.010	0.0056	-			05/25/18 21:26	
Barium	0.082		0.0020	0.00070	-			05/25/18 21:26	
Cadmium	ND		0.0010	0.00050	•		05/21/18 18:49		
Chromium	0.0017	J	0.0040	0.0010	•		05/21/18 18:49		
Copper	ND		0.010	0.0016			05/21/18 18:49	05/25/18 21:26	
ron	1.1		0.050	0.019			05/21/18 18:49		
ead	ND		0.0050	0.0030			05/21/18 18:49		
Aagnesium	26.4	-	0.20	0.043	•		05/21/18 18:49		
langanese	1.4		0.0030	0.00040	•		05/21/18 18:49		
lickel	0.0021	J	0.010	0.0013	-		05/21/18 18:49		
Silver	ND		0.0030	0.0017	-		05/21/18 18:49		
iodium	13.6		1.0		mg/L		05/21/18 18:49		
linc	0.0068	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:26	
Method: 7470A - Mercury (C				· ·		_	_ .		
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fa

Quest (1)

Client: AECOM

Project/Site: Pfohl Brothers Landfill GW Monitoring

Client Sample ID: GW-29 Date Collected: 05/17/18 15:2						Ld	n oamhid i	D: 480-136 [•] Matrix	
Date Received: 05/17/18 18:3									
Method: 8260C - Volatile Org Analyte		ounds by G Qualifier	iC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/24/18 03:57	
1,2-Dichloroethene, Total	ND		2.0	0.81	-			05/24/18 03:57	
Acetone	ND		10		ug/L			05/24/18 03:57	
Benzene	ND		1.0		ug/L			05/24/18 03:57	
/inyl chloride	ND		1.0		ug/L			05/24/18 03:57	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
,2-Dichloroethane-d4 (Surr)	101		77 - 120					05/24/18 03:57	-
oluene-d8 (Surr)	92		80 - 120					05/24/18 03:57	
Bromofluorobenzene (Surr)	100		73 - 120					05/24/18 03:57	
Dibromofluoromethane (Surr)	97		75 - 123					05/24/18 03:57	
Method: 8270D - Semivolatil	e Organic Co	mpounds	(GC/MS)						
naiyte	-	Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	DII F
,3-Dichlorobenzene	ND		10	0.48	ug/L	6.00	05/21/18 14:17	05/24/18 15:49	
,4-Dichlorobenzene	ND		10	0.46	ug/L		05/21/18 14:17	05/24/18 15:49	
is(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/18 14:17	05/24/18 15:49	
henol	ND		5.0	0.39	ug/L		05/21/18 14:17	05/24/18 15:49	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
,4,6-Tribromophenol	91		41 - 120				05/21/18 14:17	05/24/18 15:49	
-Fluorobiphenyl	89		48 - 120				05/21/18 14:17	05/24/18 15:49	
-Fluorophenol	68		35 - 120				05/21/18 14:17	05/24/18 15:49	
itrobenzene-d5	78		46 - 120				05/21/18 14:17	05/24/18 15:49	
henol-d5	50		22 - 120				05/21/18 14:17	05/24/18 15:49	
-Terphenyl-d14	98		59 - 136				05/21/18 14:17	05/24/18 15:49	
lethod: 6010C - Metals (ICP)									
naiyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil F
ntimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:30	
rsenic	0.012		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:30	
arium	0.17		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:30	
admium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 21:30	
hromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 21:30	35
opper	ND		0.010	0.0016	-		05/21/18 18:49	05/25/18 21:30	
	9.9		0.050	0.019	-		05/21/18 18:49	05/25/18 21:30	
on			0.0050	0.0030	-		05/21/18 18:49	05/25/18 21:30	
on	ND			0.043	mg/L		05/21/18 18:49	05/25/18 21:30	
on ead			0.20	0.045					
on ead agnesium anganese	ND	ø	0.20 0.0030	0.00040	-		05/21/18 18:49	05/25/18 21:30	
on bad agnesium anganese	ND 72.3	B			mg/L			05/25/18 21:30 05/25/18 21:30	
on ead lagnesium langanese ickel	ND 72.3 0.52	ø	0.0030	0.00040	mg/L mg/L		05/21/18 18:49		
on aad agnesium anganese ickel Iver	ND 72.3 0.52 ND	e	0.0030 0.010	0.00040 0.0013 0.0017	mg/L mg/L		05/21/18 18:49	05/25/18 21:30 05/25/18 21:30	
on ead lagnesium langanese ickel ilver odium	ND 72.3 0.52 ND ND	B	0.0030 0.010 0.0030	0.00040 0.0013 0.0017	mg/L mg/L mg/L mg/L		05/21/18 18:49 05/21/18 18:49	05/25/18 21:30 05/25/18 21:30 05/25/18 21:30	
ron ead Magnesium Aanganese lickel ilver sodium inc Method: 7470A - Mercury (CV	ND 72.3 0.52 ND ND 9.4 ND	ø	0.0030 0.010 0.0030 1.0 0.010	0.00040 0.0013 0.0017 0.32	mg/L mg/L mg/L mg/L		05/21/18 18:49 05/21/18 18:49 05/21/18 18:49	05/25/18 21:30 05/25/18 21:30 05/25/18 21:30	
ron ead flagnesium Aanganese lickel ilver sodium inc	ND 72.3 0.52 ND ND 9.4 ND	gualifier	0.0030 0.010 0.0030 1.0	0.00040 0.0013 0.0017 0.32	mg/L mg/L mg/L mg/L Unit	D	05/21/18 18:49 05/21/18 18:49 05/21/18 18:49	05/25/18 21:30 05/25/18 21:30 05/25/18 21:30	DII Fa

Client: AECOM

lient Sample ID: GW-30S		In the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco					Lab Samp	le ID: 480-13	6184
ate Collected: 05/18/18 09:52									x: Wat
ate Received: 05/18/18 14:30							······································		
Method: 8260C - Volatile Organic C	omnounds	by GC/MS							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII F
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/25/18 01:06	
1,2-Dichloroethene, Total	ND		2.0	0.81	-			05/25/18 01:06	
	ND		10	3.0	-			05/25/18 01:06	
Benzene	ND		1.0		ug/L			05/25/18 01:06	
/inyl chloride	ND		1.0		ug/L			05/25/18 01:06	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil
1,2-Dichloroethane-d4 (Surr)	117		77 - 120					05/25/18 01:06	
Foluene-d8 (Surr)	105		80 - 120					05/25/18 01:06	
I-Bromofluorobenzene (Surr)	102		73 - 120					05/25/18 01:06	
Dibromofluoromethane (Surr)	112		75 - 123					05/25/18 01:06	
Method: 8270D - Semivolatile Orga	nic Compou	nds (GC/MS)						
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Anaiyzed	Dil
,3-Dichlorobenzene	ND		10	0.48	ug/L		05/22/18 14:15	05/24/18 04:10	-
,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 04:10	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 04:10	
henoi	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 04:10	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII
2,4,6-Tribromophenol	96		41 - 120				05/22/18 14:15	05/24/18 04:10	
-Fluorobiphenyl	93		48 - 120				05/22/18 14:15	05/24/18 04:10	
-Fluorophenol	76		35 - 120				05/22/18 14:15	05/24/18 04:10	
litrobenzene-d5	85		46 - 120				05/22/18 14:15	05/24/18 04:10	
Phenol-d5	57		22 - 120				05/22/18 14:15	05/24/18 04:10	
-Terphenyl-d14	93		59 _ 136				05/22/18 14:15	05/24/18 04:10	
Vethod: 6010C - Metals (ICP)									8
Inalyte		Qualifier	RL	MDL		D	Prepared	Analyzed	DI
ntimony	ND		0.020	0.0068	mg/L		05/21/18 18:49	05/25/18 21:59	
vrsenic	ND		0.010	0.0056	mg/L		05/21/18 18:49	05/25/18 21:59	
larium	0.10		0.0020	0.00070	mg/L		05/21/18 18:49	05/25/18 21:59	
admium	ND		0.0010	0.00050	-		05/21/18 18:49	05/25/18 21:59	
hromium	ND		0.0040	0.0010	-		05/21/18 18:49	05/25/18 21:59	
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 21:59	
on	4.6		0.050	0.019	mg/L		05/21/18 18:49	05/25/18 21:59	
ead	ND		0.0050	0.0030	mg/L		05/21/18 18:49	05/25/18 21:59	
lagneslum	31.5		0.20	0.043	mg/L		05/21/18 18:49	05/25/18 21:59	
langanese	0.70	F	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 21:59	
lickel	ND		0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:59	
ilver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:59	
odium	33.9		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 21:59	
ïnc	ND		0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 21:59	
Nethod: 7470A - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Mercury -	ND		0.00020	0.00012	ma/L		05/26/18 13:45	05/26/18 17:50	

TestAmerica Buffalo

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TestAmerica Job ID: 480-136184-1

6

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

Client Sample ID: G	₩-31S			Lab Sample ID: 480-13618 Matrix: W			
Date Collected: 05/18/18	3 10:50					Matr	rix: Water
Date Received: 05/18/18	14:30						
Method: 8260C - Volat	ile Organic Compounds by GC/MS						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/25/18 01:29	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 01:29	
Acetone	ND		10	3.0	ug/L			05/25/18 01:29	
Benzene	ND		1.0	0.41	ug/L			05/25/18 01:29	
Vinyi chloride	ND		1.0	0.90	ug/L			05/25/18 01:29	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dii Fa
1,2-Dichloroethane-d4 (Surr)	114		77 - 120					05/25/18 01:29	
Toluene-d8 (Surr)	104		80 - 120					05/25/18 01:29	
l-Bromofluorobenzene (Surr)	104		73 - 120					05/25/18 01:29	
Dibromofluoromethane (Surr)	114		75 - 123					05/25/18 01:29	
Method: 8270D - Semivolatile Orga	nic Compou	nds (GC/MS)							
Inalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
,3-Dichlorobenzene	ND		10	0.48	ug/L		05/22/18 14:15	05/24/18 06:35	
,4-Dichlorobenzene	ND		10	0.46	ug/L		05/22/18 14:15	05/24/18 06:35	
is(2-ethyihexyl) phthalate	ND		5.0	2.2	ug/L		05/22/18 14:15	05/24/18 06:35	
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 06:35	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII F
,4,6-Tribromophenol	94		41 - 120				05/22/18 14:15	05/24/18 06:35	
-Fluorobiphenyl	92		48 - 120				05/22/18 14:15	05/24/18 06:35	
-Fluorophenol	73		35 - 120				05/22/18 14:15	05/24/18 06:35	
litrobenzene-d5	85		46 - 120				05/22/18 14:15	05/24/18 06:35	
Phenol-d5	54		22 - 120				05/22/18 14:15	05/24/18 06:35	
-Terphenyl-d14	99		59 - 136				05/22/18 14:15	05/24/18 06:35	
fethod: 6010C - Metals (ICP)									
nalyte		Qualifier	RL		Unit	<u> </u>	Prepared	Analyzed	Dil Fa
ntimony	ND		0.020	0.0068	mg/L		05/23/18 10:42	05/30/18 03:29	
rsenic	ND		0.010	0.0056	mg/L		05/23/18 10:42	05/30/18 03:29	
arium	0.069		0.0020	0.00070	mg/L		05/23/18 10:42	05/30/18 03:29	
admium	ND		0.0010	0.00050	mg/L		05/23/18 10:42	05/30/18 03:29	
hromium	ND		0.0040	0.0010	mg/L		05/23/18 10:42	05/30/18 03:29	
opper	ND		0.010	0.0016	mg/L		05/23/18 10:42	05/30/18 03:29	
on	1.6		0.050	0.019	mg/L		05/23/18 10:42	05/30/18 03:29	
ad	ND		0.0050	0.0030	mg/L		05/23/18 10:42	05/30/18 03:29	
agnesium	25.5		0.20	0.043	mg/L		05/23/18 10:42	05/30/18 03:29	
-3	1000 mm 8390		0.0030	0.00040	mg/L		05/23/18 10:42	05/30/18 03:29	
0-300000 - 30 - 14 30 30 - 10 - 300	0.80						05/23/18 10:42	05/00/40 00.00	
anganese	0.80	J	0.010	0.0013	mg/L		03/23/10 10.42	05/30/18 03:29	
anganese ickel		L	0.010 0.0030		-		05/23/18 10:42	05/30/18 03:29	
langanese lickel liver odium	0.0020	J		0.0017	mg/L				

Method:	7470A	- Mercury	(CVAA)
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Analyte

Mercury

 Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	
ND		0.00020	0.00012	mg/L	 _	05/26/18 13:45	05/26/18 17:52	

Dil Fac

6

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

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					

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 01:52	
1,2-Dichloroethene, 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
Vinyi chloride	ND		1.0	0.90	ug/L			05/25/18 01:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichioroethane-d4 (Surr)	115	<u> </u>	77 - 120					05/25/18 01:52	
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	09431 S.
Method: 8270D - Semivolatile Or	ganic Compou	nds (GC/MS)							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichiorobenzene	ND		10	0.48	ug/L		05/22/18 14:15	05/24/18 07:04	
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	
Phenol	ND		5.0	0.39	ug/L		05/22/18 14:15	05/24/18 07:04	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil 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	56.11 I. SOIL
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	Dil Fac
Antimony	ND		0.020	0.0068	mg/L	1000	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

Mercury	ND		0.00020	0.00012	mg/L		05/26/18 13:45	05/26/18 17:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury (CVAA)									
Zinc	0.0034	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 22:03	1
Sodium	3.2		1.0		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
Nickel	ND	·	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 22:03	1
Manganese	0.43	F	0.0030	0.00040	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
Lead	ND		0.0050	0.0030	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
Copper	ND		0.010	0.0016	mg/L		05/21/18 18:49	05/25/18 22:03	1

6

Client: AECOM

lient Sample ID: GW-33S	200						Lab Samp	le ID: 480-13	6184
ate Collected: 05/18/18 12:53									x: Wat
ate Received: 05/18/18 14:30									
			-753						
Method: 8260C - Volatile Organic C	ompounds	by GC/MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii F
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/25/18 02:16	
,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			05/25/18 02:16	
Acetone	ND		10	3.0	ug/L			05/25/18 02:16	
Benzene	ND		1.0	0.41	ug/L			05/25/18 02:16	
/inyl chioride	ND		1.0	0.90	ug/L			05/25/18 02:16	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII
,2-Dichloroethane-d4 (Surr)	113		77 - 120					05/25/18 02:16	
oluene-d8 (Surr)	109		80 - 120					05/25/18 02:16	
-Bromofluorobenzene (Surr)	103		73 - 120					05/25/18 02:16	
)ibromofluoromethane (Surr)	110		75 - 123					05/25/18 02:16	
flethod: 8270D - Semivolatile Orga Malyte		unds (GC/MS Qualifier	S) RL	MDL	Unit	D	Prepared	Analyzed	Dil
,3-Dichlorobenzene	ND		10	0.48			05/22/18 14:15	05/24/18 07:33	-
4-Dichlorobenzene	ND		10		ug/L		05/22/18 14:15	05/24/18 07:33	
is(2-ethylhexyl) phthalate	ND		5.0		ug/L		05/22/18 14:15	05/24/18 07:33	
henol	ND		5.0		ug/L		05/22/18 14:15	05/24/18 07:33	
	%Recovery	Overlifers	Limits				Prepared	Analyzed	DII
urrogate 4,6-Tribromophenol	87		41 - 120				05/22/18 14:15	05/24/18 07:33	
-Fluorobiphenyi	95		48 - 120				05/22/18 14:15	05/24/18 07:33	
-Fluorophenol	93 73		48 - 120 35 - 120				05/22/18 14:15	05/24/18 07:33	
itrobenzene-d5	85		46 - 120				05/22/18 14:15	05/24/18 07:33	
henol-d5	55		40 - 120 22 - 120				05/22/18 14:15	05/24/18 07:33	
Terphenyl-d14	55 104		22 - 120 59 - 136				05/22/18 14:15	05/24/18 07:33	
-rerpnenyi-arv	104		<i>59 - 1</i> 30				03/22/10 14.13	00/24/10 07.33	
/lethod: 6010C - Metals (ICP)									
nalyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil
ntimony	ND		0.020	0.0068	-		05/21/18 18:49	05/25/18 22:07	
rsenic	ND		0.010	0.0056	-		05/21/18 18:49	05/25/18 22:07	
arium	0.037		0.0020	0.00070	1127 I.I. I.I.		05/21/18 18:49	05/25/18 22:07	
admium	ND		0.0010	0.00050	mg/L		05/21/18 18:49	05/25/18 22:07	
hromium	ND		0.0040	0.0010	mg/L		05/21/18 18:49	05/25/18 22:07	
opper	ND		0.010	0.0016			05/21/18 18:49	05/25/18 22:07	
on	0.025	J	0.050	0.019	_		05/21/18 18:49	05/25/18 22:07	
ad	ND		0.0050	0.0030			05/21/18 18:49	05/25/18 22:07	
agnesium	29.1		0.20	0.043			05/21/18 18:49	05/25/18 22:07	
anganese	0.11	B	0.0030	0.00040	mg/L		05/21/18 18:49	05/25/18 22:07	
ickel	0.0013	្យ	0.010	0.0013	-		05/21/18 18:49	05/25/18 22:07	
liver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 22:07	
odium	2.9		1.0	0.32	mg/L		05/21/18 18:49	05/25/18 22:07	
inc	0.0031	J	0.010	0.0015	mg/L		05/21/18 18:49	05/25/18 22:07	
lethod: 74704 - Mercury (CVAA)									
lethod: 7470A - Mercury (CVAA) nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F

9 TestAmerica Buffalo

6/5/2018

05/24/18 03:30

05/24/18 03:30

Analyzed

Dil Fac

1

1

D

Prepared

05/21/18 18:49 05/25/18 21:15

05/21/18 18:49 05/25/18 21:15

Dil Fac

1

1

1

1

1

1

1

1

Dil Fac

6

Project/Site: Pfohl Brothers Landfill GW Monitoring 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 Result Qualifier RL Analyte MDL Unit D Prepared Analyzed 1,1,2-Trichloroethane ND 1.0 0.23 ug/L 05/24/18 03:30 1,2-Dichloroethene, Total ND 2.0 0.81 ug/L 05/24/18 03:30 Acetone ND 1 05/24/18 03:30 10 3.0 ug/L ND 05/24/18 03:30 Benzene 1.0 0.41 ug/L Vinyi chloride ND 1.0 0.90 ug/L 05/24/18 03:30 Limits %Recovery Qualifier Surrogate Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 77 - 120 05/24/18 03:30 98

88

92

	v-								
Dibromofluoromethane (Surr)	96		75-123					05/24/18 03:30	1
Method: 8270D - Semivola	tile Organic Co	mpounds	(GC/MS)						
Analyte	Result	Qualifier	ŔL	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	Dil 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 <u>-</u> 136				05/21/18 14:17	05/24/18 13:52	1

80 - 120

73 - 120

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit
Antimony	ND		0.020	0.0068	mg/L
Arsenic	ND		0.010	0.0056	mg/L
Barium	0.12		0.0020	0.00070	mg/L
Cadmium	ND		0.0010	0.00050	ma/L

Client: AECOM

Toluene-d8 (Surr)

4-Bromofluorobenzene (Surr)

Mercury	ND	·	0.00020	0.00012	mg/L		05/25/18 14:45	05/25/18 18:11	1
Method: 7470A - Me Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
		-			··· g –				
Zinc	0.0076	J	0.010	0.0015	ma/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
Silver	ND		0.0030	0.0017	mg/L		05/21/18 18:49	05/25/18 21:15	1
Nickel	0.0056	Ĵ	0.010	0.0013	mg/L		05/21/18 18:49	05/25/18 21:15	1
Manganese	0.41	B	0.0030	0.00040	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
Lead	ND		0.0050	0.0030	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
Copper	ND		0.010	0.0016	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
Cadmium	ND		0.0010	0.00050	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

TestAmerica Job ID: 480-136147-1

6

Lab Sample ID: 480-136147-11

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

Client Sample ID: GW-35S

Date Collected: 05/17/18 16:15 Matrix: Water Date Received: 05/17/18 18:35 Method: 8260C - Volatile Organic Compounds by GC/MS RL MDL Unit Analyte **Result Qualifier** 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 ND , Acetone 10 3.0 ug/L 05/24/18 04:24 1 ND 1.0 Benzene 0.41 ug/L 05/24/18 04:24 1 0.90 ug/L Vinyl chloride ND 1.0 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 92 Dibromofluoromethane (Surr) 75-123 05/24/18 04:24 1 Method: 8270D - Semivolatile Organic Compounds (GC/MS) **Result Qualifier** MDL Unit **DII Fac** Analyte RL D Prepared Analyzed 1,3-Dichlorobenzene ND 10 0.48 ug/L 05/21/18 14:17 05/24/18 16:18 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 ua/L 05/21/18 14:17 05/24/18 16:18 1 Phenoi 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 05/21/18 14:17 05/24/18 16:18 p-Terphenyl-d14 95 59 - 136 1 Method: 6010C - Metals (ICP) **Result Qualifier** Analyte 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 05/21/18 18:49 05/25/18 21:34 mg/L 1 Cadmium ND 0.0010 0.00050 05/25/18 21:34 mg/L 05/21/18 18:49 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 0.032 J 0.050 0.019 mg/L 05/21/18 18:49 05/25/18 21:34 Iron 1 ND 0.0050 0.0030 mg/L 05/21/18 18:49 05/25/18 21:34 Lead 1 Magnesium 21.2 0.20 0.043 mg/L 05/21/18 18:49 05/25/18 21:34 1 0.0030 Manganese 0.19 B 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 1.0 0.32 mg/L 05/21/18 18:49 05/25/18 21:34 2.6 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 DII Fac 0.00020 0.00012 mg/L Mercury ND 05/25/18 14:45 05/25/18 18:25 1

will be

Client: AECOM Project/Site: Pfohl Brothers Landfill GW Monitoring TestAmerica Job ID: 480-136037-1

Client Sample	ID: TRIP	BLANK
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Date Collected: 05/16/18 00:00 Date Received: 05/16/18 18:35

Lab Sample ID: 480-136037-7 Matrix: Water

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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 ND 05/22/18 15:05 1,2-Dichloroethene, Total 2.0 0.81 ug/L 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 05/22/18 15:05 Vinyl chloride ND 1.0 0.90 ug/L 1 Analyzed Dil Fac Surrogate %Recovery Qualifier Limits Prepared 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

Client Sample Results

TestAmerica Job ID: 480-136184-1

05/25/18 02:39

05/25/18 02:39

05/25/18 02:39

05/25/18 02:39

Analyzed

05/25/18 02:39

05/25/18 02:39

05/25/18 02:39

05/25/18 02:39

Prepared

6

1

1

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1

1

1

1

1

Dil Fac

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

1,2-Dichloroethene, Total

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Acetone

Benzene

Vinyl chloride

Toluene-d8 (Surr)

Surrogate

Client Sample ID: TB-051818						Lab Samp	ole ID: 480-13	6184-5
Date Collected: 05/18/18 00:00							Matrix	k: Water
Date Received: 05/18/18 14:30								
Method: 8260C - Volatile Organic Compo	ounds 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

2.0

10

1.0

1.0

Limits

77 - 120

80 - 120 73 - 120

75 - 123

0.81 ug/L

3.0 ug/L

0.41 ug/L

0.90 ug/L

ND

ND

ND

ND

119

105

103

117

%Recovery

Qualifier

APPENDIX B

SUPPORT DOCUMENTATION

J:\Projects\11172700.00000\WORD\DVR Reports\Pfohl Brothers GW May 2018.docx

Page 31 of 32

5/30/2018

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9

5

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.



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10.07.00

Job ID: 480-136184-1

Laboratory: TestAmerica Buffalo

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.

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6/11/2018

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FestAmerica Buffalo	0 Hazelwood Drive

Chain of Custody Record



Phone (716) 691-2600 Fax (716) 691-7991						A NUMBER OF A	alle de la constructioner
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Client Contect Ms. Ann Marie Kropovitch			E-Mail melissa devo@testamericainc com	mericaino com		Paga	
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AECOM				Analysis Requested	quested	a cor	
Address 257 West Genesee Street Suite 400	Due Date Requested:		國			Preservation Codes	
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Email ann marie.kropovitch@aecom.com	WC # ann.marie.kropovitch@aecom com	COM	(0N	unodu		H - Ascorbic Acid - Ice - J - Di Waler	
Project Name Pfohl Brothers Landfill GW Monitoring	Project # 48002609		10 80	noð si		Menter K. EDTA	W - pH 4-5 Z - other (specify)
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E

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

4

Job ID: 480-136147-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-136147-1

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

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1.0 INTRODUCTION

1.1 Background

The Pfohl Brothers Landfill is located on Aero Drive in the Town of Cheektowaga, New York (Figure 1-1). The site is listed as site No. 915043 on the New York State Department of Environmental Conservation's (NYSDEC's) Registry of Inactive Hazardous Waste Disposal Sites. A Consent Order between NYSDEC and potentially responsible parties (PRPs) for closure of the site was signed in 2001 and remedial construction commenced in 2001. The remedy included consolidation of waste material, capping of the waste disposal and consolidation areas, and encircling the landfill areas with a groundwater collection system to prevent off-site migration. The remedial action was completed in 2002.

Responsibility for implementing the remedy was divided between a "steering committee" of industrial PRPs and the Town of Cheektowaga. The steering committee responsibilities lay generally with the capital construction activities of the remedy including waste consolidation, cap and drainage system installation, etc. The Town of Cheektowaga, which was named as a PRP for disposal of municipal waste at the Pfohl Brothers Landfill when it was operating, is performing the operation and maintenance (O&M) activities at the landfill, pursuant to a settlement agreement between the Town and the steering committee.

1.2 **Operation and Maintenance Activities**

While construction of the remedy was substantially complete by late 2002, the final O&M manual was not approved by the NYSDEC until March 10, 2006. However, the Town of Cheektowaga and its consultant (URS Corporation – New York) assumed most of the operational responsibilities since 2002. This includes a variety of general maintenance activities as outlined in Section 2 and sampling and other monitoring activities outlined in Section 3.

Beginning in 2004, the Town and URS assumed all of the O&M activities described in the O&M plan. This is the semi-annual report as called for by Section 3.6 of the O&M plan.

2.0 GENERAL MAINTENANCE ACTIVITIES

Since completion of construction activities in 2002, personnel from the Town of Cheektowaga Engineering Department have performed general activities to ensure the physical operation of the landfill as intended by the design. The various O&M activities performed by the Town from July 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/repaired 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 (μ g/L), slightly exceeding its standard of 3.0 μ g/L. Bis(2-Ethylhexyl)phthalate was detected in well GW-07D at an estimated concentration of 5.4 μ g/L, slightly exceeding its standard of 5.0 μ 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- 29S GW- 30S GW- 31S GW- 31S GW- 32S GW- 33S GW- 34S

FREQUENCY

semi-annually for overburden and bedrock groundwater

PARAMETERS

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

bis(2-Ethylhexyl)phthalate

TABLE 3-1 (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)

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

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		0.20	
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		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		134		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.

C

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.

C

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 Depth Interval (ft) Date Sampled			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			-	-	-	-	-
			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		0.59
Nickel	MG/L	0.1	0.0015 J	0.0037 J	0.0037 J	0.0023 J	
Sodium	MG/L	20	165			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

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

NA - Not Analyzed.

C

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 Depth Interval (ft) Date Sampled			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			-	-	-	-	-
			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.

C

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.

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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 Depth Interval (ft) Date Sampled			Quality Control	Quality Control	Groundwater	Groundwater - 11/14/18	Groundwater - 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

Location ID Sample ID Matrix Depth Interval (ft)			FIELDQC	FIELDQC	GW-08D	GW-08SR	GW-26D
			EB-111418	FB-111418	GW-08D	GW-08SR	FD-111418
			Quality Control -	Quality Control	Groundwater -	Groundwater -	Groundwater -
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

Page 2 of 4

TABLE 3-3

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

Location ID	GW-26D GW-26D	GW-35S GW-35S		
Sample ID				
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

TABLE 3-3

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

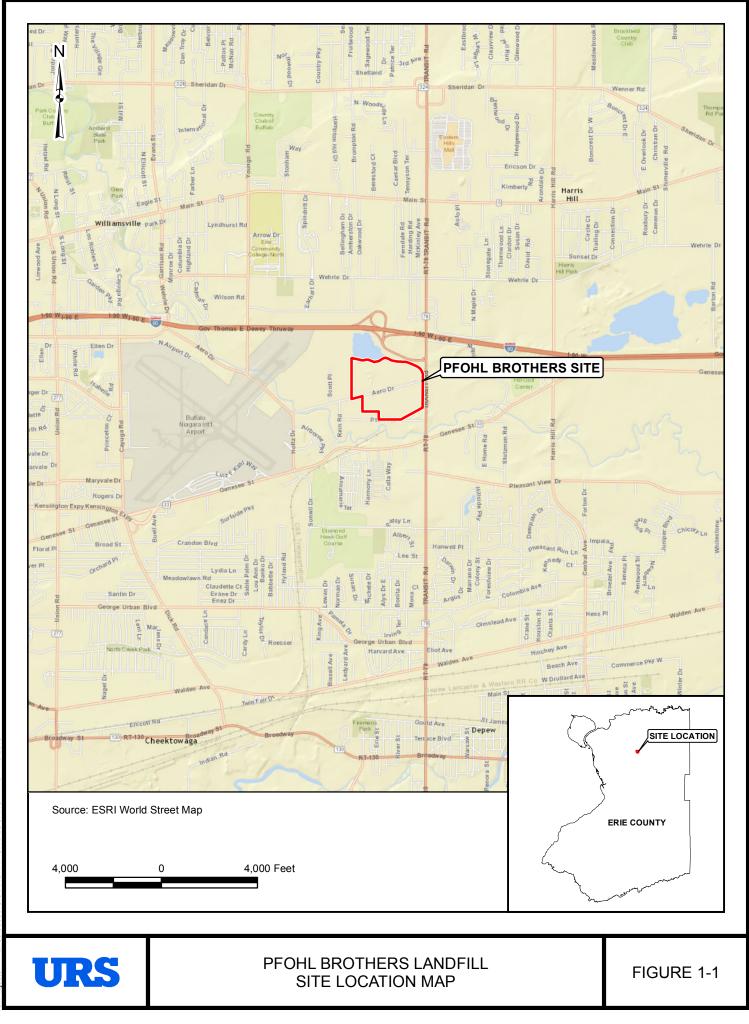
Location ID	GW-26D	GW-35S		
Sample ID	GW-26D	GW-35S		
Matrix	Groundwater	Groundwater		
Depth Interval (ft		-	-	
Date Sampled		11/14/18	11/14/18	
Parameter	Units	*		
Per- and Polyfluoroalkyl Substances				
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2)	NG/L	-	0.50 U	0.53 U
Total PFOA and PFOS	NG/L	70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

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

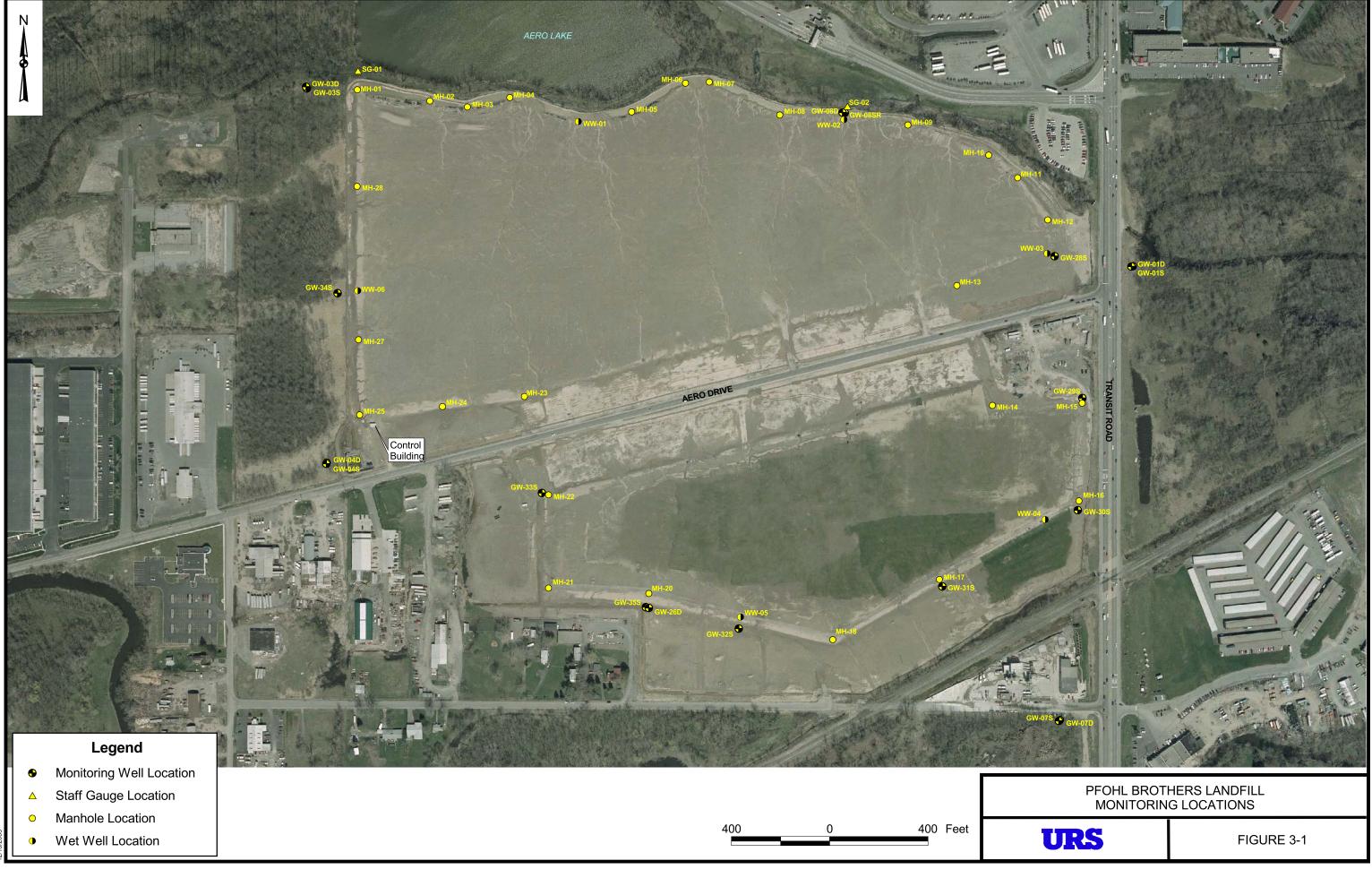
Flags assigned during chemistry validation are shown.

Concentration Exceeds

FIGURES



I:NProjects\11172700.00000\GIS\ARCMAP\SITE LOCATION.mxd_4/13/2015



APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

J:\Projects\11172700.00000\WORD\DRAFT\Semi Annual Report Jul-Dec18\Semi Annual Report Jul-Dec18.docx

		Pfc	ohl Brothers	s Landfill Site								
	Daily Lo	gsheet		Town of Cheektowa	iga , 16-							
	Date	. N7/02/18	\mathbf{O}	Weather conditions	Clear HOI							
	Time	0938		Read by:	TWA							
		Level of Water	Flow	Flow Totals	Pump Run Time							
		from bottom (ft.)	gallons / minute	gailons	Hrs.							
	WW-3		<i>D</i>	//38	2192							
	WW-2			-40/3	162							
	WW-1	4.0		1181884	<u>1,581</u>							
	WW-6		<u> </u>	5052112	<u></u>							
	WW-4		<u> </u>	-116620 -18128B	7751							
	WW-5 R.O 5486389 21348 Flow Totalizer at Meter chamber 12414540											
	Heat Trac	Outside temp T = 92 Current A =	1	Set point SP = $\frac{40}{1}$								
	Surge Sup	opressor events	4/1/44	_								
	Motor Cor	Amps	volts amps	Which WW was running? 1 2 3 4 5 6	na sa na kata sa kuata							
	Filter	Checked	Changed									
	Comments	Annal 7	ns Jow Re	? 5 2								
1				······	····							

Pfohl Brothers Landfill Site

Daily Lo	gsheet		Town of Cheektowaga						
Date	92618		Weather conditions	Lt-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	1 0	0	2792					
WW-2	4.4	0	0	1102					
WW-1	4.5	0	150864	101052					
WW-6	7.2	0	34910410	16105					
WW-4	6.8	0	36991	7767					
WW-5	<u>le.</u> 7	<i>D</i>	815151	21836					
Flow Tota	alizer at Meter chambe	r	1352190	, <u> </u>					
Heat Trac	e Outside temp T = 1 Current A = 4	0	<u>Set point SP = 니()</u>						
Surge Su	ppressor events	417378	<u> </u>						
Motor Cor	ntrol Center ↓ ∬ () Volts	volts	Which WW was running	?					
	Amps 5	amps	123456						
Filter	Checked	Changed							
Comment	and/or Current Conditio	ns							
	· · · · · · · · · · · · · · · · · · ·								
<u> </u>									
<u></u>			····· ,						
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	and a day of the second second second second second second second second second second second second second se								
	,		<u> </u>						
			a second second second second second second second second second second second second second second second second	·					

	Daily Lo	Pfo	ohl Brothers Landfill Site Town of Cheektowaga								
\bigcirc	Date Time	0700	-	Weather conditions Read by:	30°F, breezy, cloudy T.U.						
		Level of Water from bottom (ft.) <u>99.0 (akrm)</u> <u>4.7 4.6</u> <u>4.3</u> <u>7.3</u> <u>6.9</u> <u>5.6</u> alizer at Meter chamber	Flow gallons / minute 0.0 0.0 0.0 0.0 2.5,2	Flow Totals gallons 0 366276 1369283 3691 1469731 234969 - 324	Pump Run Time Hrs. 2792 162 6749 16381 7767 22244						
		Outside temp $T = 25$ Current $A = 1.8$	°F 417 433	Set point SP = 40° F							
	Motor Con	Volts 480	volts amps	Which WW was running? 1 2 3 466							
	Filter	Checked	Changed								
	Comments	and/or Current Condition	5								
•		·			- 90., 						
).											

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,

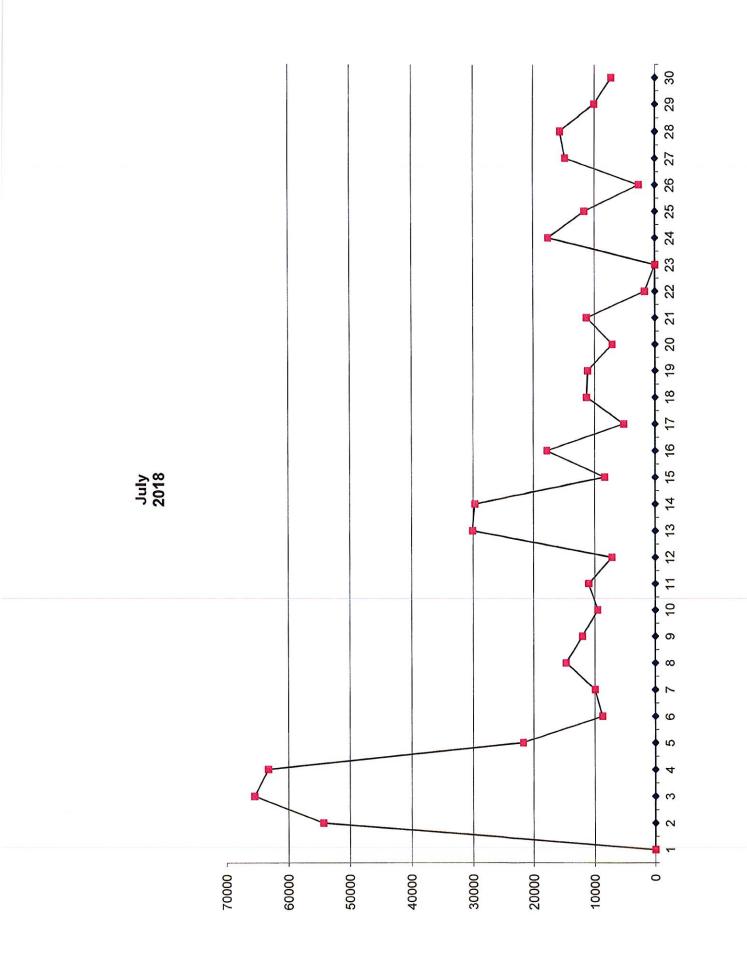
Enclosed for your review, please find a copy of the July 2018 Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

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

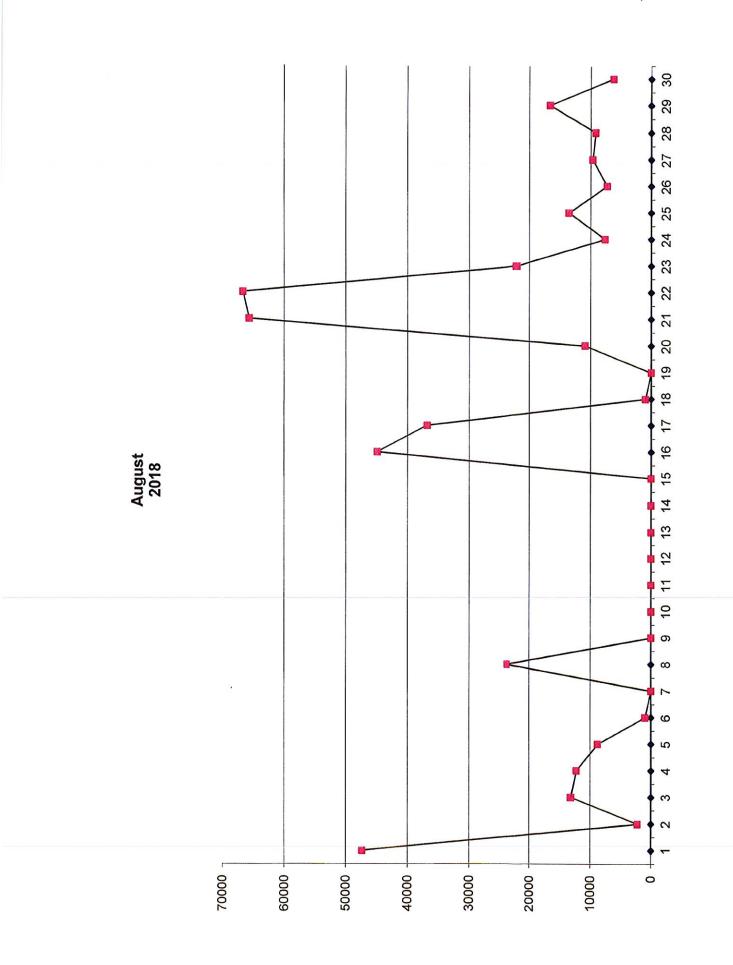
Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly. on W. Nichy Superintendent Main Pump Station

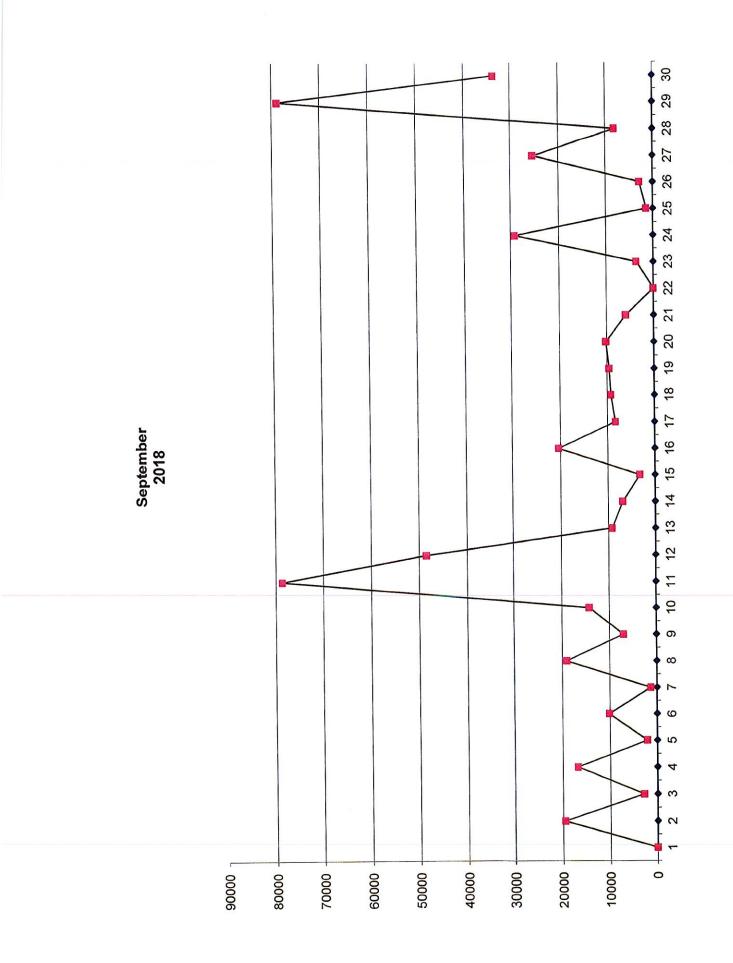
6/30/2		12414546	0	
Jul-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		12,414,546	0	
2		54,343	54,343	Annual Reset / 23:42 inhibit
3		119,878	65,534	07:15 enable
4		183,168	63,290	
5		204,923	21,754	
6		213,615	8,691	
7		223,556	9,940	·
8		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	



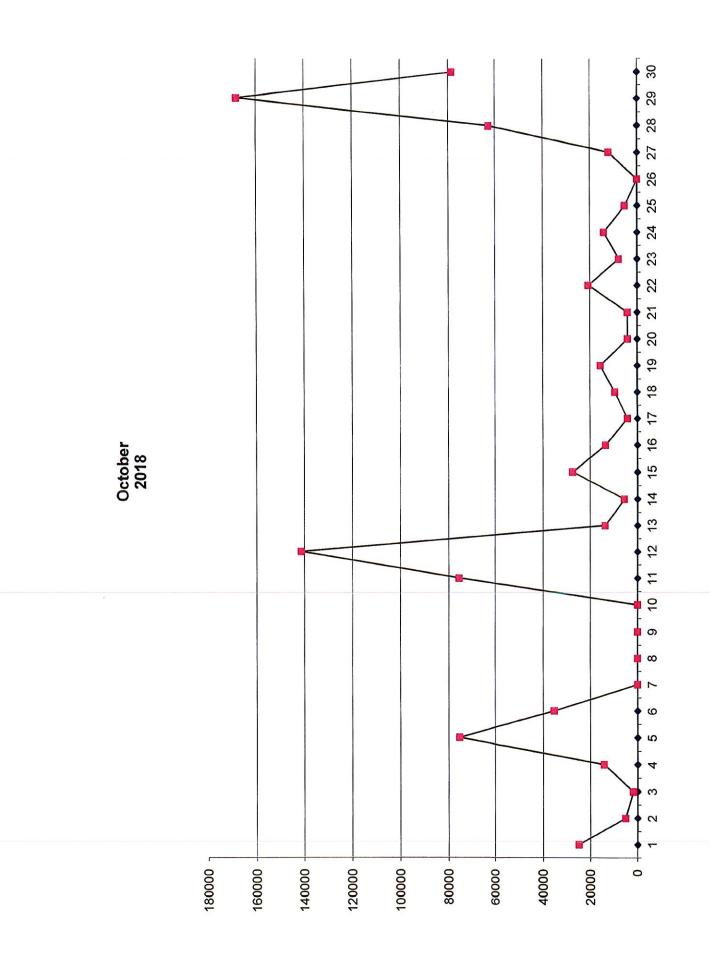
7/31/20		580828	89,814	· · · · · · · · · · · · · · · · · · ·
Aug-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Galions)	Daily Total Discharge (Galions)	Notes
1		628,171	47,343	
2		630,340	2,168	
3		643,501	13,160	
4		655,751	12,249	
5		664,521	8,770	
6		665,459	938	
7		665,459	0	00:04 inhibit
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	<u></u>
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	



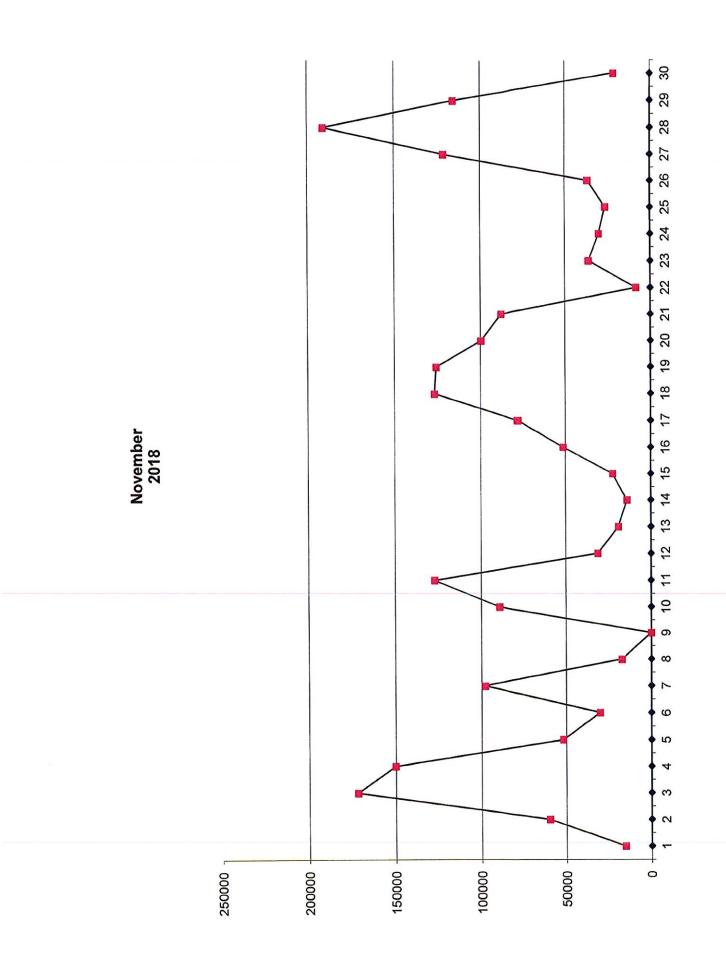
8/31/20		1015233	89,814	
Sep-18	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)	Notes
1		1,015,233	0	
2		1,034,771	19,538	
3		1,037,539	2,768	
4		1,054,345	16,805	
5		1,056,420	2,074	
6		1,066,520	10,100	
7		1,067,819	1,299	
8		1,086,883	19,064	
9		1,093,873	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	
26		1,354,983	2,794	
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	



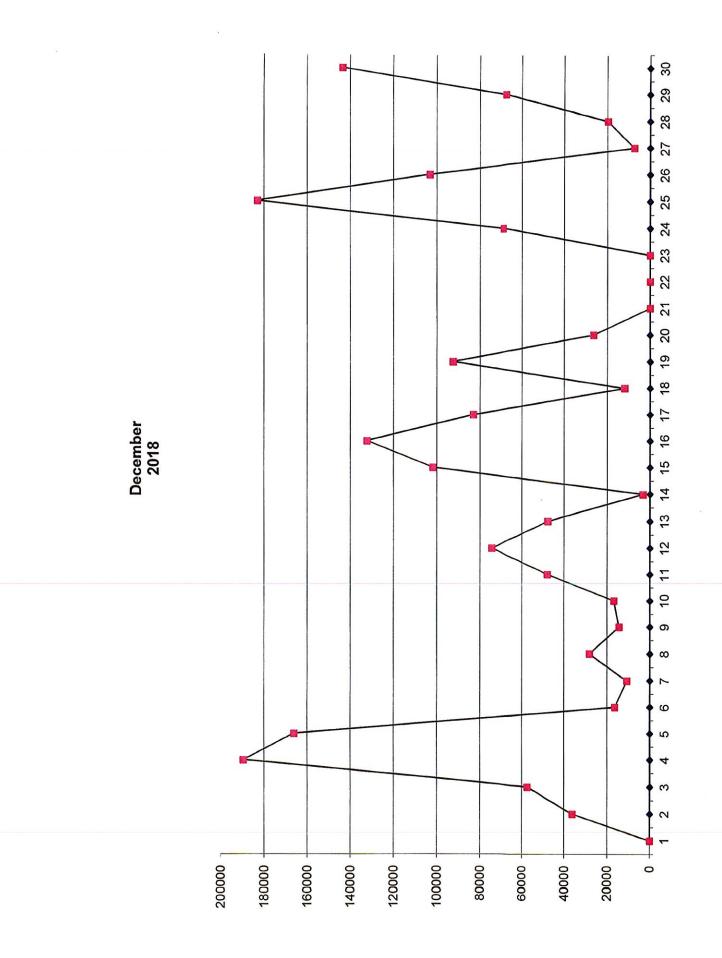
	1	oot Bioonal		
9/30/20	Number of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract	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	v 60	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		
14		1,893,475		
15		1,920,818		
16		1,934,296		
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		
29		2,262,440		
30		2,341,049		
31		2,355,318		13:40 inhibit 22:35 enable
		854,174		



10/31/20	18	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 ihibit 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	<u> </u>
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	i



1 4,409,623 0 21:44 intr 2 4,445,843 36,220 17:10 enable 21 3 4,503,167 57,324 126:35 en 4 4,692,710 189,542 5 4,858,799 166,089 6 4,875,040 16,240 7 4,866,795 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 0 21 5,665,951 0 22 5,665,951 0	11/30/20		4409623	14,269	
2 $4,445,843$ $36,220$ $17:10 \text{ enable } 21$ 3 $4,603,167$ $57,324$ $126:35 \text{ en}$ 4 $4,692,710$ $189,542$ 5 $4,658,799$ $166,089$ 6 $4,675,040$ $16,240$ 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 $5,539,623$ $92,563$ 20 $5,656,951$ 0 21 $5,665,951$ 0 22 $5,665,951$ 0 23 $5,565,951$ 0 24 $5,634,674$ $68,723$ 25 $5,817,623$ $182,949$ 26 $5,920,739$ $103,116$ 27 $5,928,076$ $7,337$ 28 $5,947,792$ $19,716$	Dec-18	11:58pm unless otherwise		Discharge	Notes
34,503,16757,324126:35 en44,692,710189,64254,858,799166,08964,875,04016,24074,885,79510,75584,913,99428,19994,928,33314,338104,945,01316,680114,992,92047,906125,067,38274,462135,114,96447,582145,118,1063,142155,219,835101,729165,352,103132,267175,435,21783,114185,447,07011,853195,565,95126,327235,665,9510245,634,67468,723255,817,623182,949265,920,739103,116275,928,0767,337285,947,79219,716	1		4,409,623	0	21:44 inhibit
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7 $4,885,795$ $10,765$ 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 $5,565,951$ 0 22 $5,665,951$ 0 23 $5,565,951$ 0 24 $5,634,674$ $68,723$ 25 $5,817,623$ $182,949$ 26 $5,920,739$ $103,116$ 27 $5,928,076$ $7,337$ 28 $5,947,792$ $19,716$	5		4,858,799	166,089	
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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 inh 21 5,565,951 0 22 23 5,565,951 0 23 24 5,634,674 68,723 14:55 ens 25 5,817,623 182,949 26 5,928,076 7,337 28 5,947,792 19,716 19,716 14:55	10		4,945,013	16,680	
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17 5,435,217 83,114 18 5,447,070 11,853 19 5,539,623 92,553 20 5,565,951 26,327 21 5,565,951 0 22 5,565,951 0 23 5,565,951 0 24 5,634,674 68,723 14;55 ens 25 5,817,623 182,949 14;55 ens 26 5,920,739 103,116 27 28 5,947,792 19,716 19,716	15		5,219,835	101,729	
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19 5,539,623 92,553 20 5,565,951 26,327 23:18 inh 21 5,565,951 0 0 22 5,565,951 0 0 23 5,565,951 0 0 24 5,634,674 68,723 14:55 enz 25 5,817,623 182,949 14:55 enz 26 5,928,076 7,337 103,116 27 5,928,076 7,337 19,716	17		5,435,217	83,114	
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21 5,565,951 0 22 5,565,951 0 23 5,565,951 0 24 5,634,674 68,723 14:55 ena 25 5,817,623 182,949 26 5,920,739 103,116 27 5,928,076 7,337 28 5,947,792 19,716	19		5,539,623	92,553	
22 5,565,951 0 23 5,565,951 0 24 5,634,674 68,723 14:55 ena 25 5,817,623 182,949 26 5,920,739 103,116 27 5,928,076 7,337 28 5,947,792 19,716	20		5,565,951	26,327	23:18 inhibit
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24 5,634,674 68,723 14:55 ena 25 5,817,623 182,949 182,949 26 5,920,739 103,116 103,116 27 5,928,076 7,337 19,716	22		5,565,951	0	
25 5,817,623 182,949 26 5,920,739 103,116 27 5,928,076 7,337 28 5,947,792 19,716	23		5,565,951	0	
26 5,920,739 103,116 27 5,928,076 7,337 28 5,947,792 19,716	24		5,634,674	68,723	14:55 enable
27 5,928,076 7,337 28 5,947,792 19,716	25		5,817,623	182,949	
28 5,947,792 19,716	26		5,920,739	103,116	
	27		5,928,076	7,337	
8 015 161 67 260	28		5,947,792	19,716	
	29		6,015,161	67,368	·
30 6,158,762 143,601	30		6,158,762	143,601	
31 6,174,052 15289 18:22 inh	31		6,174,052	15289	18:22 inhibit



APPENDIX C

HYDRAULIC MONITORING TABLES

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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							ĺ	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.

Manhole Monitoring Point Monitoring Well Staff Gauge

Type:

MNW

MH

SG

Filter = ([tblGWD].[LOGDATE]>=#7/1/2018#)

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						İ		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						Ì		12/20/2018 1143	8.68	692.27	0.00	692.27	

NM - No Measurement

Filter = ([tblGWD].[LOGDATE]>=#7/1/2018#)

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

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						İ		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			İ			İ	l	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

Filter = ([tblGWD].[LOGDATE]>=#7/1/2018#)

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

Type: MH

SG

Manhole Monitoring Point MNW Monitoring Well Staff Gauge

Location I Type	0 / 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	1071701.92	5 1115985.585	696.19	NM	697.39	S	1						
MN	w							9/12/2018 1620	6.80	690.59	0.00	690.59	
MN	W							11/13/2018 1005	4.41	692.98	0.00	692.98	
MM	W							12/20/2018 1209	3.28	694.11	0.00	694.11	
MH-01	1073806.66	5 1114810.501	698.62	NM	698.62	NA	1						
I I	ин							9/12/2018 1531	11.17	687.45	0.00	687.45	
1	1H							11/13/2018 0907	10.42	688.20	0.00	688.20	
I	1H							12/20/2018 1118	11.32	687.30	0.00	687.30	
MH-03	1073736.78	9 1115259.334	699.40	NM	699.40	NA	1						
I I	ин							9/12/2018 1537	11.23	688.17	0.00	688.17	
	1H							11/13/2018 0923	11.25	688.15	0.00	688.15	
1	1H		1					12/20/2018 1133	11.26	688.14	0.00	688.14	
MH-07	1073838.22	9 1116243.757	696.82	NM	696.82	NA	1						
I I	1Н							9/12/2018 1538	9.46	687.36	0.00	687.36	
I	1H							11/13/2018 0925	9.47	687.35	0.00	687.35	
I	1H							12/20/2018 1136	9.95	686.87	0.00	686.87	
MH-10	1073540.72	9 1117381.524	703.01	NM	703.01	NA	1						
I I	ин							9/12/2018 1550	14.53	688.48	0.00	688.48	
	1H						1	11/13/2018 0933	14.49	688.52	0.00	688.52	
1	1H							12/20/2018 1141	14.45	688.56	0.00	688.56	
MH-15	1072531.56	7 1117761.125	699.02	NM	699.02	NA	1						
1	1H					İ		9/12/2018 1607	14.81	684.21	0.00	684.21	
	1H							11/13/2018 0951	14.93	684.09	0.00	684.09	
I	1H							12/20/2018 1156	14.98	684.04	0.00	684.04	

NM - No Measurement

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



MNW

SG

Manhole Monitoring Point Monitoring Well

Staff Gauge

Location 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						
	ΜΗ								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						
	ΜΗ								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						
	ΜΗ							l	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

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

Manhole Monitoring Point MNW Monitoring Well Staff Gauge

Type:

MH

SG

Filter = ([tblGWD].[LOGDATE]>=#7/1/2018#)

Location 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						
	ΜΗ								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						
	ΜΗ								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						
	ΜΗ								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						
	ΜΗ								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						
	ΜΗ								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

Filter = ([tblGWD].[LOGDATE]>=#7/1/2018#)

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

Manhole Monitoring Point

Monitoring Well

Staff Gauge



MNW

SG

L	ocation ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)		Specific Gravity		Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
W	/W-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		Water Level	Water Level	Difference	Water Level	
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	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	000.40	090.09	1.11	000.0				
11/13/2016	686.45	692.98	6.53	689.05	694.29	5.24		

Notes:

* = No corresponding monitoring well.

NA = Not applicable

APPENDIX D

GROUNDWATER PURGE AND SAMPLE COLLECTION LOGS

Project:		60411174		Site:	Pfohl B	rothers	Well I.D.:	GW-01S	
Date:	11/13/2018	Sampling P	ersonnel:	Rob Mu	urphy, Tom l	Jrban	_ Company: _	URS Corporation	
Purging/ Sampling Device:		Geopump 2		Tubing Type:	HDPE/S	Silicone	Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.55'	Depth to Well Bottom:	14.94'	Well Diameter:	2"	Screen Length:	
Casing Type:	Stainles	s Steel		Volume in 1 Well Casing (liters):	7.0		Estimated Purge Volume (liters):	11.3	
Sample ID:		GW-01S		Sample Time:	11	:28	QA/QC:		
	_	VOCs, SVOCs, ar Riser pipe is bulge			e stainless st	teel bailer fror	n within well, sar	mpled around it.	

PURGE PARAMETERS

TIME	рН	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_{evl} = π ²h)

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-01D
Date:	11/13/2018	Sampling F	ersonnel:	Rob Mu	urphy, Tom I	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:	Stainles	ss 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: <u>VOCs, SVOCs, and TAL Metal</u> Other Information:				ais				

PURGE PARAMETERS

TIME	рН	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. ($vol_{cvl} = \pi r^2h$)

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-03S
Date:	11/15/2018	Sampling P	ersonnel:	Rob Mu	urphy, 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:	Dry	Depth to Well Bottom:	13.22'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):		-	Estimated Purge Volume (liters):	
Sample ID:		GW-03S		Sample Time:	Ν	J/A	QA/QC:	
Sample Parameters: Other Information: Well was dry and could not be				e sampled.				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
							-	
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. ($vol_{cvl} = \pi r^2h$)

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-03D	
Date:	11/15/2018	Sampling	Personnel:	Rob Mi	urphy, 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:	1.93'	Depth to Well Bottom:	35.70'	Well Diameter:	4"	Screen Length:	
Casing Type:	Stainles	s Steel		Volume in 1 Well Casing (liters):	83.4	-	Estimated Purge Volume (liters):	60.0	
Sample ID:		GW-03D		Sample Time:	9	:50	QA/QC:		
Sample Parameters: <u>VOCs, SVOCs, and TAL Meta</u> Other Information:			als						

PURGE PARAMETERS

TIME	рН	TEMP (⁰C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:50	7.76	5.60	1.36	9.03	34.8	-73	1000	1.93
8:55	7.75	6.20	1.38	5.40	30.2	-95	1000	1.93
9:00	7.49	6.75	1.40	1.40	28.2	-110	1000	1.93
9:05	7.47	7.18	1.33	1.02	0.0	-115	1000	1.93
9:10	7.46	7.34	1.33	0.97	0.0	-116	1000	1.93
9:15	7.48	7.40	1.32	0.90	0.0	-118	1000	1.93
9:20	7.49	7.45	1.32	0.84	0.0	-121	1000	1.93
9:25	7.48	7.50	1.32	0.80	0.0	-122	1000	1.93
9:30	7.47	7.55	1.32	0.75	0.0	-123	1000	1.93
9:35	7.47	7.58	1.32	0.69	0.0	-123	1000	1.93
9:40	7.46	7.61	1.32	0.66	0.0	-123	1000	1.93
9:45	7.47	7.66	1.31	0.62	0.0	-124	1000	1.93
9:50	7.45	7.70	1.31	0.61	0.0	-124	1000	1.93
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. (vol_{evi} = π ²h)

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-04S
Date:	11/14/2018	Sampling	Personnel:	Rob M	urphy, 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:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	7.3	-	Estimated Purge Volume (liters):	9.5
Sample ID:		GW-04S		Sample Time:		Cs) & 1705 & metals)	QA/QC:	
		VOCs, SVOCs, Placed passive Well historically Metals after reco	diffusion bag goes dry at v	(PDB) in well 9/ ery low purge ra			m PDB at 1525 o Iry and sampled t	

PURGE PARAMETERS

TIME	рН	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. ($vol_{cvl} = \pi r^2h$)

Project:		60411174		Site:	Site: Pfohl Brothers			GW-04D
Date:	11/14/2018	Sampling	Rob Mu	urphy, 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:	Stainles	ss 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:	
•	Parameters: r Information:	VOCs, SVOCs,	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	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. ($vol_{cvl} = \pi r^2h$)

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brot	thers Lar	ndfill					WELL NO.:	G	W-07S
PROJECT NO.:	6041117	4								
STAFF:	Rob Mur	ohy, Tom	Urban							
DATE(S):	11/13/18	, 11/14/1	8							
1. TOTAL CASING						=	35.	33	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL						=	5.2		2"	0.17
3. NUMBER OF F				')		=	30.		- 3"	0.38
4. VOLUME OF W						=	0.4		4"	0.66
5. VOLUME OF W						=	5.4		5"	1.04
6. VOLUME OF W						=		<u> </u>	6"	1.50
7. VOLUME OF W						=			8"	2.60
								V	=0.0408 x (CASING	DIAMETER [INCHES])
								URGED (G	ALLONS)	
PARAMETERS		Initial 8.14	2 7.88	4 8.14	6 8.08	8 8.11	Sample 7.92			
		0.14	7.00	0.14	0.00	0.11	1.52			
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	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: 11/14/2018		Begin ha Well dry eturn to w	nd bailing after remo ell, depth	well. oving 7 ga to water =	allons. = 5.45 fee		was insta	lled on 9/12	2/18	

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Bro	thers Lar	ndfill				WE	ELL NO.:	G\	N-07D
PROJECT NO.:	60411174	1								
STAFF:	Rob Murp	ohy, Tom	Urban							
DATE(S):	11/13/18,	11/14/18	3							
1. TOTAL CASIN	G AND SCRE	EN LENG	TH (FT.)			=	60.83		WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVE						=	45.54		2"	0.17
3. NUMBER OF F)		=	15.29		3"	0.38
4. VOLUME OF V						=	0.66		4"	0.66
5. VOLUME OF V						=	10.09		5"	1.04
6. VOLUME OF V	VATER TO RE	EMOVE (G	AL.)(#5 x 3	3)		=			6"	1.50
7. VOLUME OF V	VATER ACTU	ALLY REM	IOVED (G	AL.)		=			8"	2.60
								V=0.	0408 x (CASING	DIAMETER [INCHES]) ²
					ACCUN	IULATED	VOLUME PUR	GED (GALI	LONS)	
PARAMETERS		Init	2.5	5	7	10.1	Sample			
рН		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 (⁰	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: 11/14/2018	- 1	Begin han Well dry a urn to wel llect samp	nd bailing fter remover I, depth to	well. ving 10.1 o water = 0	gallons 60.15 feet		was installed	on 9/12/18	3	· ·

Project:		60411174		Site:	Pfohl I	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:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	4.8	-	Estimated Purge Volume (liters):	15.0
Sample ID:		GW-8SR		Sample Time:		:25	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs,	TAL Metals, F	PFCs, and 1,4-Di	oxane			

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
8:10	7.06	8.77	1.15	2.12	180	-37	200	5.16
8:20	7.17	8.78	1.15	1.71	142	-48	200	7.11
8:30	7.14	8.82	1.17	1.24	67.9	-51	200	7.60
8:40	7.12	8.80	1.41	1.02	34.5	-75	200	7.75
8:50	7.05	8.81	1.57	0.87	20.8	-91	200	7.75
9:00	7.01	8.61	1.76	0.76	8.70	-101	200	7.75
9:10	7.01	8.88	1.92	0.71	0.9	-107	200	7.85
9:15	6.92	9.09	1.97	0.71	1.2	-103	200	7.86
9:20	6.98	9.47	1.98	0.67	0.0	-108	200	7.86
9:25	6.97	9.37	2.04	0.64	0.0	-110	200	7.86
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-08D
Date:	11/14/2018	Sampling	Personnel:	Rob Mu	urphy, Tom	Urban	_ Company: _	URS Corporation
Purging/ Sampling Device:	W	aterra, Geopum	o 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:	Stainles	ss 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
				PFCs, and 1,4-D mp; after 65 gallo		th Waterra; sw	itch to Geopump	2 and continue with low

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (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 \	Naterra to low	flow sampling a	fter 65 gallons	(246 liters) re	moved			
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			4

Project:		60411174		Site:	Pfohl E	Brothers	Well I.D.:	GW-26D
Date:	11/14/2018	Sampling	Personnel:	Rob Mu	urphy, Tom	Urban	Company:	URS Corporation
Purging/ Sampling Device:	W	aterra, Geopumj	02	_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:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	84.0	-	Estimated Purge Volume (liters):	287.5
Sample ID:		GW-26D		Sample Time:		3:43	QA/QC:	FD-111418
				PFCs, and 1,4-D mp; after 70 gallo		th Waterra; sw	itch to Geopump	2 and continue with low

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (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 \	Naterra to low	flow sampling a	fter 70 gallons	(265 liters) re	moved			
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			

Project:		60411174		Site:	Pfohl E	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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.78'	Depth to Well Bottom:	15.52'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	4.2	-	Estimated Purge Volume (liters):	5.0
Sample ID:		GW-28S VOCs, SVOCs,	and TAL Met	Sample Time:	10):35	QA/QC:	
	r Information:							

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:10	7.81	6.85	0.586	8.10	14.00	-58	200	8.78
10:15	7.56	11.30	0572	2.13	16.20	-27	200	9.80
10:20	7.53	11.13	0.567	1.20	2.10	-6	200	10.04
10:25	7.53	11.14	0.564	1.09	0.00	-2	200	10.14
10:30	7.52	11.27	0.568	0.98	0.00	3	200	10.25
10:35	7.53	11.28	0.567	0.91	0.00	6	200	10.31
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.43'	Depth to Well Bottom:	20.04'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	7.8	-	Estimated Purge Volume (liters):	11.0
Sample ID:		GW-29S		Sample Time:	11	1:42	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs, a	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:56	7.63	8.20	1.07	3.94	190.00	-89	240	7.43
11:01	7.42	9.02	1.04	2.71	113.00	-99	240	8.48
11:06	7.27	9.78	1.01	1.99	48.80	-107	240	9.56
11:11	7.37	9.83	1.01	2.40	35.50	-98	240	10.05
11:16	7.37	10.75	0.998	1.89	36.70	-101	240	10.45
11:21	7.34	11.06	1.00	1.59	33.40	-104	240	10.68
11:26	7.33	10.83	1.03	1.38	24.80	-108	240	10.86
11:31	7.28	10.91	1.04	1.17	21.30	-108	240	11.00
11:36	7.28	10.66	1.05	1.00	151.70	-110	240	11.06
11:39	7.28	10.59	1.06	0.94	12.60	-112	240	11.10
11:42	7.29	10.64	1.06	0.90	12.0	-113	240	11.13
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174	Site:	Pfohl E	Brothers	Well I.D.:	GW-30S
Date:	11/15/2018	Sampling Person	inel: <u>Rob M</u>	Rob Murphy, Tom Urban			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: 7.88	Depth to Well Bottom:	17.97'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainles	ss Steel	Volume in 1 Well Casing (liters):	6.2	-	Estimated Purge Volume (liters):	13.3
Sample ID:	Parameters:	GW-30S VOCs, SVOCs, and TAL	Sample Time:	12	2:30	QA/QC:	
		Orange particulates at st					

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:55	7.34	8.79	5.61	5.60	244.00	-120	380	7.88
12:00	7.20	10.37	5.68	1.63	140.00	-116	380	7.91
12:05	7.20	10.68	5.66	1.12	101.00	-122	380	7.92
12:10	7.19	10.94	5.65	0.81	0.00	-128	380	7.93
12:15	7.18	10.99	5.63	0.73	0.00	-130	380	7.93
12:20	7.20	11.18	5.55	0.64	0.00	-132	380	7.93
12:25	7.18	11.01	5.52	0.65	0.0	-132	380	7.93
12:30	7.18	11.04	5.45	0.64	0.0	-133	380	7.93
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl I	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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.72'	Depth to Well Bottom:	9.57'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	4.2	-	Estimated Purge Volume (liters):	6.0
Sample ID:		GW-31S		Sample Time:	1:	3:27	QA/QC:	
	r Information:	VOCs, SVOCs, a	and TAL Met	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:52	7.41	8.13	0.878	3.18	1.90	-38	170	2.72
12:57	7.39	8.07	0.887	1.89	6.60	-19	170	3.75
13:02	7.35	8.05	0.894	1.38	3.40	-17	170	4.07
13:07	7.30	8.07	0.913	1.05	4.30	-33	170	4.33
13:12	7.28	8.90	0.927	0.87	1.50	-45	170	4.54
13:17	7.26	8.26	0.933	0.79	0.30	-52	170	4.63
13:22	7.25	8.28	0.938	0.75	0.00	-54	170	4.71
13:27	7.24	8.36	0.943	0.71	0.00	-58	170	4.80
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl	Brothers	Well I.D.:	GW-32S
Date:	11/15/2018	Sampling	Personnel:	Rob Mu	ırphy, 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:	2.80'	Depth to Well Bottom:	9.93'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	4.4	-	Estimated Purge Volume (liters):	7.6
Sample ID:		GW-32S		Sample Time:	14	4:19	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs, a	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:44	7.70	7.85	0.606	5.82	12.30	-65	260	2.80
13:49	7.71	8.09	0.598	4.17	0.00	-31	210	3.37
13:54	7.70	8.20	0.594	3.13	0.00	-18	210	3.37
13:59	7.69	8.35	0.590	2.38	0.00	-4	210	3.37
14:04	7.77	8.76	0.580	1.95	0.00	-3	210	3.42
14:09	7.75	8.99	0.573	1.72	0.00	2	210	3.47
14:14	7.73	9.37	0.567	1.70	0.00	7	210	3.50
14:19	7.69	9.52	0.568	1.68	0.0	11	210	3.53
Tolerance:	0.1		3%	10%	10%	+ or - 10		

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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.12'	Depth to Well Bottom:	8.21'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainles	ss Steel		Volume in 1 Well Casing (liters):	2.5	-	Estimated Purge Volume (liters):	4.5
Sample ID:		GW-33S		Sample Time:	15	5:04	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs,	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:38	7.57	7.83	1.00	4.88	32.00	35	190	4.12
14:43	7.50	8.05	1.01	4.21	0.40	40	170	5.22
14:48	7.51	8.19	1.03	3.38	0.00	49	170	5.90
14:53	7.48	8.30	1.03	3.18	0.00	53	170	6.02
14:58	7.48	8.46	1.03	2.92	0.00	56	170	6.20
15:01	7.47	8.51	1.02	2.85	0.00	57	170	6.25
15:04	7.44	8.45	1.01	2.75	0.00	59	170	6.31
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project:		60411174		Site:	Pfohl E	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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.86'	Depth to Well Bottom:	10.01'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	4.4	-	Estimated Purge Volume (liters):	5.7
Sample ID:		GW-34S		Sample Time:	8	:20	QA/QC:	
	Parameters: r Information:	VOCs, SVOCs, a	and TAL Meta	als				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
7:50	7.55	8.86	0.812	8.61	0.00	-9	270	2.86
7:55	7.49	8.23	0.806	8.06	0.00	16	190	4.05
8:00	7.62	8.01	0.802	7.82	0.00	28	190	4.10
8:05	7.78	7.80	0.798	7.52	0.00	40	160	4.15
8:10	7.48	7.81	0.799	7.31	0.00	46	160	4.20
8:15	7.44	7.80	0.785	7.34	0.00	53	160	4.25
8:20	7.44	7.87	0.779	7.22	0.00	55	160	4.29
Tolerance:	0.1		3%	10%	10%	+ or - 10		

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
Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.35'	Depth to Well Bottom:	7.46'	Well Diameter:	2"	Screen Length:
Casing Type:	Stainle	ss Steel		Volume in 1 Well Casing (liters):	1.9	_	Estimated Purge Volume (liters):	8.0
Sample ID:		GW-35S VOCs, SVOCs,	TAL Metals. I	Sample Time: PFCs, and 1,4-Di		2:40	QA/QC:	
•	r Information:			,				

PURGE PARAMETERS

TIME	рН	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:50	7.47	8.37	0.736	6.34	9.10	15	160	4.35
12:00	7.44	8.26	0.741	4.63	0.00	32	160	4.75
12:10	7.37	8.53	0.739	3.32	0.00	43	160	4.80
12:20	7.36	8.65	0.739	3.66	0.00	52	160	4.80
12:30	7.37	8.51	0.737	2.65	0.00	53	160	4.80
12:35	7.33	8.69	0.740	2.38	0.00	59	160	4.80
12:40	7.35	8.98	0.742	2.35	0.00	55	160	4.80
Tolerance:	0.1		3%	10%	10%	+ or - 10		

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>R. Murphy, T. Urban</u>	Supervisor:	<u>R. Murphy</u>

Date of Sampling:

<u>November 13, 2018</u>

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/	Not Applicable
GW-01D	GW-01D	91.3	80.0	13:00	Groundwater	Metals	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	VOUS	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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>R. Murphy, T. Urban</u>	Supervisor:	<u>R. Murphy</u>
Date of Sampling:	<u>November 14, 2018</u>		

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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>R. Murphy, T. Urban</u>	Supervisor:	<u>R. Murphy</u>

Date of Sampling:

<u>November 14, 2018</u>

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-	Not Applicable
FD-111418	GW-26D	84.0	287.5	-	Groundwater	Dioxane	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	S VOCS/IVIETAIS	Not Applicable
GW-04S	GW-04S	7.3	9.5	15:25 & 17:05	Groundwater	VOCs/SVOCs/	Not Applicable
GW-04D	GW-04D	80.3	12.0	16:55	Groundwater	Metals	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.

Project Name:	Pfohl Brothers Landfill	Project Number: <u>60411174</u>	
Sampling Crew Members:	<u>R. Murphy, T. Urban</u>	Supervisor: <u>R. Murphy</u>	
Date of Sampling:	<u>November 15, 2018</u>		
	14/0//		Chain

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.

Project Name:	Pfohl Brothers Landfill	Project Number:	60411174
Sampling Crew Members:	<u>R. Murphy, T. Urban</u>	Supervisor:	<u>R. Murphy</u>
Date of Sampling:	<u>November 15, 2018</u>		

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

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

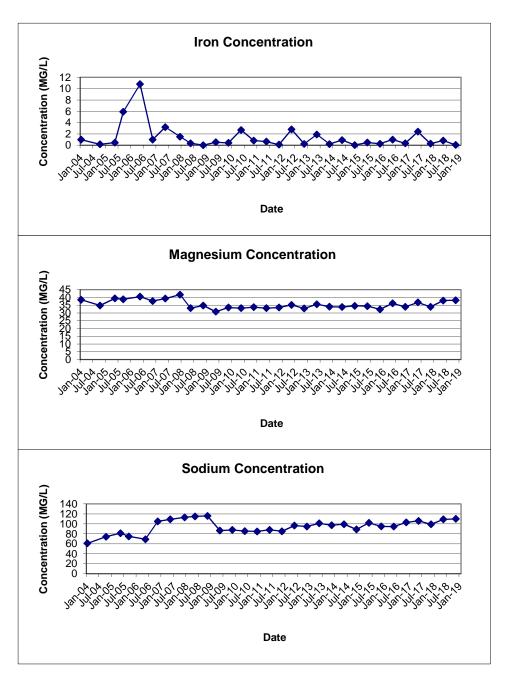


FIGURE E-2 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-01S

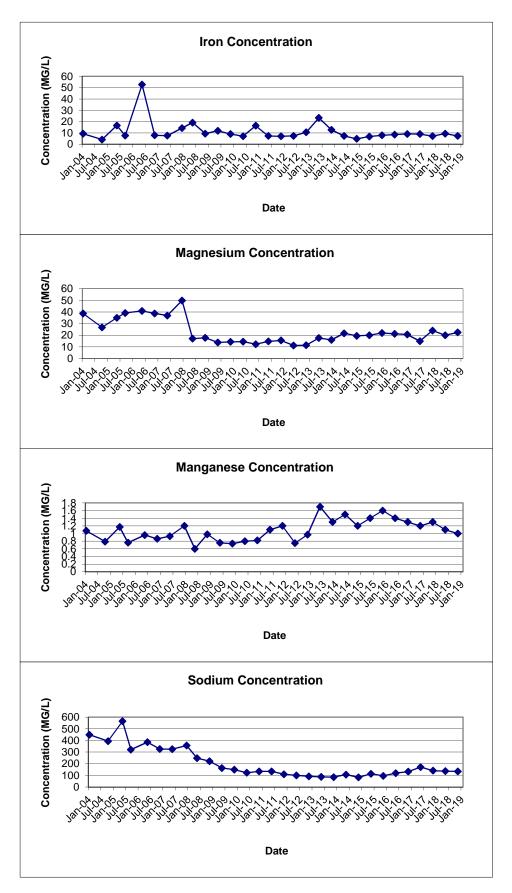


FIGURE E-3 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03D

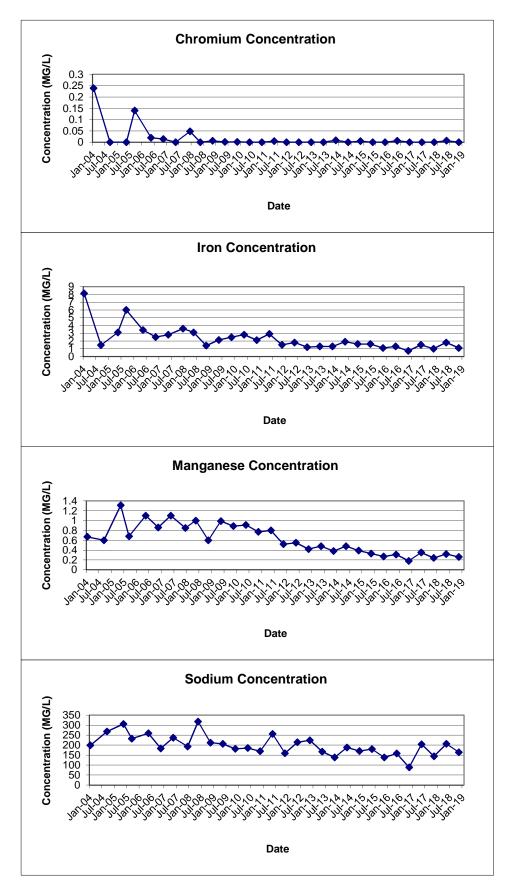


FIGURE E-4 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03S

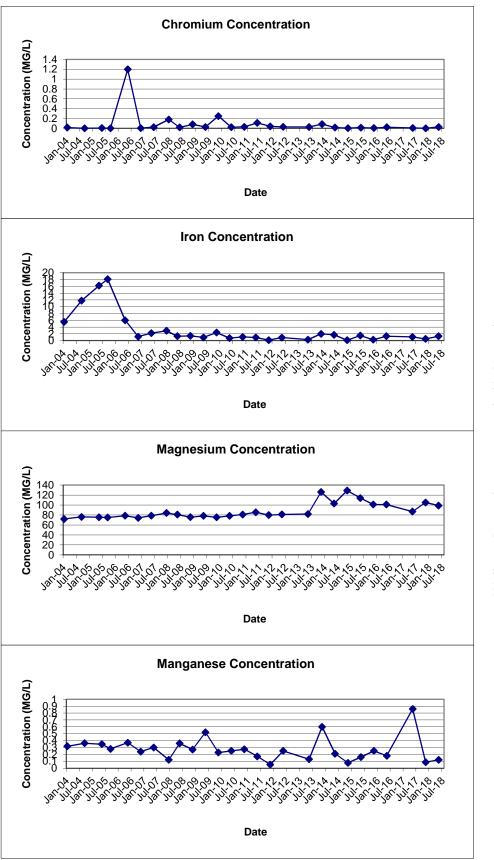


FIGURE E-4 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-03S

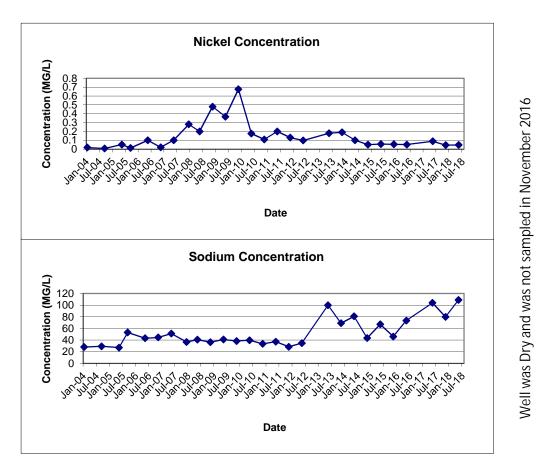


FIGURE E-5 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-04D

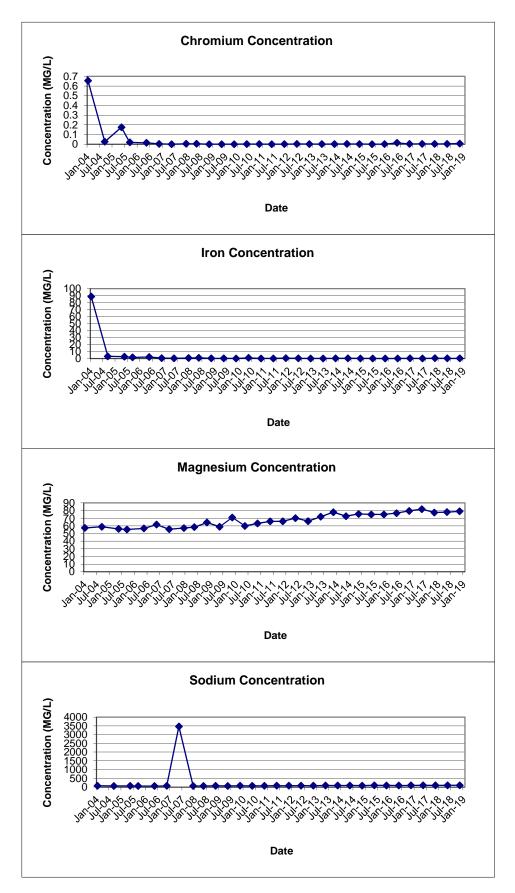


FIGURE E-6 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-04S

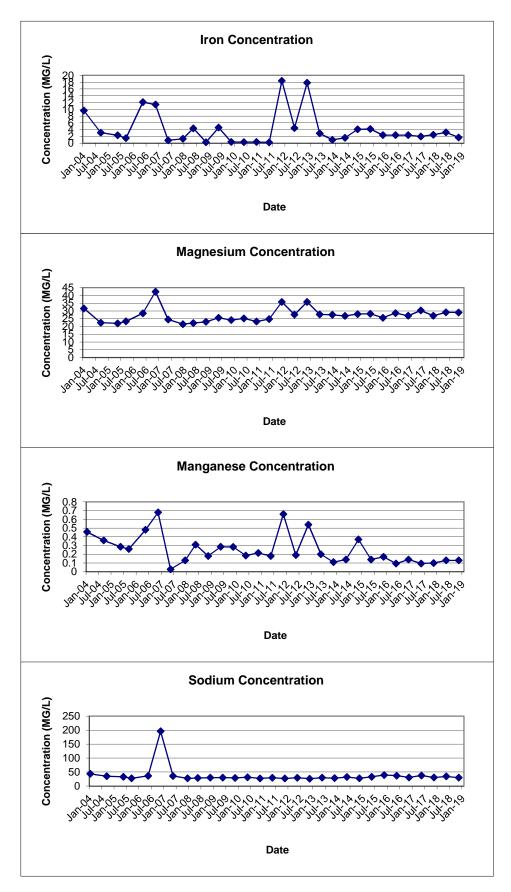


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

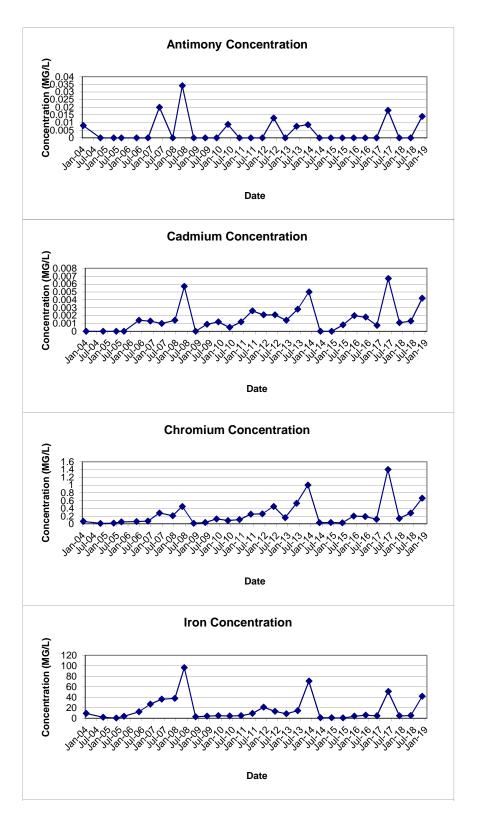


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

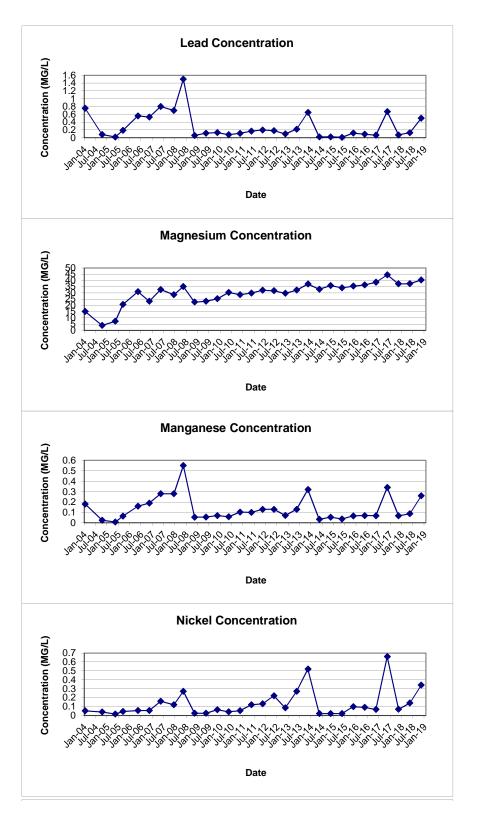


FIGURE E-7 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07D

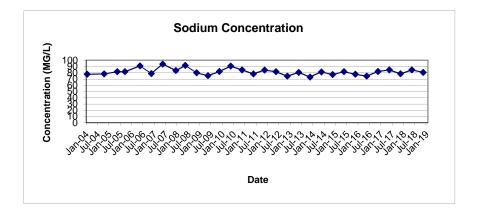


FIGURE E-8 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-07S

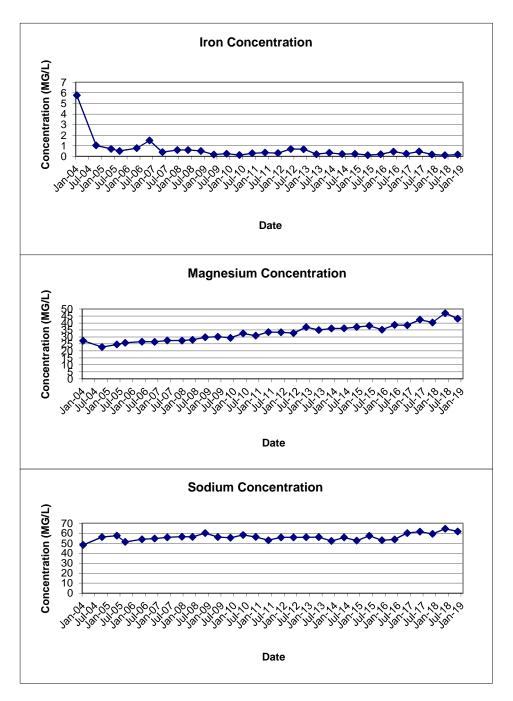


FIGURE E-9 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-08D

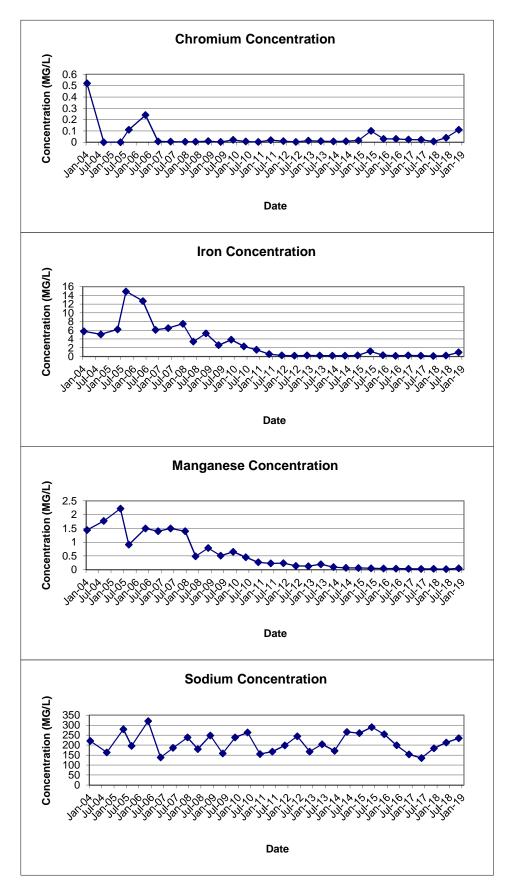


FIGURE E-10 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-08SR

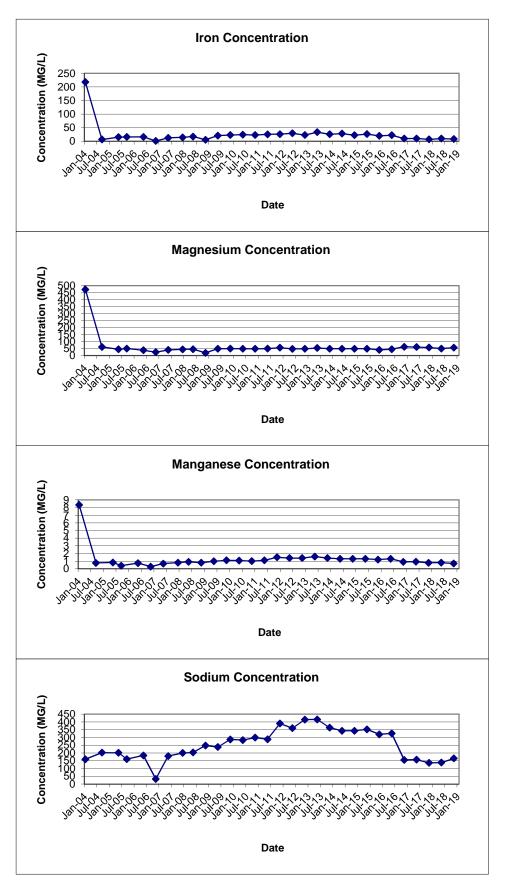


FIGURE E-11 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-26D

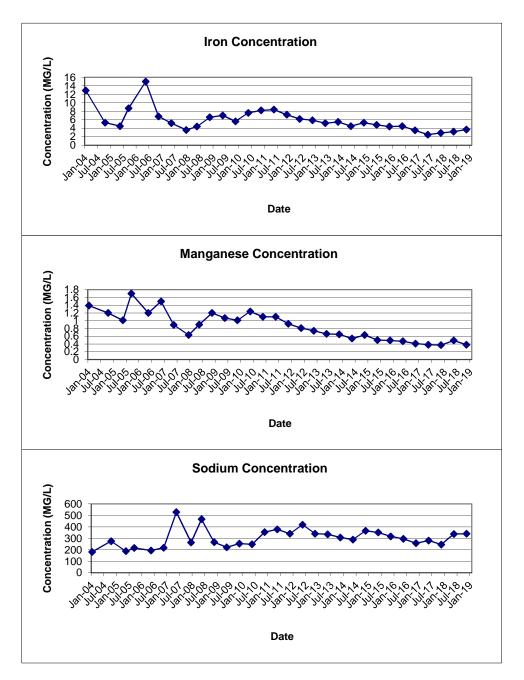


FIGURE E-12 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-28S

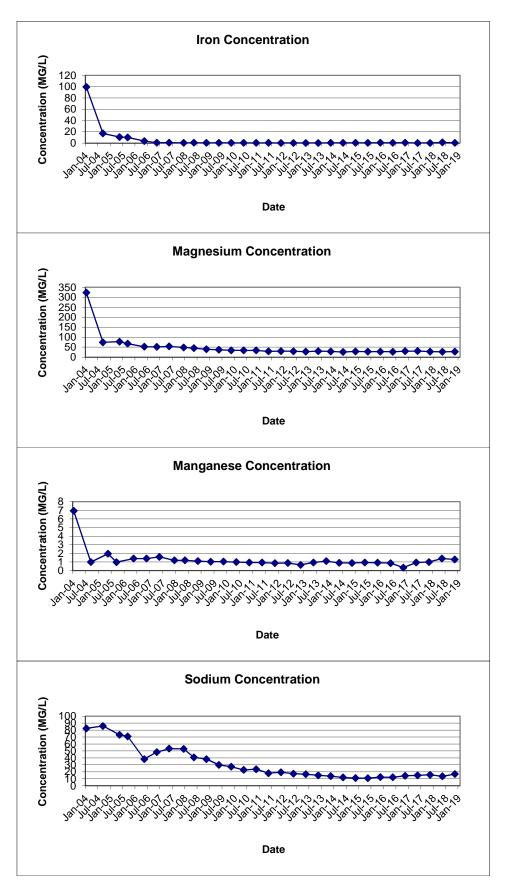


FIGURE E-13 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-29S

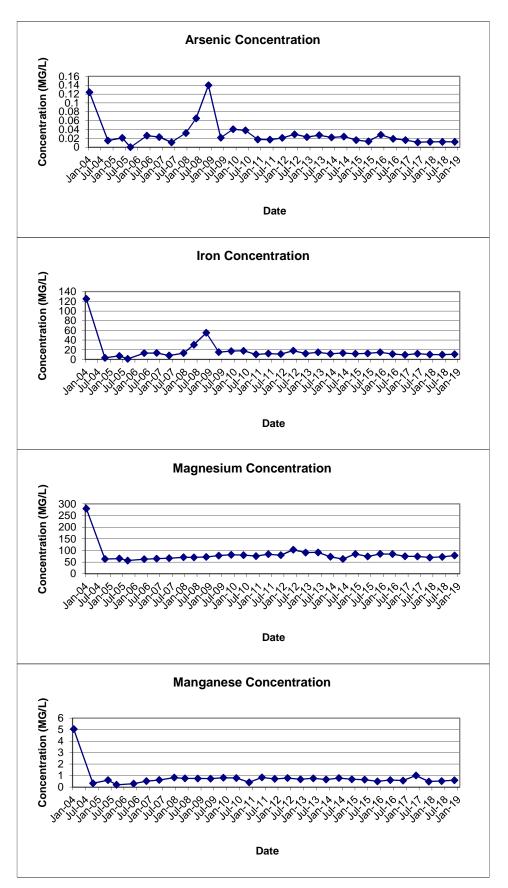


FIGURE E-13 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-29S

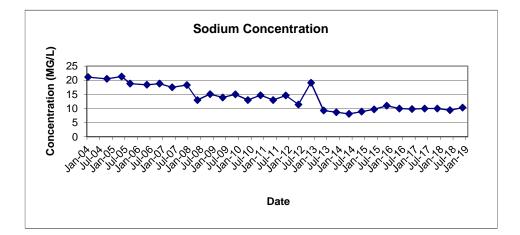


FIGURE E-14 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-30S

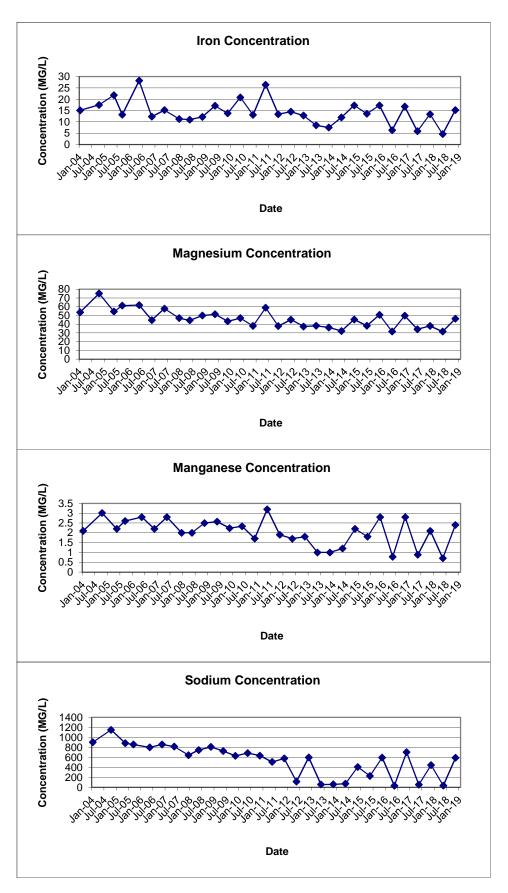


FIGURE E-15 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-31S

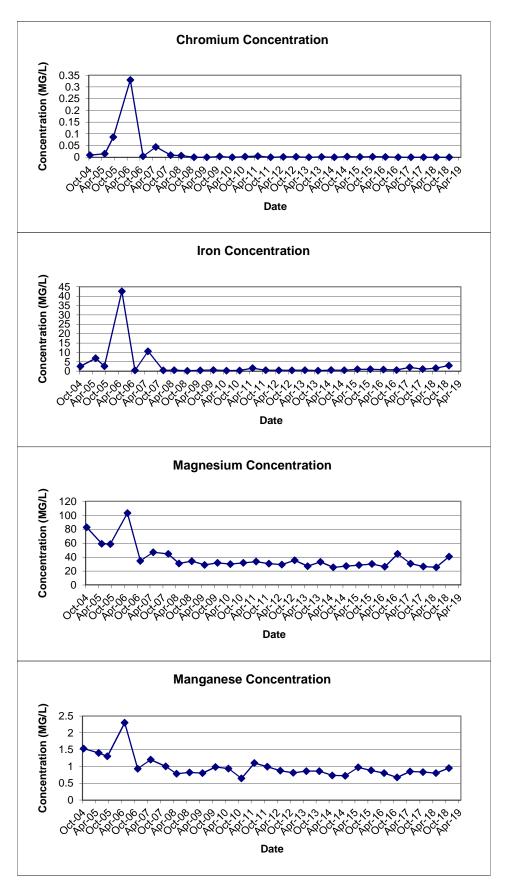


FIGURE E-16 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-32S

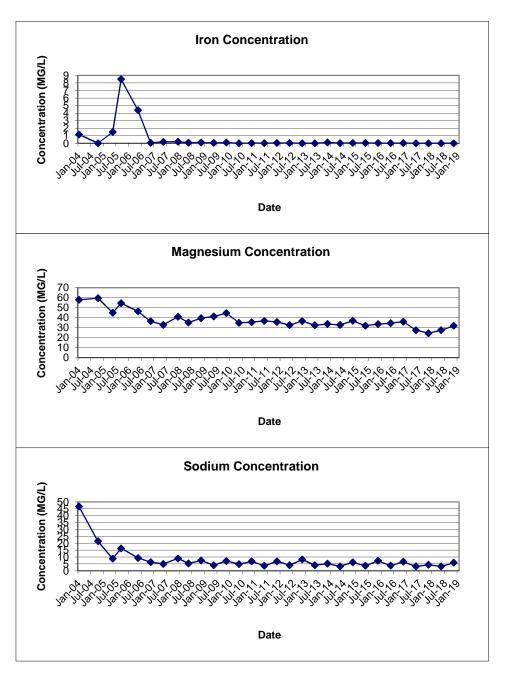


FIGURE E-17 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-33S

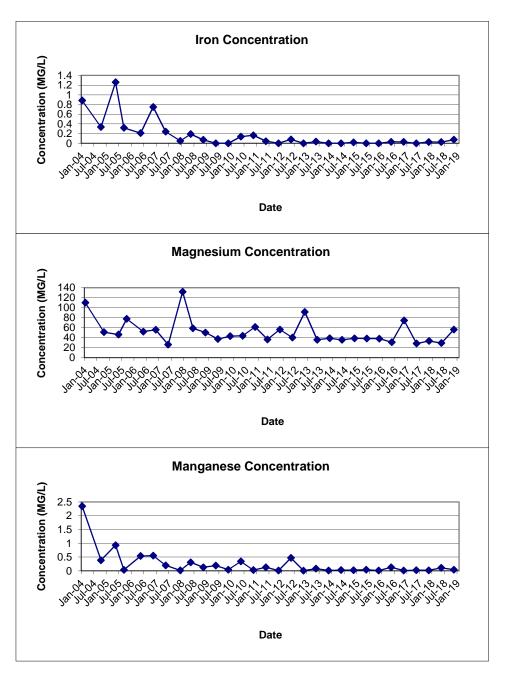


FIGURE E-18 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-34S

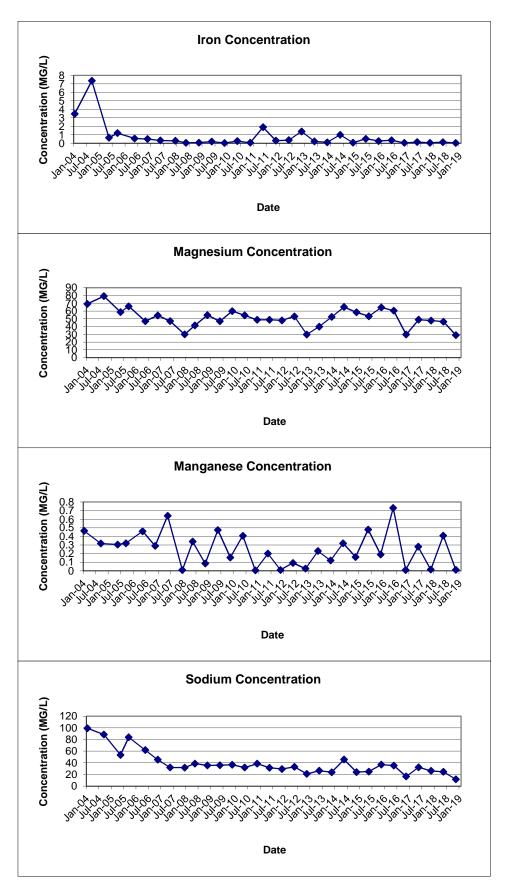
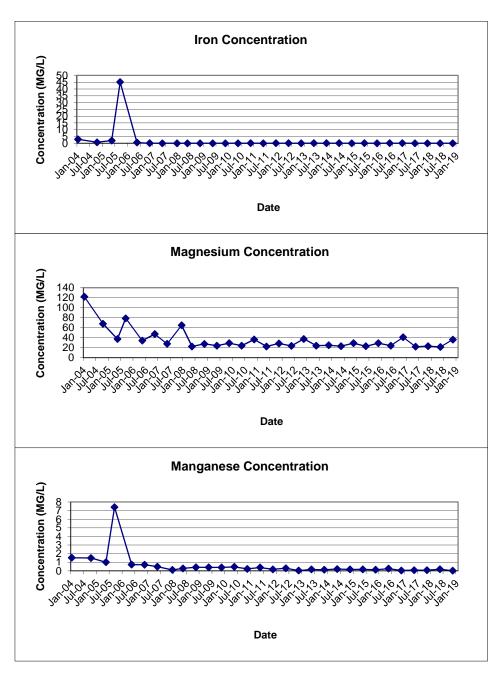


FIGURE E-19 TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS IN MONITORING WELL GW-35S



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 day of

PAGE 1 OF 6

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		Discharge Limitations ⁽¹⁾	Samp	ling Requirements
Point	Parameter	Daily Max	Period	Туре
001	pН	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	250 mg/l	1 day	Composite ²
	Solids ⁵			
	Total Flow	140,100 gallons ⁶	1 day	Discharge meter reading

Footnotes are explained on page 5.

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A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS

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

Sample		Discharge Limitations ⁽¹⁾	Sampli	ng Requirements
Point	Parameter	Daily Max	Period	Туре
001	Total Mercury USEPA Test	0.001 lbs.	1 day	Composite ²
	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.

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B. DISCHARGE MONITORING REPORTING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported **quarterly** by the permittee on the days specified below:

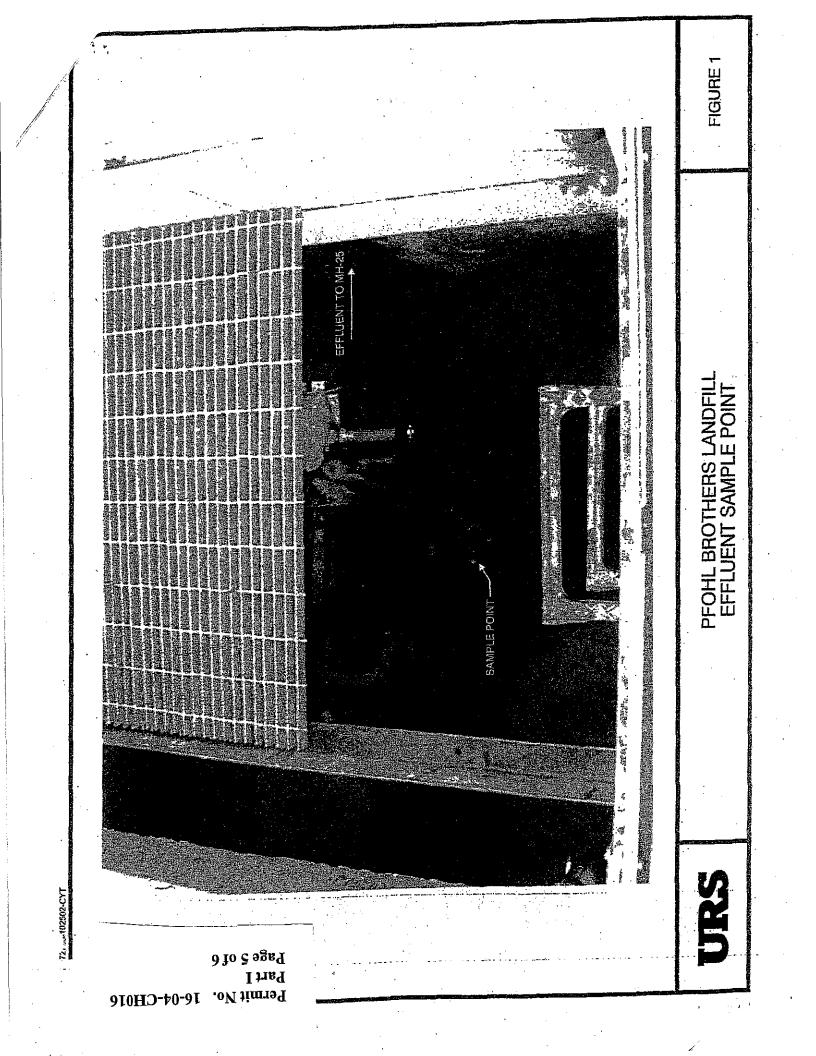
Sample		Reporting Requirements				
Point 001	Parameter All except USEPA Test Methods 608, 624, 625 & T Mercury	Initial Report June 30, 2016	Subsequent Reports Every March 31 st , June 30 th , September 30 th and December 31 st			
	USEPA Test Methods 608, 624 and 625 & T Mercury	June 30, 2016				

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

C. SPECIAL REQUIREMENTS

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- 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.



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

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1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit and with the information contained in the TC/BPDES Permit Application on which basis this permit is granted. In the event of any facility expansions, production increases, process modifications or the installation, modification or repair of any pretreatment equipment which may result in new, different or increased discharges of pollutants, a new TC/BPDES Permit Application must be submitted prior to any change. Following receipt of an amended application, the BSA may modify this permit to specify and limit any pollutants not previously limited. In the event that the proposed change will be covered under an applicable Categorical Standard, a Baseline Monitoring Report must be submitted at least ninety (90) days prior to any discharge.

2. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed, calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation shall be retained at this facility for a minimum of three (3) years, or longer if requested by the General Manager and/or Town Engineer.

3. Slug Control Plan

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

4. Notification of Slug, Accidental Discharge or Spill

In the event that a slug, accidental discharge or any spill occurs at the facility for which this permit is issued, it is the responsibility of the Permittee to immediately notify the B.S.A. Treatment Plant of the quantity and character of such discharge. During normal business hours, Monday-Friday, 7:30 AM – 3:00 PM call 716-851-4664, ext 5374. After normal business hours call 716-851-4664, ext 600. For all slug discharges, and when requested by the B.S.A. following an accidental discharge or spill, within five (5) days following all such discharges, the Permittee shall submit a report describing the character and duration of the discharge, the cause of the discharge, and measures taken or that will be taken to prevent a recurrence of such discharge.

5. Noncompliance Notification

If, for any reason, the Permittee does not comply with or will be unable to comply with any discharge limitation specified in this permit, the Permittee or their assigns must verbally notify the Industrial Waste Section at 716-851-4664 ext. 5374 within twenty-four (24) hours of becoming aware of the violation. The Permittee shall provide the Industrial Waste Section with the following information, in writing, within five (5) days of becoming aware of such condition:

- a. a description of the discharge and cause of noncompliance and;
- b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

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

6. Adverse Impact

endered and Dire

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

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Part II Page 4 of 6

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

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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

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APPENDIX G

DISCHARGE REPORT SUMMARY TABLES

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SAMPLING FIELD SHEET



	Pfohl Brothers L	andfill		
—	Aero Drive, Che			
Contact:	Patrick T. Bower		e: 716-897-7288	
Installation:	T attick T. Dowel	, r . L	e. <u>110-031-1200</u>	
Sample Point:	SD 001			
· _				
Sample Location		namber - ball valve on 6" HI		
Date:		rew: R. Murphy, K. McG	overn, I. Raby	
Weather:	70° F, Cloudy			
Sampling Device	e: <u>NA</u>			
Time of Installat	ion: <u>14:4</u>	8 Type of Sampl	e: Composite	
Sample Interval:	NA	Sample Volum	e: NA	
Date:		rew: _ R. Murphy, K. McG	274,882 gals) & MH-25 (1,147,6 overn, T. Raby	
Date: Weather: Time of Collection	9/12/18 C 81° F, Partly Clo on:14:4	rew:R. Murphy, K. McG		
Date: Weather: Time of Collection Field Measurem	9/12/18 C 81° F, Partly Clo on:14:4	irew: <u>R. Murphy, K. McG</u> udy <u>8</u>		
Date: Weather: Time of Collection Field Measurem 14:48	9/12/18 C 81° F, Partly Clo on: <u>14:4</u> ents:	irew: <u>R. Murphy, K. McG</u> udy <u>8</u>	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer	
Date: Weather: Time of Collection Field Measurem 14:48	9/12/18 C 81° F, Partly Clo on: <u>14:4</u> ents: 8/RJM	rew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer	
Date: Weather: Time of Collection Field Measurem 14:44 (time	9/12/18 C 81° F, Partly Clo on: <u>14:4</u> ents: B/RJM //initial)	rew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe pH Measurement:	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer 6.53	
Date: Weather: Time of Collection Field Measurem 14:44 (time Identification:	9/12/18 C 81° F, Partly Clo on: 14:4 ents: B/RJM //initial) EFF-091218	irew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe pH Measurement: Temperature:	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer <u>6.53</u> 19.0°C	
Date: Weather: Time of Collection Field Measurem 14:44 (time Identification:	9/12/18 C 81° F, Partly Clo on: 14:4 ents: B/RJM //initial) EFF-091218	rew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe pH Measurement:	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer <u>6.53</u> 19.0°C	
Date: Weather: Time of Collection Field Measurem 14:44 (time Identification: Physical Observ	9/12/18 C 81° F, Partly Clo on: 14:4 ents: B/RJM //initial) EFF-091218	irew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe pH Measurement: Temperature:	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer <u>6.53</u> 19.0°C	
Date:	9/12/18 C 81° F, Partly Clo on: 14:4 ents: B/RJM //initial) EFF-091218 ations: TestAmerica, Buff No wells were run	rew: <u>R. Murphy, K. McG</u> udy <u>8</u> pH Calibration: Buffe pH Measurement: Temperature: <u>falo, NY</u> ning at the time of sample of	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer <u>6.53</u> <u>19.0°C</u> collection.	
Date: Weather: Time of Collection Field Measurem 14:44 (time Identification: Physical Observ Laboratory: Comments: PLC display	9/12/18 C 81° F, Partly Clo on: 14:4 ents: 3/RJM //initial)	rew: <u>R. Murphy, K. McG</u> udy 8 pH Calibration: Buffe pH Measurement: Temperature: <u></u>	overn, T. Raby r 7- <u>7</u> Buffer 4- <u>4</u> Buffer <u>6.53</u> <u>19.0°C</u> collection.	r 10- <u>10</u>

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	Ma	ss 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				
рН ⁽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

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

SAMPLING FIELD SHEET



Client Name:	Pfohl Brothers Lar	ndfill		
Address:	Aero Drive, Cheek	towaga, NY		
Contact:	Patrick T. Bowen,	P.E. Phone:	716-897-7288	
Installation:				
Sample Point:	SP-001			
Sample Locati	on: Meter Cha	mber - ball valve on 6" HDF	PE forcemain	
Date:	12/19/18 Cre	w: R. Murphy, K. McGov	/ern, T. Urban	
Weather:	37° F, Partly Cloue	dy		
Sampling Devi	ce: NA			
Time of Installa	ation: 10:15	Type of Sample:	Composite	
Sample Interva	al: NA	Sample Volume:	NA	
WW-04 (31		5 (1,863,490 gals), WW-06	gals), WW-03 (0 gals), (2,464,787 gals) & MH-25 (5,473 /ern, T. Urban	3,096 gals).
	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloue	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u>	(2,464,787 gals) & MH-25 (5,473	3,096 gals).
WW-04 (3* Date: Weather: Time of Collec Field Measure 10:-	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloue tion: <u>10:15</u>	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy	(2,464,787 gals) & MH-25 (5,473	
WW-04 (3* Date: Weather: Time of Collec Field Measure 10:-	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloue tion: 10:15 ments: 45/RJM	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy	(2,464,787 gals) & MH-25 (5,473 /ern, T. Urban /7Buffer 44Buffer 1	
WW-04 (3* Date: Weather: Time of Collec Field Measure 10:-	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloue tion: 10:15 ments: 45/RJM	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy pH Calibration: Buffer 7	(2,464,787 gals) & MH-25 (5,473 /ern, T. Urban /7Buffer 44Buffer 1	
WW-04 (3* Date: Weather: Time of Collec Field Measure 10:-	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloud tion: 10:15 ments: 45/RJM he/initial)	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy pH Calibration: Buffer 7 pH Measurement:	(2,464,787 gals) & MH-25 (5,473 /ern, T. Urban /- <u>7</u> Buffer 4- <u>4</u> Buffer 1 	
WW-04 (3' Date: Weather: Time of Collec Field Measure 10: (tin Identification:	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloud tion: 10:15 ments: 45/RJM he/initial)	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy pH Calibration: Buffer 7 pH Measurement:	(2,464,787 gals) & MH-25 (5,47 /ern, T. Urban /- 7 Buffer 4- 4 Buffer 1 7.34 8.0°C	
WW-04 (3' Date: Weather: Time of Collec Field Measure 10: (tin Identification: Physical Obse	5,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloud tion: 10:15 ments: 45/RJM he/initial)	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy pH Calibration: Buffer 7 pH Measurement: Temperature:	(2,464,787 gals) & MH-25 (5,47 /ern, T. Urban /- 7 Buffer 4- 4 Buffer 1 7.34 8.0°C	0
WW-04 (3' Date: Weather: Time of Collec Field Measure 10: (tin Identification: Physical Obse Laboratory: Comments:	12/20/18 Cre 12/20/18 Cre 81° F, Partly Cloud Cre tion: 10:15 ments: 10:400 45/RJM 1000 ne/initial) Cre TrestAmerica, Buffa No wells were runn	5 (1,863,490 gals), WW-06 w: R. Murphy, K. McGov dy dy pH Calibration: Buffer 7 pH Measurement:	(2,464,787 gals) & MH-25 (5,473 /ern, T. Urban /7Buffer 44Buffer 1 7.34 8.0°C llection.	0
WW-04 (3' Date: Weather: Time of Collec Field Measure 10: (tin Identification: Physical Obse Laboratory: Comments: PLC displa	15,452 gals), WW-0 12/20/18 Cre 81° F, Partly Cloud tion: 10:15 ments: 45/RJM he/initial) EFF-122018 rvations: TestAmerica, Buffa No wells were runn y volumes:	5 (1,863,490 gals), WW-06 w: <u>R. Murphy, K. McGov</u> dy pH Calibration: Buffer 7 pH Measurement: Temperature: Temperature: 0, NY ng at the time of sample co (790,502 gals), WW-02 (0	(2,464,787 gals) & MH-25 (5,473 /ern, T. Urban /7Buffer 44Buffer 1 7.34 8.0°C llection.	0

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					
рН ⁽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

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

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY								
Pro	ject Name:			Pfohl Brothers Lar	<u>ndfill</u>	Project Number:	60411174	_
Insp	pection Crew Members	:		<u>R. Murphy, T. Urb</u>	an_	Supervisor:	<u>R. Murphy</u>	
Dat	e(s) of Inspection:			November 13. 2018	3			
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
	GW-01S	ОК	ОК	OK	Bulged	3.55	14.94	
	GW-01D	ОК	OK	ОК	Bulged	2.67	39.65	
	GW-03S	ОК	OK	ОК	ОК	DRY	13.22	
	GW-03D	ОК	OK	ОК	ОК	1.78	35.70	
	GW-04S	ОК	OK	OK	ОК	4.27	16.23	
	GW-04D	ОК	ОК	ОК	ОК	12.65	45.57	
	GW-07S	OK	ОК	ОК	ОК	5.20	35.33	
	GW-07D	ОК	ОК	ОК	Damaged	45.54	60.83	

Additional Comments:

ro	ject Name:			Pfohl Brothers Lar	<u>ndfill</u>	Project Number:	60411174	_
nsp	pection Crew Members	;;		<u>R. Murphy, T. Urb</u>	an_	Supervisor:	<u>R. Murphy</u>	
Dat	e(s) of Inspection:		<u>.</u>	November 13. 2018	<u>3</u>			
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
	GW-08SR	ОК	ОК	ОК	ОК	5.10	13.02	
	GW-08D	ОК	ОК	ОК	ОК	5.73	36.54	
	GW-26D	ОК	ОК	ОК	ОК	6.58	40.70	
	GW-28S	ОК	ОК	ОК	ОК	8.51	15.52	
	GW-29S	ОК	ОК	ОК	ОК	6.71	20.04	
	GW-30S	ОК	ОК	ОК	ОК	7.82	17.97	
	GW-31S	OK	OK	ОК	ОК	2.68	9.57	
	GW-32S	ОК	OK	ОК	ОК	2.65	9.93	

	WELL INSPECTION SUMMARY								
Pro	ject Name:			Pfohl Brothers Lar	<u>ndfill</u>	Project Number:	60411174	_	
Insp	pection Crew Members	8:		<u>R. Murphy, T. Urb</u>	<u>an</u>	Supervisor:	<u>R. Murphy</u>		
Dat	e(s) of Inspection:		<u> </u>	November 13. 2018	3				
	Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments	
	GW-33S	OK	ОК	ОК	ОК	3.95	8.21		
	GW-34S	ОК	ОК	ОК	ОК	2.5	10.01		
	GW-35S	ОК	ОК	ОК	ОК	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

Prepared by:

AECOM

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

FEBRUARY 2019

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III.	DATA DELIVERABLE COMPLETENESS	2
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V.	NON-CONFORMANCES	3
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TABLES (Following Text)

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

APPENDICES

 $\label{eq:Appendix} A-Validated \ Sample \ Reporting \ Forms$

Appendix B – Support Documentation

I. INTRODUCTION

This Data Applicability Report (DAR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B-Guidance for Data Deliverables and the Development of Data Usability Summary Reports,* May 2010. This DAR discusses the usability of the analytical data for groundwater samples collected during the November 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 protocolrequired 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' (nondetect, 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	Jusk	Date:	21619
Reviewed by:	Peter R. Fairbanks, Senior Chemis	t IF	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 1VALIDATED GROUNDWATER SAMPLE RESULTSPFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S							
Sample ID Matrix Depth Interval (ft) Date Sampled		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S							
		Groundwater - 11/14/18	Groundwater - 11/14/18	Groundwater - 11/15/18	Groundwater - 11/14/18	Groundwater - 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 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			<u>1</u>			32							
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

TABLE 1 VALIDATED GROUNDWATER SAMPLE RESULTS PFOHL BROTHERS LANDFILL SITE

Location ID		GW-01D	GW-01S	GW-03D	GW-04D	GW-04S							
Sample ID Matrix Depth Interval (ft)		GW-01D Groundwater -	GW-01S Groundwater -	GW-03D Groundwater -	GW-04D Groundwater -	GW-04S Groundwater -							
							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

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
Volatile Organic Compounds		3				
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. 9 0 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				15		
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
Соррег	MG/L	^{ta} 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

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					-	Ģ
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

Location ID		GW-08SR	GW-26D	GW-26D	GW-28S	GW-295
Sample ID		GW-08SR	FD-111418	GW-26D	GW-28S	GW-29\$
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					2	
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

Location ID		GW-08SR	GW-26D	GW-26D	GW-28S	GW-29S
Sample ID		GW-08SR	FD-111418	GW-26D	GW-28S	GW-295
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

J:Projects/11/172700 000001G/S/dB/Program/EDMS.mde Prmted: 2/8/2019 3:39/29 PM [LOGDATE] BETWEEN #11/01/18# AND #11/30/18# AND [LOCID] ⇔ TRELDQC AND [PRCCODE] ⇔ "PFC

Location ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S	
Sample ID		GW-30S	GW-31S	GW-325	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					5.e.	=	
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					2		
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

Location ID		GW-30S	GW-31S	GW-32S	GW-33S	GW-34S	
Sample ID		GW-30S	GW-315	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	12					
Metals			1				
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

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	o.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 UJ
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

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

Location ID		GW-08D	GW-08SR	GW-26D	GW-26D	GW-35S
Sample ID Matrix		GW-08D	GW-08SR	FD-111418	GW-26D	GW-35S
		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	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

J\Projects\11172700.00000/GISUBProgramiEDMS.mde Printed: 2/6/2019.342:15 PM [LOGDATE] BETWEEN #11/01/18# AND #11/30/18# AND [LOCID] ⇔ THELDQC AND [PRCCODE] = "PFC"

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			31		
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		2			ξi.
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 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

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)		-	-	-	0 <u>-</u>
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

APPENDIX A

VALIDATED SAMPLE REPORTING FORMS

TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-1

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

Client Sample ID: GW-07D

Date Collected: 11/14/18 14:3 Date Received: 11/14/18 17:50	0						0 3	Matrix	Water
Method: 8260C - Volatile Org	gani c Compo	unds by G	C/MS	MDI		~~~~~~	Duppered	Analyzed	Dil Fac
Analyte		Qualifier	RL		Unit	D	Prepared	11/21/18 12:02	
1,1,2-Trichloroethane	ND		1.0		ug/L			11/21/18 12:02	1
1,2-Dichloroethene, Total	ND		2.0		ug/L				
Acetone	4.7	J	10		ug/L			11/21/18 12:02	
Benzene	ND		1.0		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 - Semivolatil					11-14		Busses	Analyzed	Dil Fac
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed 12/03/18 17:05	
1,3-Dichlorobenzene	ND		11	0.52	•		11/19/18 09:16		1
1,4-Dichlorobenzene	ND		11		ug/L		11/19/18 09:16	12/03/18 17:05	1
Bis(2-ethylhexyl) phthalate	5.4		5.4	2.4	0		11/19/18 09:16	12/03/18 17:05]
Phenol	ND		5.4	0.42	ug/L		11/19/18 09:16	12/03/18 17:05	s 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

	00	00-720	
Nitrobenzene-d5	72	46 - 120	11/19/18 09:16 12/03/18 17:05
Phenol-d5	40	22 - 120	11/19/18 09:16 12/03/18 17:05
p-Terphenyl-d14	76	59 - 136	11/19/18 09:16 12/03/18 17:05

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	1,000,000
Chromium	0.66		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 12:57	1
Соррег	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 (CVA	A)								
Analyte		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

TestAmerica Buffalo

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TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-2

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

Client Sample ID: GW-01S Date Collected: 11/14/18 11:28

ganic Compo	unds by G			l 1 m lé	-	Deserved	Analyzed	Dil Fa
	Qualifier				<u> </u>	Prepared	-throtesta-	
				_				
				-				
				-				
				-				
ND		1.0	0.90	ug/L			11/21/18 12:26	
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
100		77 - 120				34 ⁷	11/21/18 12:26	
102		80 - 120					11/21/18 12:26	
110		73 - 120					11/21/18 12:26	
102		75 - 123					11/21/18 12:26	
				11-14	~	Descend	Analy-and	Dil Fa
	Qualifier				D			
		2		-				
				-				
				-				
ND		5.4	0,42	ug/L		11/19/18 09:10	12/03/18 17:34	
· · · · ·	Qualifier	Limits				Prepared	Analyzed	DIIF
72		41 - 120						
86		48 - 120						
61		35 - 120						
86		46 - 120				11/19/18 09:16	12/03/18 17:34	
47		22 - 120				11/19/18 09:16	12/03/18 17:34	
91		59 ₋ 136				11/19/18 09:16	12/03/18 17:34	
					_	_		
	Qualifier			-	D	-		Dil Fa
				-				
				-				
				•				
0.00065	J			-				
	J			-				
	B	0.050		-				
ND		0.0050		-				
22.4		0.20		-				
1.0		0.0030						
ND		0.010		-				
ND		0.0030		-				
134		1.0		-				
0.0024	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:00	
VAA)								
	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
	Result ND ND ND ND ND %Recovery 100 102 100 101 102 101 102 101 102 101 102 102 103 104 105 ND 0.00065 0.00065 0.0012 ND 7.3 ND 134 0.0024	Result Qualifier ND ND ND ND ND ND ND ND ND ND %Recovery Qualifier 100 102 110 102 102 110 102 110 102 110 102 110 102 110 102 110 102 110 102 110 102 110 102 110 ND ND ND ND ND ND ND ND ND 0.18 0.00065 J ND 1.0 ND 1.0 ND ND ND 1.0 ND 1.34 0.0024 J	Result Qualifier RL ND 1.0 1.0 ND 10 10 ND 10 10 ND 1.0 10 We covery Qualifier Limits 100 77 - 120 102 102 80 - 120 110 102 75 - 123 102 ND 11 ND 11 ND 111 ND 11 ND 111 ND 5.4 MD 5.4 ND 5.4 %Recovery Qualifier Limits 72 41 - 120 86 46 - 120 47 22 - 120 91 59 - 136 P) Result Qualifier RL ND 0.0010 0.0020 ND <td< td=""><td>Result Qualifier RL MDL ND 1.0 0.23 ND 2.0 0.81 ND 10 3.0 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.90 %Recovery Qualifier Limits 100 77-120 0.90 102 80-120 110 102 75-123 102 Poption Compounds (GC/MS) Result Qualifier RL ND 11 0.52 ND 11 0.52 ND 5.4 0.42 %Recovery Qualifier Limits 72 41-120 86 48 120 61 35-120 86 46-120 47 22-120 91 91 59-136 0.0010 ND 0.010 0.0056 0.0012</td><td>Result Qualifier RL MDL Unit ND 1.0 0.23 ug/L ND 2.0 0.81 ug/L ND 1.0 3.0 ug/L ND 1.0 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.90 ug/L %Recovery Qualifier Limits 102 75-123 Velocity e Organic Compounds (GC/MS) MDL Unit ND 11 0.52 ug/L ND 11 0.50 ug/L ND 11 0.50 ug/L ND 5.4 0.42 ug/L ND 5.4 0.42 ug/L %Recovery Qualifier Limits 1.0 72 41.120 6 48.120 61 35.120 0.0068 mg/L ND <td< td=""><td>Result Qualifier RL MDL Unit D ND 2.0 0.81 ug/L 0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00<td>Result Qualifier RL MDL Unit D Prepared 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11/19/18 08:16 1203/18 17.34 ND 5.4 0.42</td></td<></td></td></td<></td></td<>	Result Qualifier RL MDL ND 1.0 0.23 ND 2.0 0.81 ND 10 3.0 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.90 %Recovery Qualifier Limits 100 77-120 0.90 102 80-120 110 102 75-123 102 Poption Compounds (GC/MS) Result Qualifier RL ND 11 0.52 ND 11 0.52 ND 5.4 0.42 %Recovery Qualifier Limits 72 41-120 86 48 120 61 35-120 86 46-120 47 22-120 91 91 59-136 0.0010 ND 0.010 0.0056 0.0012	Result Qualifier RL MDL Unit ND 1.0 0.23 ug/L ND 2.0 0.81 ug/L ND 1.0 3.0 ug/L ND 1.0 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.90 ug/L %Recovery Qualifier Limits 102 75-123 Velocity e Organic Compounds (GC/MS) MDL Unit ND 11 0.52 ug/L ND 11 0.50 ug/L ND 11 0.50 ug/L ND 5.4 0.42 ug/L ND 5.4 0.42 ug/L %Recovery Qualifier Limits 1.0 72 41.120 6 48.120 61 35.120 0.0068 mg/L ND <td< td=""><td>Result Qualifier RL MDL Unit D ND 2.0 0.81 ug/L 0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00<td>Result Qualifier RL MDL Unit D Prepared ND 1.0 0.23 ug/L ug/L ug/L ND 2.0 0.81 ug/L ug/L ug/L ND 1.0 0.41 ug/L ug/L ug/L ND 1.0 0.41 ug/L ug/L ug/L %Recovery Qualifier Limits Prepared Prepared 100 77.120 02 80.120 11/19/18 09:16 11/19/18 09:16 ND 11 0.50 ug/L 11/19/18 09:16 11/19/18 09:16 ND 11 0.50 ug/L 11/19/18 09:16 11/19/18 09:16 ND 5.4 0.42 ug/L 11/19/18 09:16 11/19/18 09:16 ND 5.4 0.42 ug/L 11/19/18 09:16 11/19/18 09:16 %Recovery Qualifier Limits Prepared 11/19/18 09:16 11/19/18 09:16 %Result Qualifier Result <td< td=""><td>Result Qualifier RL MDL Unit D Prepared Analyzed ND 1.0 0.23 ug/L 1/12/1/8 12.26 1/12/1/8 12.26 ND 1.0 0.41 ug/L 1/12/1/8 12.26 ND 1.0 0.41 ug/L 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ND 5.4 0.42 ug/L 11/19/18 08:16 1203/18 17.34 ND 5.4 0.42</td></td<>	Result Qualifier RL MDL Unit D Prepared Analyzed ND 1.0 0.23 ug/L 1/12/1/8 12.26 1/12/1/8 12.26 ND 1.0 0.41 ug/L 1/12/1/8 12.26 ND 1.0 0.41 ug/L 1/12/1/8 12.26 ND 1.0 0.41 ug/L 1/12/1/8 12.26 ND 1.0 0.80 ug/L 1/12/1/8 12.26 100 77.120 1/12/1/8 12.26 1/12/1/8 12.26 102 80.120 1/12/1/8 12.26 1/12/1/8 12.26 102 75.123 1/12/1/8 12.26 1/12/1/8 12.26 ND 11 0.52 ug/L 1/1/19/18 08:16 1203/18 17.34 ND 11 0.50 ug/L 11/19/18 08:16 1203/18 17.34 ND 5.4 0.42 ug/L 11/19/18 08:16 1203/18 17.34 ND 5.4 0.42 ug/L 11/19/18 08:16 1203/18 17.34 ND 5.4 0.42

TestAmerica Buffalo

TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-3

Matrix: Water

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

Client Sample ID: GW-01D

Date Collected: 11/14/18 13:00 Date Received: 11/14/18 17:50

Method: 8260C - Volatile Orga Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 12:50	
,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 12:50	
Acetone	ND		10	3.0	ug/L			11/21/18 12:50	
Benzene	ND		1.0	0.41	ug/L			11/21/18 12:50	
/inyl chloride	ND		1.0	0.90	ug/L			11/21/18 12:50	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
,2-Dichloroethane-d4 (Surr)	107		77 - 120					11/21/18 12:50	
Foluene-d8 (Surr)	101		80 - 120					11/21/18 12:50	
-Bromofluorobenzene (Surr)	107		73 - 120		2			11/21/18 12:50	
Dibromofluoromethane (Surr)	104		75-123					11/21/18 12:50	
Nethod: 8270D - Semivolatile	Organic Co	mpounds (GC/MS)						
Analyte		Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
,3-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 18:04	
,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 18:04	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 18:04	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 18:04	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
,4,6-Tribromophenol	71		41 - 120				11/19/18 09:16	12/03/18 18:04	
-Fluorobiphenyl	83		48 - 120				11/19/18 09:16	12/03/18 18:04	
-Fluorophenol	52		35 - 120				11/19/18 09:16	12/03/18 18:04	
litrobenzene-d5	84		46 - 120				11/19/18 09:16	12/03/18 18:04	
Phenol-d5	38		22 - 120				11/19/18 09:16	12/03/18 18:04	
o-Terphenyl-d14	87		59 - 136				11/19/18 09:16	12/03/18 18:04	
Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Intimony	ND		0.020	0.0068	mg/L		12/11/18 15:18	12/13/18 13:04	
Arsenic	ND		0.010	0.0056	mg/L		12/11/18 15:18	12/13/18 13:04	
Barium	0.085		0.0020	0.00070	mg/L		12/11/18 15:18	12/13/18 13:04	
Cadmium	ND		0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:04	
Chromium	0.0090		0.0040	0.0010	mg/L		12/11/18 15:18	12/13/18 13:04	
Copper	ND		0.010	0.0016	mg/L		12/11/18 15:18	12/13/18 13:04	
ron	0.047	J	0.050	0.019	mg/L		12/17/18 09:17	12/18/18 11:20	
ead	ND		0.0050	0.0030	mg/L		12/11/18 15:18	12/13/18 13:04	
Aagnesium	38.2		0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:04	
langanese	0.019		0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:04	
lickel	0.0018	J	0.010	0.0013	-		12/11/18 15:18	12/13/18 13:04	
liver	ND		0.0030	0.0017	-		12/11/18 15:18	12/13/18 13:04	
Sodium	110		1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:04	
linc	0.0033	J	0.010	0.0015	-			12/13/18 13:04	
Method: 7470A - Mercury (CV/	4A)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
			0.00020	0.00012			11/28/18 13:40	11/28/18 17:30	

TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-4

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

Client Sample ID: GW-07S Date Collected: 11/14/18 14:50

Date Collected: 11/14/18 14: Date Received: 11/14/18 17:							•	Matrix	Water
Method: 8260C - Volatile O Analyte	rganic Compo	unds by G Qualifier	C/MS RL	MDL	Unit	D	Prepared	Analyzed	Dii 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		1	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				5.52	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	-
Method: 8270D - Semivolat	ile Organic Co	mpounds	(GC/MS)						
Analyte		Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	Dii 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	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 18:34	
Surrogate	%Recoverv	Qualifier	Limits				Prepared	Analyzed	Dil Fac

%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
68	41 - 120	11/19/18 09:16	12/03/18 18:34	1
88	48 - 120	11/19/18 09:16	12/03/18 18:34	1
78	35 - 120	11/19/18 09:16	12/03/18 18:34	1
88	46 - 120	11/19/18 09:16	12/03/18 18:34	1
54	22 - 120	11/19/18 09:16	12/03/18 18:34	1
89	59 - 136	11/19/18 09:16	12/03/18 18:34	1
	68 88 78 88 54	68 41 - 120 88 48 - 120 78 35 - 120 88 46 - 120 54 22 - 120	68 41 - 120 11/19/18 09:16 88 48 - 120 11/19/18 09:16 78 35 - 120 11/19/18 09:16 88 46 - 120 11/19/18 09:16 54 22 - 120 11/19/18 09:16	68 41 - 120 11/19/18 09:16 12/03/18 18:34 88 48 - 120 11/19/18 09:16 12/03/18 18:34 78 35 - 120 11/19/18 09:16 12/03/18 18:34 88 46 - 120 11/19/18 09:16 12/03/18 18:34 54 22 - 120 11/19/18 09:16 12/03/18 18:34

Method: 6010C - Metals (ICP)

Analyte Res	uit 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 0.000	54 J	0.0010	0.00050	mg/L		12/11/18 15:18	12/13/18 13:08	1
Chromium 0.00	14 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
and a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec	.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 4	3.1	0.20	0.043	mg/L		12/11/18 15:18	12/13/18 13:08	1
	32	0.0030	0.00040	mg/L		12/11/18 15:18	12/13/18 13:08	1
•	113	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 6	1.8	1.0	0.32	mg/L		12/11/18 15:18	12/13/18 13:08	1
Zinc 0.0	51 J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:08	1
Method: 7470A - Mercury (CVAA)								
• • •	ult 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 Job ID: 480-145329-1

Lab Sample ID: 480-145329-5

Matrix: Water

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

Client Sample ID: GW-08SR

Date Collected: 11/14/18 09:25 Date Received: 11/14/18 17:50

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)

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	0.34 HB*	-0.21	0.11	ug/L		11/28/18 08:05	12/08/18 11:07	1
Isotope Dilution	%Recovery Qualifier	Limits	H O	34		Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	26 *	15-110				11/19/18 08:22	11/24/18 04:45	1
							12/08/18 11:07	

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
1,3-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 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 Qualifi	ier 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

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

Client Sample ID: GW-08SR

Date Collected: 11/14/18 09:25 Date Received: 11/14/18 17:50 TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-5 Matrix: Water

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		19	0.43	ng/L		11/28/18 11:34	11/30/18 07:07	1
N-ethylperfluorooctanesulfonamidoac atic acid (NEtFOSAA)	ND		19	0.66	ng/L		11/28/18 11:34	11/30/18 07:07	1
IH,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95	ng/L		11/28/18 11:34	11/30/18 07:07	1
H,1H,2H,2H-perfluorodecanesulfonic ucid (8:2)	ND		19	0.53	ng/L		11/28/18 11:34	11/30/18 07:07	1
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1802 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	£ =0=	25 - 150				11/28/18 11:34	11/30/18 07:07	1
13C5 PFNA	103	10	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 <u>- 15</u> 0				11/28/18 11:34	11/30/18 07:07	1

IJUU FFINA	105	20-700	11120101101	11/00/10 01:07	•
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 PFDoA	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 PFPeA	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	Dll 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 8	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 Job ID: 480-145329-1

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

Client Sample ID: GW-08SR						La	ab Sample	ID: 480-145	
Date Collected: 11/14/18 09:25								Matrix	Water
Date Received: 11/14/18 17:50									ere en an an an an an an an an an an an an an
Method: 6010C - Metals (ICP) (Co Analyte) 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 Job ID: 480-145329-1

Lab Sample ID: 480-145329-6

Matrix: Water

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

Client Sample ID: GW-08D

Date Collected: 11/14/18 10:20 Date Received: 11/14/18 17:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dll 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	52	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	-8.9	58*	0.20	0.10	ug/L	-	11/19/18 08:22	11/24/18 02:20	1
1,4-Dioxane	NO - 0.29	#8* JJ	0.20	0.10	ug/L		11/28/18 08:05	12/08/18 10:19	1
Isotope Dilution	%Recovery	Qualifier	Limits O	ay (5.29		Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	20	*	15_110				11/19/18 08:22	11/24/18 02:20	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 16:36	1
1,4-Dichiorobenzene	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 L	.imits	Prepared	Analyzed	Dii Fac
2,4,6-Tribromophenol	72	4	1 - 120	11/19/18 09:16	12/03/18 16:36	1
2-Fluorobiphenyl	82	4	8 - 120	11/19/18 09:16	12/03/18 16:36	1
2-Fluorophenol	63	3	15 - 120	11/19/18 09:16	12/03/18 16:36	1
Nitrobenzene-d5	81		6 - 120	11/19/18 09:16	12/03/18 16:36	1
Phenol-d5	46	2	2 - 120	11/19/18 09:16	12/03/18 16:36	1
p-Terphenyl-d14	88	5	i9 - 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

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

Client Sample ID: GW-08D Date Collected: 11/14/18 10:20

Date Received: 11/14/18 17:50

Lab Sample ID: 480-145329-6 Matrix: Water

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		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		18	0.41	ng/L		11/28/18 11:34	11/30/18 07:23	1
N-ethylperfluorooctanesulfonamidoac etic 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	DII Fac
1802 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

Method: 6010C - Metals (ICP)

M2-8:2 FTS

13C3 PFBS

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 8	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

25 - 150

25 - 150

99

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11/28/18 11:34 11/30/18 07:23

11/28/18 11:34 11/30/18 07:23

TestAmerica Buffalo

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TestAmerica Job ID: 480-145329-1

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

Client Sample ID: GW-08D Date Collected: 11/14/18 10:20 Date Received: 11/14/18 17:50				La	ab Sample	ID: 480-145 Matrix	5329-6 : Water		
Method: 6010C - Metals (ICP) (Co Analyte) 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	Ĩ
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: AECOM Project/Site: Pfohl Brothers Landfill GW Monitoring TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-7

Matrix: Water

Client Sample ID: FB-111418 Date Collected: 11/14/18 11:00 Date Received: 11/14/18 17:50

Method: 537 (modified) - Fluorinated Alkyl Substances Prepared Analyzed **Dil Fac** RL **MDL Unit** D Analyte **Result Qualifier** 11/28/18 11:34 11/30/18 08:10 1 0.37 ng/L Perfluorobutanoic acid (PFBA) ND 1.8 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.68 ng/L Perfluoropentanoic acid (PFPeA) 11/28/18 11:34 11/30/18 08:10 ND 1.8 0.22 ng/L 1 Perfluorohexanoic acid (PFHxA) 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.29 ng/L Perfluoroheptanoic acid (PFHpA) 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.29 ng/L Perfluorooctanoic acid (PFOA) 1.8 1 0.35 ng/L 11/28/18 11:34 11/30/18 08:10 Perfluorononanoic acid (PFNA) ND 11/28/18 11:34 11/30/18 08:10 1 1.8 0.35 ng/L Perfluorodecanoic acid (PFDA) ND 11/28/18 11:34 11/30/18 08:10 Perfluoroundecanoic acid (PFUnA) ND 1.8 0.23 ng/L 1 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.32 ng/L Perfluorododecanoic acid (PFDoA) 1 ND 1.8 0.22 ng/L 11/28/18 11:34 11/30/18 08:10 Perfluorotridecanoic acid (PFTriA) 1.8 0.41 ng/L 11/28/18 11:34 11/30/18 08:10 1 ND Perfluorotetradecanoic acid (PFTeA) 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.40 ng/L Perfluorobutanesulfonic acid (PFBS) 11/28/18 11:34 11/30/18 08:10 1 ND 1.8 0.24 ng/L Perfluorohexanesulfonic acid (PFHxS) 11/28/18 11:34 11/30/18 08:10 1 Perfluoroheptanesulfonic Acid ND 1.8 0.75 ng/L (PFHpS) 1.8 0.69 ng/L 11/28/18 11:34 11/30/18 08:10 1 ND Perfluorooctanesulfonic acid (PFOS) 11/28/18 11:34 11/30/18 08:10 1 1.8 0.48 ng/L Perfluorodecanesulfonic acid (PFDS) ND 11/28/18 11:34 11/30/18 08:10 1.8 1 Perfluorooctanesulfonamide (PFOSA) ND 0.51 ng/L 11/28/18 11:34 11/30/18 08:10 ND 18 0.41 ng/L 1 N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) 11/28/18 11:34 11/30/18 08:10 1 18 0.64 ng/L N-ethylperfluorooctanesulfonamidoac ND etic acid (NEtFOSAA) 11/28/18 11:34 11/30/18 08:10 18 1 0.91 ng/L ND 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) 11/28/18 11:34 11/30/18 08:10 1 ND 18 0.51 ng/L 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1802 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 Job ID: 480-145329-1

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

d5-NEtFOSAA

Client Sample ID: EB-1114 Pate Collected: 11/14/18 11:05	+10					E.C	an oampie	ID: 480-145 Matrix	
ate Received: 11/14/18 17:50 Method: 8270D SIM ID - Semiv	volatile Org	anic Comp	ounds (GC/	AS SIM /	Isotone	Diluti	on)		
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dii F
1,4-Dioxane	-0.40	B	0.21	0.10	<u>цал</u>		11/19/18 08:22	11/24/18 05:10	
1,4-Dioxane	0.26	HB* 5	0.21	0.10	ug/L		11/28/18 08:05	12/08/18 11:31	
sotope Dilution	%Recovery		Limits				Prepared	Analyzed	Dil F
1,4-Dioxane-d8	-24		15-110					11/24/18 05:10	
1,4-Dioxane-d8	26		15-110				11/28/18 08:05	12/08/18 11:31	
Method: 537 (modified) - Fluo	rinated Alky	yl Substand					_		
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	DII F
Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		11/28/18 11:34		
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L			11/30/18 08:27	
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L			11/30/18 08:27	
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L			11/30/18 08:27	
Perfluorooctanoic acid (PFOA)	ND		2.0	0.32	ng/L			11/30/18 08:27	
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L			11/30/18 08:27	
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		11/28/18 11:34	11/30/18 08:27	
erfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluoroheptanesulfonic Acid	ND		2.0	0.82	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorooctanesulfonic acid (PFOS)	NÐ		2.0	0.76	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		11/28/18 11:34	11/30/18 08:27	
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		11/28/18 11:34	11/30/18 08:27	
N-methylperfluorooctanesulfonamidoa ætic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 11:34	11/30/18 08:27	
N-ethylperfluorooctanesulfonamidoac atic acld (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 11:34	11/30/18 08:27	
IH,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		11/28/18 11:34	11/30/18 08:27	
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		11/28/18 11:34	11/30/18 08:27	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	DII
802 PFHxS	85		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C4 PFHpA	94		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C4 PFOA	86		25_150					11/30/18 08:27	
3C4 PFOS	84		25-150				11/28/18 11:34	11/30/18 08:27	
3C5 PFNA	94		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C4 PFBA	44		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C2 PFHxA	89		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C2 PFDA	99		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C2 PFUnA	106		25 - 150				11/28/18 11:34	11/30/18 08:27	
3C2 PFDoA	93		25 - 150				11/28/18 11:34	11/30/18 08:27	
3CB FOSA	56		25 - 150					11/30/18 08:27	
3C5 PFPeA	87		25 - 150					11/30/18 08:27	
3C2 PFTeDA	96		25 - 150					11/30/18 08:27	
I3-NMeFOSAA	88		25 - 150					11/30/18 08:27	
	101		25 150					11/30/18 08.27	

11/28/18 11:34 11/30/18 08:27 TestAmerica Buffalo

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101

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TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-9

Matrix: Water

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

Client Sample ID: GW-35S

Date Collected: 11/14/18 12:40 Date Received: 11/14/18 17:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII 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
/inyl 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)

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	HB* N	0.20	0.10	ug/L		11/28/18 08:05	12/08/18 11:55	1
Isotope Dilution	%Recovery	Qualifier	Limits 0		196		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	1.000	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 Q	ualifier Limits	Prepared Analyze	d Dil Fac
2,4,6-Tribromophenol	54	41 - 120	11/19/18 09:16 12/03/18 1	9:33 1
2-Fluorobiphenyl	91	48 - 120	11/19/18 09:16 12/03/18 1	9:33 1
2-Fluorophenol	56	35 - 120	11/19/18 09:16 12/03/18 1	9:33 1
Nitrobenzene-d5	76	46 - 120	11/19/18 09:16 12/03/18 1	9:33 1
Phenol-d5	41	22 - 120	11/19/18 09:16 12/03/18 1	9:33 1
p-Terphenyl-d14	83	59 <u>-</u> 136	11/19/18 09:16 12/03/18 1	9:33 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 JB	1.9	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

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

Client Sample ID: GW-35S

Date Collected: 11/14/18 12:40 Date Received: 11/14/18 17:50

Method: 6010C - Metals (ICP)

Lab Sample ID: 480-145329-9 Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued) **MDL** Unit D Prepared Analyzed **Dil Fac Result Qualifier** RL Analyte 1.9 0.25 ng/L 11/28/18 11:34 11/30/18 08:58 ND 1 Perfluorohexanesulfonic acid (PFHxS) ND 0.78 ng/L 11/28/18 11:34 11/30/18 08:58 1 1.9 Perfluoroheptanesulfonic Acid (PFHpS) 11/28/18 11:34 11/30/18 08:58 1 ND 1.9 0.72 ng/L Perfluorooctanesulfonic acid (PFOS) 11/28/18 11:34 11/30/18 08:58 1 ND 1.9 0.51 ng/L Perfluorodecanesulfonic acid (PFDS) 11/28/18 11:34 11/30/18 08:58 ND 1.9 0.53 ng/L 1 Perfluorooctanesulfonamide (PFOSA) ND 19 0.43 ng/L 11/28/18 11:34 11/30/18 08:58 1 N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) 19 0.67 ng/L 11/28/18 11:34 11/30/18 08:58 1 ND N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) ND 19 0.95 ng/L 11/28/18 11:34 11/30/18 08:58 1 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) 11/28/18 11:34 11/30/18 08:58 1 0.53 ng/L 1H,1H,2H,2H-perfluorodecanesulfonic ND 19 acid (8:2) DII Fac Prepared Analyzed %Recovery Qualifier Limits **Isotope Dilution** 11/28/18 11:34 11/30/18 08:58 1802 PFHxS 78 25-150 1 77 11/28/18 11:34 11/30/18 08:58 1 25-150 13C4 PFHpA 11/28/18 11:34 11/30/18 08:58 1 81 25 - 150 13C4 PFOA 11/28/18 11:34 11/30/18 08:58 1 76 25-150 **13C4 PFOS** 11/28/18 11:34 11/30/18 08:58 1 84 25-150 13C5 PFNA 28 25 - 150 11/28/18 11:34 11/30/18 08:58 1 13C4 PFBA 11/28/18 11:34 11/30/18 08:58 1 25 - 150 13C2 PFHxA 61 11/28/18 11:34 11/30/18 08:58 1 92 25 - 150 13C2 PFDA 11/28/18 11:34 11/30/18 08:58 1 25 - 150 13C2 PFUnA 91

13C2 PFDoA	85	25 - 150	11/28/18 11:34 11/30/18 08:58	1
13C8 FOSA	66	25 - 150	11/28/18 11:34 11/30/18 08:58	1
13C5 PFPeA	51	25 - 150	11/28/18 11:34 11/30/18 08:58	1
13C2 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
13C3 PFBS	68	25 - 150	11/28/18 11:34 11/30/18 08:58	1

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 Job ID: 480-145329-1

No. of Street

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

Mercury

Client Sample ID: GW-35S				Lab Sample	ID: 480-14	5329-9
Date Collected: 11/14/18 12:40					Matrix	: Water
Date Received: 11/14/18 17:50				aan dada adad kaladahan daaraan ah ku dalagaya , dari ah kanananan maananan ku ku ku ku ku da dada	940 mit 1000 mil 1000 mil 100 mil 1000 mil 1000 mil 1000 mil 1000 mil 1000 mil 1000 mil 1000 mil 1000 mil 1000	
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

TestAmerica Job ID: 480-145329-1

Matrix: Water

Lab Sample ID: 480-145329-10

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

Client Sample ID: GW-26D

Date Collected: 11/14/18 13:43 Date Received: 11/14/18 17:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dii 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)			77 - 120			-	1.5	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)

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 HB* N	0.19	0 .096 ug/L		11/28/18 08:05	12/08/18 12:20	1
Isotope Dilution	%Recovery Qualifier	Limits 🔾 🤇	∞ 0.30		Prepared	Analyzed	Dil Fac
1.4-Dioxane-d8	23	15-110			11/19/18 08:22	11/24/18 05:58	1
1,4-DIOXAII0-00	23	10-110					

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 Qu	ualifier 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-Terphenvl-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	1.8	0.28	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorooctanoic acid (PFOA)	4.4	8	1.8	0.28	ng/L		11/28/18 11:34	11/30/18 09:14	1
Perfluorononanoic acid (PFNA)	ND	22300 	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

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

Client Sample ID: GW-26D

Date Collected: 11/14/18 13:43

TestAmerica Job ID: 480-145329-1

Lab Sample ID: 480-145329-10 Matrix: Water

Date Received: 11/14/18 17:50

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		1
Perfluoroheptanesulfonic Acid PFHpS)	ND		1.8	0.73	ng/L		11/28/18 11:34	11/30/18 09:14	1
erfluorooctanesulfonic acid PFOS)	7.9		1.8	0.68	ng/L		11/28/18 11:34	11/30/18 09:14	1
erfluorodecanesulfonic acid (PFDS)	ND		1.8	0.47	ng/L		11/28/18 11:34	11/30/18 09:14	1
erfluorooctanesulfonamide (PFOSA)	ND		1.8	0.50	ng/L		11/28/18 11:34	11/30/18 09:14	1
-methylperfluorooctanesulfonamidoa etic acid (NMeFOSAA)	ND		18	0.40	ng/L		11/28/18 11:34	11/30/18 09:14	1
I-ethylperfluorooctanesulfonamidoac tic acid (NEtFOSAA)	ND		18	0.62	ng/L		11/28/18 11:34	11/30/18 09:14	1
H,1H,2H,2H-perfluorooctanesulfonic cid (6:2)	ND		18	0.89	ng/L		11/28/18 11:34	11/30/18 09:14	. 1
H,1H,2H,2H-perfluorodecanesulfonic cid (8:2)	ND		18	0.50	ng/L		11/28/18 11:34	11/30/18 09:14	1
	0/Decover	Ovellfler	1 Imite				Prenared	Analyzed	Dil Fac

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	etes in surr	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	B	0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:48	<u></u> 1
Lead	ND	A. 4	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	ma/L		12/11/18 15:18	12/13/18 13:48	1
Nickel	0.0037	J	0.010	0.0013	ma/L		12/11/18 15:18	12/13/18 13:48	1
Silver	ND	•	0.0030	0.0017	•		12/11/18 15:18	12/13/18 13:48	1
Sodium	340		1.0		mg/L		12/11/18 15:18	12/13/18 13:48	1

TestAmerica Job ID: 480-145329-1

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

Client Sample ID: GW-26D			ann an air runn ar an aide dagag a' ann ann a annan a'	all and a R. 1949-99-5464-56au as summarily PL		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) Analyte		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 (CV/	AA)										
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		

GW-26 TestAmerica Job ID: 480-145329-1

SHO I

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

lient Sample ID: FD-1114 hte Collected: 11/14/18 00:00 hte Received: 11/14/18 17:50	18		t)			Lac	o Sample II	D: 480-1453 Matrix	
lethod: 8260C - Volatile Orga	nic Compo	unds by G	C/MS			_	Burnard	Analysis	Dil Fa
nalyte		Qualifier	RL		Unit	D	Prepared	Analyzed 11/21/18 15:14	
,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 15:14	
,2-Dichloroethene, Total	ND		2.0		ug/L				
cetone	ND		10		ug/L			11/21/18 15:14	
enzene	ND ND		1.0 1.0		ug/L ug/L			11/21/18 15:14 11/21/18 15:14	
inyl chloride	ND		1.0	0.50	ugre			1 1/2 1/10 10:14	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed 11/21/18 15:14	Dil Fa
,2-Dichloroethane-d4 (Surr)	104		77 - 120						
oluene-d8 (Surr)	100		80 - 120					11/21/18 15:14	
-Bromofluorobenzene (Suπ)	104		73 - 120					11/21/18 15:14	
ibromofluoromethane (Suπ)	112		75 - 123					11/21/18 15:14	
lethod: 8270D SIM ID - Semiv	olatile Org	anic Comp							
nalyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
,4-Dioxane	9.45		0.20		ug/L		11/19/18 08:22	11/24/18 06:22	
,4-Dioxane	0.32	HB* N		0.097	-		11/28/18 08:05	12/08/18 12:44	
sotope Dilution	%Recovery			33	033		Prepared	Analyzed	Dil Fa
,4-Dioxane-d8	24	*	15-110				11/19/18 08:22	11/24/18 06:22	
,4-Dioxane-d8	26		15-110				11/28/18 08:05	12/08/18 12:44	
flethod: 8270D - Semivolatile	Organic Co	mpounds			11-14		Descend	Analyzad	Dil Fa
nalyte		Qualifler	RL		Unit	D	Prepared 11/19/18 09:16	Analyzed 12/03/18 20:33	Онга
,3-Dichlorobenzene	ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 20:33	
,4-Dichlorobenzene	ND		10	0.46	•		11/19/18 09:16	12/03/18 20:33	
is(2-ethylhexyl) phthalate	ND		5.0		ug/L		11/19/18 09:16	12/03/18 20:33	
henol	ND		5.0	0.39	ug/L		11/19/10 09.10	12/03/10 20.33	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
,4,6-Tribromophenol	73		41 - 120				11/19/18 09:16	12/03/18 20:33	
-Fluorobiphenyl	93		48 - 120				11/19/18 09:16	12/03/18 20:33	
-Fluorophenol	64		35 - 120				11/19/18 09:16	12/03/18 20:33	
litrobenzene-d5	93		46 - 120					12/03/18 20:33	
henol-d5	46		22 - 120					12/03/18 20:33	
-Terphenyl-d14	94		59 - 136				11/19/18 09:16	12/03/18 20:33	
lethod: 537 (modified) - Fluo			ces			-		A	D!! E-
nalyte		Qualifier			Unit	D	Prepared	Analyzed	Dil Fa
erfluorobutanoic acid (PFBA)	10		1.9		ng/L			11/30/18 09:30	
erfluoropentanoic acid (PFPeA)	6.3		1.9		ng/L			11/30/18 09:30	
erfluorohexanoic acid (PFHxA)	5.9		1.9		ng/L			11/30/18 09:30	
erfluoroheptanoic acid (PFHpA)	2.0	1	1.9		ng/L			11/30/18 09:30	
erfluorooctanoic acid (PFOA)	4.2	B	1.9		ng/L			11/30/18 09:30	
erfluorononanoic acid (PFNA)	ND		1.9		ng/L			11/30/18 09:30	
erfluorodecanoic acid (PFDA)	ND		1.9		ng/L			11/30/18 09:30	
erfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L			11/30/18 09:30	
eniuoroundecanoic acid (FFOIIA)	ND		1.9		ng/L			11/30/18 09:30	
erfluorododecanoic acid (PFDoA)							44/00/40 44.04	11/20/10 00-20	
• •	ND		1.9		ng/L			11/30/18 09:30	
erfluorododecanoic acid (PFDoA)			1.9 1.9		ng/L ng/L		11/28/18 11:34	11/30/18 09:30 11/30/18 09:30	

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

Client Sample ID: FD-111418

Date Collected: 11/14/18 00:00 Date Received: 11/14/18 17:50

Lab Sample ID: 480-145329-11

Matrix: Water

Method: 537 (modified) - Fluor ^{Analyte}		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-methylperfluorooctanesulfonamidoa	ND		19		ng/L		11/28/18 11:34	11/30/18 09:30	1
N-ethylperfluorooctanesulfonamidoac ntic acid (NEtFOSAA)	ND		19	0.65	ng/L		11/28/18 11:34	11/30/18 09:30	1
H,1H,2H,2H-perfluorooctanesulfonic cid (6:2)	ND		19	0.93	ng/L		11/28/18 11:34	11/30/18 09:30	1
H,1H,2H,2H-perfluorodecanesulfonic cid (8:2)	ND		19	0.52	ng/L		11/28/18 11:34	11/30/18 09:30	1
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
802 PFHxS	72		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C4 PFHpA	74		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C4 PFOA	83		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C4 PFOS	76		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C5 PFNA	87		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C4 PFBA	25		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C2 PFHxA	49		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C2 PFDA	91		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C2 PFUnA	96		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C2 PFDoA	88		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C8 FOSA	64		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C5 PFPeA	41		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3C2 PFTeDA	88		25 - 150				11/28/18 11:34	11/30/18 09:30	1
3-NMeFOSAA	81		25 - 150				11/28/18 11:34	11/30/18 09:30	1
5-NEtFOSAA	95		25 - 150				11/28/18 11:34	11/30/18 09:30	1
12-6:2 FTS	147		25 - 150				11/28/18 11:34	11/30/18 09:30	1
12-8:2 FTS	89		25 - 150				11/28/18 11:34	11/30/18 09:30	1
13C3 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	B	0.050	0.019	mg/L		12/11/18 15:18	12/13/18 13:51	1
Lead	ND	<i>•</i>	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

12/19/2018

TestAmerica Job ID: 480-145329-1

Matrix: Water

Lab Sample ID: 480-145329-11

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

Client Sample ID: FD-111418 Date Collected: 11/14/18 00:00

Date Received: 11/14/18 17:50

.

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	ma/l		11/28/18 13:40	11/28/18 17:44	1

TestAmerica Job ID: 480-145329-1

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

lient Sample ID: GW-0 ate Collected: 11/14/18 17:						Lau	Sample in	D: 480-1453 Matrix:	
ate Received: 11/14/18 17:			<u></u>						
Viethod: 8260C - Volatile O Analyte	rganic Compo Result	unds by G Qualifier	iC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dii Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 15:38	
,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 15:38	
Acetone	5.0	J	10	3.0	ug/L			11/21/18 15:38	
Benzene	ND		1.0	0.41	ug/L			11/21/18 15:38	
'inyl chloride	ND		1.0	0.90	ug/L			11/21/18 15:38	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
,2-Dichloroethane-d4 (Surr)	101		77 - 120					11/21/18 15:38	
oluene-d8 (Surr)	101		80 - 120					11/21/18 15:38	
-Bromofluorobenzene (Surr)	110		73 - 120					11/21/18 15:38	
Dibromofluoromethane (Surr)	102		75 - 123					11/21/18 15:38	
lethod: 8270D - Semivolat	ile Organic Co	mpounds		MDI	11-34	-	Drepared	Analyzed	Dil F
nalyte		Qualifier	RL	MDL		D	Prepared 11/19/18 09:16	12/03/18 21:03	
3-Dichlorobenzene	ND		10	0.50	ug/L ug/L		11/19/18 09:16	12/03/18 21:03	
4-Dichlorobenzene	ND		10		-		11/19/18 09:16	12/03/18 21:03	
is(2-ethylhexyl) phthalate	ND		5.2 5.2		ug/L ug/L			12/03/18 21:03	
henol	ND		5.2	0.41	ug/L		11/19/10 09.10	12/03/10 21:03	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
4,6-Tribromophenol	65		41 - 120				11/19/18 09:16	12/03/18 21:03	
Fluorobiphenyl	87		48 - 120				11/19/18 09:16	12/03/18 21:03	
Fluorophenol	60		35 - 120					12/03/18 21:03	
itrobenzene-d5	90		46 - 120				11/19/18 09:16	12/03/18 21:03	
henol-d5	45		22 - 120				11/19/18 09:16	12/03/18 21:03	
-Terphenyl-d14	89		59 - 136				11/19/18 09:16	12/03/18 21:03	
lethod: 6010C - Metals (IC	;P)				11 14		Drepared	Analyzed	Dil F
nalyte		Qualifier	RL	0.0068	Unit	D	Prepared 12/11/18 15:18	12/13/18 13:55	
ntimony	ND		0.020	0.0056	-		12/11/18 15:18	12/13/18 13:55	
rsenic	ND		0.010 0.0020	0.00050	mg/L			12/13/18 13:55	
arium	0.13		0.0020	0.00050	-		12/11/18 15:18		
admium	ND		0.0040	0.0010	-		12/11/18 15:18		
hromium	0.0024		0.0040	0.0016	-		12/11/18 15:18		
opper	0.0019		0.050	0.019	1000		12/11/18 15:18		
on	1.7 ND	<u></u>	0.0050	0.0030				12/13/18 13:55	
ead	29.0		0.0050	0.043	-			12/13/18 13:55	
lagnesium	0.13		0.0030	0.00040	-			12/13/18 13:55	
langanese	0.0041	.1	0.000	0.0013	-			12/13/18 13:55	
l ickel ilver	0.0041 ND	•	0.0030	0.0017	-			12/13/18 13:55	
odium	29.6		1.0		mg/L			12/13/18 13:55	
inc	0.0096		0.010	0.0015	-			12/13/18 13:55	
lethod: 7470A - Mercury (*				
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Nercury	ND		0.00020	0.00012			11/28/18 13:40	11/28/18 17:45	

TestAmerica Buffalo

TestAmerica Job ID: 480-145329-1

Matrix: Water

Lab Sample ID: 480-145329-13

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

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

Client Sample ID: GW-04D

Date Collected: 11/14/18 16:55 Date Received: 11/14/18 17:50

Method: 8260C - Volatile Org Analyte		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
Vinyi chloride	ND		1.0	0.90	ug/L			11/21/18 16:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	99		77 - 120					11/21/18 16:01	
Toluene-d8 (Surr)	101		80 - 120					11/21/18 16:01	•
4-Bromofluorobenzene (Surr)	108		73 - 120					11/21/18 16:01	
Dibromofluoromethane (Surr)	104		75-123					11/21/18 16:01	
Method: 8270D - Semivolatile	e Organic Co	mpounds	(GC/MS)						
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		10	0.48	ug/L	-	11/19/18 09:16	12/03/18 21:33	•
1,4-Dichlorobenzene	ND		10		ug/L		11/19/18 09:16		
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L			12/03/18 21:33	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 21:33	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	76	<u>. </u>	41 - 120					12/03/18 21:33	
2-Fluorobiphenyl	89		48 - 120					12/03/18 21:33	
2-Fluorophenol	64		35 - 120				11/19/18 09:16	12/03/18 21:33	
Nitrobenzene-d5	92		46 - 120				11/19/18 09:16	12/03/18 21:33	
Phenol-d5	46		22 - 120					12/03/18 21:33	
p-Terphenyl-d14	89		59 - 136				11/19/18 09:16	12/03/18 21:33	
Method: 6010C - Metals (ICP))					_			D// E-
Analyte		Qualifier	RL		Unit	<u>D</u>	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020		-		12/11/18 15:18	12/13/18 13:59	
Arsenic	ND		0.010	0.0056	-			12/13/18 13:59	
Barium	0.093		0.0020	0.00070	mg/L			12/13/18 13:59	
Cadmium	0.00064	J	0.0010	0.00050	mg/L			12/13/18 13:59	
Chromium	0.0067		0.0040	0.0010	mg/L			12/13/18 13:59	
Copper	0.0016	J	0.010	0.0016	mg/L			12/13/18 13:59	
Iron	0.20		0.050	0.019				12/18/18 11:35	
Lead	ND		0.0050	0.0030	-			12/13/18 13:59	
Magnesium	79.0		0.20	0.043	-			12/13/18 13:59	
Manganese	0.022		0.0030	0.00040	mg/L			12/13/18 13:59	
Nickel	0.0039	J	0.010	0.0013	mg/L		12/11/18 15:18	12/13/18 13:59	
Silver	ND		0.0030	0.0017	mg/L			12/13/18 13:59	
Sodium	93.8		1.0	0.32	mg/L			12/13/18 13:59	
Zinc	0.0057	J	0.010	0.0015	mg/L		12/11/18 15:18	12/13/18 13:59	
Method: 7470A - Mercury (C)	VAA)								
Analyte	Result	Qualifier	RL.		Unit	D	Prepared	Analyzed	Dil Fa
Mercury	ND		0.00020	0.00012			11/28/18 13:40	44/20/40 47.47	

TestAmerica Job ID: 480-145329-1

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

Client Sample ID: TB-1113 +1114

Date Collected: 11/14/18 00:00 Date Received: 11/14/18 17:50

Lab Sample ID: 480-145329-14 Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS Dil Fac Analyzed RL **MDL** Unit D Prepared Analyte **Result Qualifier** 11/21/18 16:25 1 0.23 ug/L 1.0 1,1,2-Trichloroethane ND 1 11/21/18 16:25 2.0 0.81 ug/L ND 1,2-Dichloroethene, Total 3.0 ug/L 11/21/18 16:25 1 10 ND Acetone 11/21/18 16:25 ND 1.0 0.41 ug/L 1 Benzene 0.90 ug/L 11/21/18 16:25 1 1.0 ND Vinyl chloride Prepared Analyzed Dil Fac %Recovery Qualifier Limits Surrogate 11/21/18 16:25 1 101 77 - 120 1,2-Dichloroethane-d4 (Surr) 1 11/21/18 16:25 80 - 120 100 Toluene-d8 (Surr) 11/21/18 16:25 1 73 - 120 104 4-Bromofluorobenzene (Surr) 11/21/18 16:25 1 75-123 104 Dibromofluoromethane (Surr)

TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-1

Matrix: Water

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

.

Client Sample ID: GW-34S Date Collected: 11/15/18 08:20 Date Received: 11/15/18 16:45

			MD	linit	P	Prenarad	Analyzed	Dil Fac
	Quaimer					Frepareu	280-561	
				- 0				
				0				1
				-				1
				-				1
ND		1.0	0.90	ug/L			11/20/18 23:43	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
111		77 - 120					11/20/18 23:43	1
96		80 - 120					11/20/18 23:43	1
102		73 - 120					11/20/18 23:43	1
98		75 - 123					11/20/18 23:43	1
Organic Co	mnounds	(GC/MS)						
		RL	MDL	Unit	D	Prepared	Analyzed	ੇ Dil Fac
ND		10	0.48	ug/L		11/19/18 09:16	12/03/18 22:02	1
ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 22:02	1
ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 22:02	
ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 22:02	
%Recoverv	Qualifier	Limits				Prepared	Analyzed	Dil Fa
		41 - 120				11/19/18 09:16	12/03/18 22:02	
		48 - 120				11/19/18 09:16	12/03/18 22:02	1
		35 - 120				11/19/18 09:16	12/03/18 22:02	1
		46-120				11/19/18 09:16	12/03/18 22:02	
						11/19/18 09:16	12/03/18 22:02	-
87		59 <u>-</u> 136				11/19/18 09:16	12/03/18 22:02	1
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:23	-
ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:23	•
0.12		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:23	
	0810-043 -000	0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:23	
				-		11/23/18 08:08	11/26/18 23:23	
				-		11/23/18 08:08	11/26/18 23:23	
	ng season as i			ma/L		11/23/18 08:08	11/26/18 23:23	- 38 - BI
0.042								
0.042 ND	5	0.050		ma/l		11/23/18 08:08	11/26/18 23:23	
ND	5	0.0050	0.0030	-		11/23/18 08:08 11/23/18 08:08		
ND 28.9		0.0050 0.20	0.0030 0.043	mg/L		11/23/18 08:08	11/26/18 23:23	
ND 28.9 0.011	в	0.0050 0.20 0.0030	0.0030 0.043 0.00040	mg/L mg/L		11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23	
ND 28.9 0.011 0.0036	в	0.0050 0.20 0.0030 0.010	0.0030 0.043 0.00040 0.0013	mg/L mg/L mg/L		11/23/18 08:08 11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23 11/26/18 23:23	
ND 28.9 0.011 0.0036 ND	в	0.0050 0.20 0.0030 0.010 0.0030	0.0030 0.043 0.00040 0.0013 0.0017	mg/L mg/L mg/L mg/L		11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23	· · · · · ·
ND 28.9 0.011 0.0036 ND 11.6	в	0.0050 0.20 0.0030 0.010 0.0030 1.0	0.0030 0.043 0.00040 0.0013 0.0017 0.32	mg/L mg/L mg/L mg/L mg/L		11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23	с не С на
ND 28.9 0.011 0.0036 ND	в	0.0050 0.20 0.0030 0.010 0.0030	0.0030 0.043 0.00040 0.0013 0.0017	mg/L mg/L mg/L mg/L mg/L		11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23	с толо С. т. с. с.
ND 28.9 0.011 0.0036 ND 11.6 ND	в	0.0050 0.20 0.0030 0.010 0.0030 1.0	0.0030 0.043 0.00040 0.0013 0.0017 0.32	mg/L mg/L mg/L mg/L mg/L	D	11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08 11/23/18 08:08	11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23 11/26/18 23:23	Dil Fac
	Result ND ND ND ND ND %Recovery 111 96 102 98 Organic Co Result ND ND ND ND ND ND ND ND ND ND ND ND ND	ResultQualifierNDNDNDNDNDNDNDND%RecoveryQualifier1119610298Organic Compounds ResultQualifierNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDNDND0.12ND0.0077	ND 1.0 ND 2.0 ND 10 ND 10 ND 1.0 ND 1.0 ND 1.0 ND 1.0 ND 1.0 ND 1.0 %Recovery Qualifier Limits 111 77 - 120 96 96 80 - 120 102 102 73 - 120 98 98 75 - 123 Organic Compounds (GC/MS) Result Qualifier RL ND 10 ND 10 ND 5.0 ND 5.0 ND 5.0 %Recovery Qualifier Limits 72 41 - 120 86 46 - 120 45 22 - 120 87 59 - 136 Result Qualifier RL ND 0.010 0.0020 ND 0.0010 0.0020	Result Qualifier RL MDL ND 1.0 0.23 ND 2.0 0.81 ND 10 3.0 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.41 ND 1.0 0.90 %Recovery Qualifier Limits 111 77.120 96 96 80.120 102 102 73.120 98 Organic Compounds (GC/MS) MDL ND 10 0.46 ND 10 0.46 ND 10 0.46 ND 5.0 2.2 ND 5.0 0.39 %Recovery Qualifier Limits 72 41.120 86 86 48.120 61 61 35.120 86 86 46.120 45 45 22.120 0.0020 0.006	Result Qualifier RL MDL Unit ND 1.0 0.23 ug/L ND 2.0 0.81 ug/L ND 10 3.0 ug/L ND 10 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.41 ug/L ND 1.0 0.90 ug/L %Recovery Qualifier Limits 111 77-120 96 80-120 102 73-120 98 75-123 Organic Compounds (GC/MS) MDL Unit ND 10 0.46 ug/L ND 10 0.46 ug/L ND 5.0 2.2 ug/L ND 5.0 0.39 ug/L %Recovery Qualifier Limits 10 72 41-120 86 46-120 45 22-120 87 59-136 Res	Result Qualifier RL MDL Unit D ND 1.0 0.23 ug/L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Result Qualifier RL MDL Unit D Prepared ND 1.0 0.23 ug/L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Result Qualifier RL MDL Unit D Prepared Analyzed ND 2.0 0.81 ug/L 11/20/18 23:43 11/20/18 23:43 ND 1.0 0.41 ug/L 11/20/18 23:43 11/20/18 23:43 ND 1.0 0.41 ug/L 11/20/18 23:43 11/20/18 23:43 ND 1.0 0.90 ug/L 11/20/18 23:43 11/20/18 23:43 ND 1.0 0.90 ug/L 11/20/18 23:43 11/20/18 23:43 MD 1.0 0.90 ug/L 11/20/18 23:43 11/20/18 23:43 MD 77.720 Prepared Analyzed 11/20/18 23:43 11/20/18 23:43 11/20/18 23:43 11/20/18 23:43 Organic Compounds (GC/MS) Prepared Analyzed ND 10 0.46 ug/L 11/19/18 09:16 12/03/18 22:02 ND 5.0 0.39 ug/L 11/19/18 09:16 12/03/18 22:02 ND 5.0 0.39 u



TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-2

Matrix: Water

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

Client Sample ID: GW-03D

Date Collected: 11/15/18 09:50

lethod: 8260C - Volatile Or	ganic Compo	unds by G	C/MS		11014	D	Drepared	Analyzed	Dil Fa
nalyte	ND	Qualifier	RL	0.23			Prepared	11/21/18 00:10	
,1,2-Trichloroethane					-			11/21/18 00:10	
,2-Dichloroethene, Total	ND		2.0		ug/L			11/21/18 00:10	
Acetone	ND		10	3.0				11/21/18 00:10	
lenzene	ND		1.0	0.41	0				
'inyl chloride	ND		1.0	0.90	ug/L			11/21/18 00:10	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
,2-Dichloroethane-d4 (Surr)			77 - 120					11/21/18 00:10	
oluene-d8 (Surr)	97		80 - 120					11/21/18 00:10	
-Bromofluorobenzene (Surr)	102		73 - 120					11/21/18 00:10	
Dibromofluoromethane (Surr)	96		75 - 123					11/21/18 00:10	
lethod: 8270D - Semivolati	ile Organic Co	mpounds	(GC/MS)						
nalyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil F
,3-Dichlorobenzene	2.9	J	10	0.48	ug/L		11/19/18 09:16	12/03/18 22:32	
,4-Dichlorobenzene	4.2	J	10		ug/L		11/19/18 09:16	12/03/18 22:32	
is(2-ethylhexyl) phthalate	ND		5.0		ug/L			12/03/18 22:32	
henol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 22:32	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
4,6-Tribromophenol	73		41 - 120				11/19/18 09:16	12/03/18 22:32	
-Fluorobiphenyl	89		48 - 120				11/19/18 09:16	12/03/18 22:32	
-Fluorophenol	64		35 - 120				11/19/18 09:16	12/03/18 22:32	
litrobenzene-d5	90		46 - 120				11/19/18 09:16	12/03/18 22:32	
Phenol-d5	46		22 - 120				11/19/18 09:16	12/03/18 22:32	
-Terphenyl-d14	92		59 <u>-</u> 136				11/19/18 09:16	12/03/18 22:32	
/lethod: 6010C - Metals (IC	P)					1			
nalyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil F
ntimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:27	
rsenic	ND		0.010	0.0056	-		11/23/18 08:08	11/26/18 23:27	
larium	0.084		0.0020	0.00070				11/26/18 23:27	
admium	ND		0.0010	0.00050	-			11/26/18 23:27	
hromium	ND		0.0040	0.0010			11/23/18 08:08		
opper	ND		0.010	0.0016	-		11/23/18 08:08		
on	1.1		0.050	0.019	-		11/23/18 08:08		
ead	ND		0.0050	0.0030	-		11/23/18 08:08		
lagnesium	17.9		0.20	0.043	mg/L		11/23/18 08:08		
langanese	0.26	8	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:27	
lickel	0.0040	J	0.010	0.0013	mg/L			11/26/18 23:27	
ilver	ND		0.0030	0.0017	mg/L		11/23/18 08:08		
odium	164		1.0	0.32	mg/L		11/23/18 08:08	11/26/18 23:27	
inc	ND		0.010	0.0015	-		11/23/18 08:08	11/26/18 23:27	
/lethod: 7470A - Mercury (0									
nalyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Nercury			0.00020	0.00012				11/20/18 17:40	

TestAmerica Job ID: 480-145376-1

Constant of

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

1,2-Dichloroethane-d4 (Surr) Toluene-d8 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %I 2.74,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	Result ND ND ND ND Recovery 113 93 102 99 ganic Co	Qualifier Qualifier	RL 1.0 2.0 10 1.0 1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	MDL 0.23 0.81 3.0 0.41 0.90	ug/L ug/L ug/L ug/L	D	Prepared Prepared	Analyzed 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37	Dil Fac
Analyte 1,1,2-Trichloroethane 1,2-Dichloroethene, Total Acetone Benzene Vinyl chloride Surrogate 1,2-Dichloroethane-d4 (Surr) Toluene-d8 (Surr) 4-Bromofiluorobenzene (Surr) Dibromofiluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 2,4,6-Tribromophenol 22-Fluorobiphenyl 2-Fluorobiphenol	Result ND ND ND ND Recovery 113 93 102 99 ganic Cc Result	Qualifier Qualifier	RL 1.0 2.0 10 1.0 1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	0.23 0.81 3.0 0.41	ug/L ug/L ug/L ug/L	D	· · · · · · · · · · · · · · · · · · ·	11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 Analyzed	Dil Fac
1,1,2-Trichloroethane 1,2-Dichloroethene, Total Acetone Benzene Vinyl chloride Surrogate %/ 1,2-Dichloroethane-d4 (Surr) Toluene-d8 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2/-Fluorobiphenyl 2-Fluorophenol 2-Fluorophenol	ND ND ND ND ND 113 93 102 99 ganic Co Result	<i>Qualifier</i>	2.0 10 1.0 1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	0.81 3.0 0.41	ug/L ug/L ug/L		Prepared	11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 Analyzed	Dil Fac
1,2-Dichloroethene, Total Acetone Benzene Vinyl chloride Surrogate %/ 1,2-Dichloroethane-d4 (Surr) Toluene-d8 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 2,2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	ND ND ND 113 93 102 99 ganic Cc Result	Qualifier	2.0 10 1.0 1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	0.81 3.0 0.41	ug/L ug/L ug/L		Prepared	11/21/18 00:37 11/21/18 00:37 11/21/18 00:37 Analyzed	Dil Fac
Acetone Benzene /Inyl chloride Surrogate %/ I,2-Dichloroethane-d4 (Surr) Foluene-d8 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte I,3-Dichlorobenzene I,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	ND ND 113 93 102 99 ganic Cc Result	Qualifier ompounds	1.0 1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	3.0 0.41	ug/L ug/L		Prepared	11/21/18 00:37 11/21/18 00:37 <i>Analyzed</i>	Dii Fa
Benzene /inyl chloride Surrogate %/ I,2-Dichloroethane-d4 (Surr) Foluene-d8 (Surr) I-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Wethod: 8270D - Semivolatile Org Analyte I,3-Dichlorobenzene I,4-Dichlorobenzene I,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	ND Recovery 113 93 102 99 ganic Cc Result	Qualifier	1.0 <i>Limits</i> 77 - 120 80 - 120 73 - 120 75 - 123	0.41	ug/L		Prepared	11/21/18 00:37 Analyzed	Dil Fa
Surrogate %/ Surrogate %/ 1,2-Dichloroethane-d4 (Surr) Foluene-d8 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 3is(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	Recovery 113 93 102 99 ganic Co Result	<i>Qualifier</i>	Limits 77 - 120 80 - 120 73 - 120 75 - 123	0.90	ug/L		Prepared	Analyzed	Dil Fa
I,2-Dichloroethane-d4 (Surr) Foluene-d8 (Surr) I-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte I,3-Dichlorobenzene I,4-Dichlorobenzene Sis(2-ethylhexyl) phthalate Phenol Surrogate %I 2-Fluorobiphenyl 2-Fluorophenol	113 93 102 99 ganic Co Result	ompounds	77 - 120 80 - 120 73 - 120 75 - 123				Prepared	100 M	
Toluene-d8 (Surr) 4-Bromofiuorobenzene (Surr) Dibromofiuoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene 3is(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	93 102 99 janic Co Result	ompounds	80 - 120 73 - 120 75 - 123					44104140 00.07	
H-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr) Wethod: 8270D - Semivolatile Org Analyte (,3-Dichlorobenzene (,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate (,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	102 99 ganic Co Result	ompounds (73 - 120 75 - 123					11/21/18 00:37	
Dibromofluoromethane (Surr) Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	99 ganic Co Result	ompounds (75 - 123					11/21/18 00:37	
Method: 8270D - Semivolatile Org Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	janic Co Result	ompounds (11/21/18 00:37	
Analyte 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %I 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	Result		GCIMS					11/21/18 00:37	
1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol		Qualifier				_		a and	
1,4-Dichlorobenzene Bis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	ND		RL	MDL		D	Prepared	Analyzed	Dil Fa
Sis(2-ethylhexyl) phthalate Phenol Surrogate %/ 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol			10		-		11/19/18 09:16	12/03/18 23:01	
Phenol Surrogate %/ P,4,6-Tribromophenol P-Fluorobiphenyl P-Fluorophenol	ND		10	0.48	-		11/19/18 09:16	12/03/18 23:01	
Surrogate %/ P.4,6-Tribromophenol P-Fluorobiphenyl P-Fluorophenol	ND		5.2		ug/L		11/19/18 09:16	12/03/18 23:01	
,4,6-Tribromophenol -Fluorobiphenyl -Fluorophenol	ND		5.2	0.41	ug/L		11/19/18 09:16	12/03/18 23:01	
-Fluorobiphenyl -Fluorophenol	Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
-Fluorophenol	74		41 - 120				11/19/18 09:16	12/03/18 23:01	
	82		48 - 120					12/03/18 23:01	
	59		35 - 120				11/19/18 09:16		
litrobenzene-d5	84		46 - 120				11/19/18 09:16	12/03/18 23:01	
Phenol-d5	42		22 - 120				11/19/18 09:16	12/03/18 23:01	
o-Terphenyl-d14	82		59 - 136				11/19/18 09:16	12/03/18 23:01	
/lethod: 6010C - Metals (ICP)						- 22		×	
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
ntimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:42	
rsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:42	
Barium	0.092		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:42	
Cadmium	ND		0.0010		-		• • • • • • • • • • • • • • • •	11/26/18 23:42	
Chromium	ND		0.0040	0.0010	_			11/26/18 23:42	
Copper	0.0029		0.010	0.0016			11/23/18 08:08	11/26/18 23:42	
ron	0.38		0.050	0.019	-			11/26/18 23:42	
ead	ND		0.0050	0.0030				11/26/18 23:42	
lagnesium	27.4		0.20	0.043	-		S Distance Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contrac	11/26/18 23:42	
langanese	1.3		0.0030	0.00040	-			11/26/18 23:42	
lickel	0.0023		0.010	0.0013	-			11/26/18 23:42	
ilver	ND	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0030	0.0017	7			11/26/18 23:42	
Sodium		131	1.0		mg/L			11/27/18 10:54	
linc ND	0.0049	JB	0.010	0.0015	-		11/23/18 08:08	11/26/18 23:42	
lethod: 7470A - Mercury (CVAA)						_	. .	A	D 2 F
Analyte	Decult	Qualifier	RL 0.00020	MDL 0.00012		D	Prepared	Analyzed	Dil Fa

TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-4

Matrix: Water

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

Client Sample ID: GW-29S

Date Collected: 11/15/18 11:42 Date Received: 11/15/18 16:45

Method: 8260C - Volatile (Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 01:04	
1,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 01:04	
Acetone	ND		10	3.0	ug/L			11/21/18 01:04	
Benzene	ND		1.0	0.41	ug/L			11/21/18 01:04	
/inyl chloride	ND		1.0	0.90	ug/L			11/21/18 01:04	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
,2-Dichloroethane-d4 (Surr)	109		77 - 120					11/21/18 01:04	
oluene-d8 (Surr)	94		80 - 120					11/21/18 01:04	
l-Bromofluorobenzene (Suπ)	102		73 - 120					11/21/18 01:04	
Dibromofluoromethane (Surr)	96		75 - 123					11/21/18 01:04	
Wethod: 8270D - Semivola	atile Organic Co	mpounds	(GC/MS)						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		10	0.48	ug/L	_	11/19/18 09:16	12/03/18 23:30	
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/03/18 23:30	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		11/19/18 09:16	12/03/18 23:30	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/03/18 23:30	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
2,4,6-Tribromophenol	82		41 - 120				11/19/18 09:16	12/03/18 23:30	
2-Fluorobiphenyl	87		48 - 120				11/19/18 09:16	12/03/18 23:30	
2-Fluorophenol	57		35 - 120				11/19/18 09:16	12/03/18 23:30	
Nitrobenzene-d5	84		46 - 120				11/19/18 09:16	12/03/18 23:30	
Phenol-d5	41		22 - 120				11/19/18 09:16	12/03/18 23:30	
o-Terphenyl-d14	83		59 - 136				11/19/18 09:16	12/03/18 23:30	
Method: 6010C - Metals (CP)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:46	
Arsenic	0.012		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:46	
Barium	0.20		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:46	
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:46	
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:46	
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:46	
ron	10.8		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:46	
.ead	0.0036	J	0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:46	
Vagnesium	78.3	,	0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:46	
Manganese	0.59	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:46	
Vickel	ND		0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:46	
Silver	ND		0.0030	0.0017	-		11/23/18 08:08	11/26/18 23:46	
Sodium	10.3		1.0		mg/L		11/23/18 08:08	11/29/18 10:16	
Zinc	ND -0.0042	18	0.010	0.0015	mg/L		11/23/18 08:08	11/26/18 23:46	
Wethod: 7470A - Mercury	(CVAA)			0.C					
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Mercury	ND		0.00020	0.00012	ma/l	0.00	11/20/18 15:05	11/20/18 17:42	

TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-5

11/21/18 01:32

11/21/18 01:32

2

2

Matrix: Water

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

Client Sample ID: GW-30S Date Collected: 11/15/18 12:30

Date

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Date Received: 11/15/18 16:4			1947 1 20-202-2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021 - 2021	[4] A. M. M. M. M. M. M. M. M. M. M. M. M. M.	0.000 + 10.000 mm mm r 1000 r 10.000				T-1 ble managemen songe
Method: 8260C - Volatile Org Analyte		unds by G Qualifier	C/MS 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

100				
Method	8270D - Semi	volatile Orga	nic Compound	s (GC/MS)

105

101

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
1								

73-120

75-123

Surrogate	%Recovery Qua	alifier 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 <u>-</u> 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	e inie 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

TestAmerica Buffalo

TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-6

Matrix: Water

ST IN SCI

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

Client Sample ID: GW-31S

Date Collected: 11/15/18 13:27 Date Received: 11/15/18 16:45

Analyte									
Method: 7470A - Mercury (CV		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Zinc	0.011	15	0.010	0.0015	mg/L		11/23/18 08:08	11/20/10 23:34	
Sodium	4.4	1	1.0		mg/L		11/23/18 08:08	11/29/18 10:24	
Silver	ND		0.0030	0.0017			11/23/18 08:08	11/26/18 23:54	
lickel	0.0040	J	0.010	0.0013	-		11/23/18 08:08	11/26/18 23:54	
langanese	0.95		0.0030	0.00040	-		11/23/18 08:08	11/26/18 23:54	
lagnesium	40.8	1	0.20	0.043			11/23/18 08:08	11/26/18 23:54	
ead	ND		0.0050	0.0030	-		11/23/18 08:08	11/26/18 23:54	
ron	3.0		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:54	
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:54	
Chromium	ND		0.0040	0.0010	mg/L		11/23/18 08:08	11/26/18 23:54	
Cadmium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/26/18 23:54	
Barium	0.15		0.0020	0.00070	mg/L		11/23/18 08:08	11/26/18 23:54	
rsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/26/18 23:54	
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:54	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Method: 6010C - Metals (ICP)									
o-Terphenyl-d14	92		59 <u>-</u> 136				11/19/18 09:16	12/04/18 00:28	
Phenol-d5	48		22 - 120				••••	12/04/18 00:28	
Nitrobenzene-d5	90		46 - 120					12/04/18 00:28	
2-Fluorophenol	66		35 - 120				11/19/18 09:16	12/04/18 00:28	
2-Fluorobiphenyl	92		48 - 120				11/19/18 09:16	12/04/18 00:28	
2,4,6-Tribromophenol	75		41 - 120				11/19/18 09:16	12/04/18 00:28	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
nenoi				0.39	uyr		6. 		
Phenol	ND		5.0		ug/L			12/04/18 00:28	
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		11/19/18 09:16	12/04/18 00:28	
,3-Dichlorobenzene	ND		10		ug/L		11/19/18 09:16	12/04/18 00:28	
Analyte ,3-Dichlorobenzene	- Result	Qualifier	RL 	MDL 0.48	ug/L	D	Prepared 11/19/18 09:16	Analyzed 12/04/18 00:28	DilF
Method: 8270D - Semivolatile					11 8 J 14	•	Descended	Nachmod	DUE
Dibromofluoromethane (Surr)	98		75 - 123					11/21/18 02:00	
4-Bromofluorobenzene (Surr)	106		73 - 120					11/21/18 02:00	
Toluene-d8 (Surr)	95		80 - 120					11/21/18 02:00	
1,2-Dichloroethane-d4 (Surr)	109		77 - 120					11/21/18 02:00	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:00	
Benzene	ND		1.0	0.41	ug/L			11/21/18 02:00	
Acetone	ND		10	3.0	ug/L			11/21/18 02:00	
,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 02:00	
	ND		1.0	0.23	ug/L			11/21/18 02:00	
1,2-Trichloroethane	ALC: NO								

TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-7

Matrix: Water

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

Client Sample ID: GW-32S

Date Collected: 11/15/18 14:19 Date Received: 11/15/18 16:45

Analyte	nic Compo Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	1242454				11/21/18 02:27	
1,2-Dichloroethene, Total	ND		2.0		ug/L			11/21/18 02:27	· · ·
Acetone	ND		10		ug/L			11/21/18 02:27	
Benzene	ND		1.0		ug/L			11/21/18 02:27	
	ND		1.0		ug/L			11/21/18 02:27	
Vinyl chloride			1.0	0.50	ugre			11/21/10 02:27	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	114		77 - 120					11/21/18 02:27	
Toluene-d8 (Surr)	97		80 - 120					11/21/18 02:27	1
4-Bromofluorobenzene (Surr)	106		73 - 120					11/21/18 02:27	;
Dibromofluoromethane (Surr)	102		75 - 123					11/21/18 02:27	
Method: 8270D - Semivolatile	Organic Co	mnounds	(GC/MS)						
Analyte		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	
1,4-Dichlorobenzene	ND		10	0.46	ug/L		11/19/18 09:16	12/04/18 00:57	
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	-		11/19/18 09:16	12/04/18 00:57	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/04/18 00:57	770 17
	64 D	0	1 1 14				Prepared	Analyzed	Dil Fa
Surrogate	%Recovery	Qualifier	Limits				11/19/18 09:16	12/04/18 00:57	
2,4,6-Tribromophenol	62		41 - 120				11/19/18 09:16	12/04/18 00:57	
2-Fluorobiphenyl	87		48 - 120						
2-Fluorophenol	59		35 - 120				11/19/18 09:16	12/04/18 00:57	D
Nitrobenzene-d5	86		46 - 120					12/04/18 00:57	
Phenol-d5	44		22 - 120					12/04/18 00:57	
p-Terphenyl-d14	91		59 - 136				11/19/18 09:16	12/04/18 00:57	·
Method: 6010C - Metals (ICP)						_			
Analyte		Qualifier	RL	MDL		<u>D</u>	Prepared	Analyzed	Dil Fa
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/26/18 23:58	
Arsenic	ND		0.010	0.0056	-		11/23/18 08:08	11/26/18 23:58	ſ
Barium	0.060		0.0020	0.00070			11/23/18 08:08	11/26/18 23:58	
Cadmium	ND		0.0010	0.00050	-		11/23/18 08:08	11/26/18 23:58	
Chromium	0.0010	J	0.0040	0.0010	•		11/23/18 08:08	11/26/18 23:58	
Соррег	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/26/18 23:58	
ron	ND		0.050	0.019	mg/L		11/23/18 08:08	11/26/18 23:58	
ead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/26/18 23:58	
lagnesium	31.9	1.11	0.20	0.043	mg/L		11/23/18 08:08	11/26/18 23:58	
	0.18	B	0.0030	0.00040	mg/L		11/23/18 08:08	11/26/18 23:58	
langanese	0.0013	J	0.010	0.0013	mg/L		11/23/18 08:08	11/26/18 23:58	
	0.0013			0.0017	mg/L		11/23/18 08:08	11/26/18 23:58	
lickel	0.0013 ND		0.0030						
Nickel Silver	ND		0.0030		mg/L		11/23/18 08:08	11/29/18 10:27	
Nickel Silver Sodium	ND 5.9		1.0	0.32	mg/L mg/L		11/23/18 08:08 11/23/18 08:08		
Nickel Silver Sodium	ND	JB		0.32 0.0015	mg/L				
Manganese Nickel Silver Sodium Linc Method: 7470A - Mercury (CV/ Analyte	ND 5.9 NO 0.0025 AA)	J B Qualifier	1.0	0.32	mg/L	D			Dii Fa



TestAmerica Job ID: 480-145376-1

Lab Sample ID: 480-145376-8

Matrix: Water

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

Client Sample ID: GW-33S

Date Collected: 11/15/18 15:04 Date Received: 11/15/18 16:45

lethod: 8260C - Volatile Org	anic Compo	unds by G	C/MS		1114	D	Prepared	Analyzed	Dil Fa
Analyte		Qualifier	RL	MDL		<u>U</u>	Frepared	11/21/18 02:54	
,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 02:54	
,2-Dichloroethene, Total	ND		2.0	0.81	ug/L			11/21/18 02:54	
cetone	ND		10	3.0	ug/L			11/21/18 02:54	
Benzene	ND		1.0	0.41	•				
/inyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:54	
Gurrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
,2-Dichloroethane-d4 (Surr)	108		77 - 120					11/21/18 02:54	
oluene-d8 (Surr)	94		80 - 120					11/21/18 02:54	
-Bromofluorobenzene (Surr)	100		73 - 120					11/21/18 02:54	
Dibromofluoromethane (Surr)	98		75 - 123					11/21/18 02:54	
/lethod: 8270D - Semivolatile							Drepared	Analyzed	Dil Fa
nalyte		Qualifier	RL _	MDL		D	Prepared 11/19/18 09:16	Analyzed 12/04/18 16:59	
,3-Dichlorobenzene	ND		10	0.48	ug/L				
,4-Dichlorobenzene	ND		10	0.46	-		11/19/18 09:16	12/04/18 16:59	
iis(2-ethylhexyl) phthalate	ND		5.0		ug/L		11/19/18 09:16	12/04/18 16:59	
Phenol	ND		5.0	0.39	ug/L		11/19/18 09:16	12/04/18 16:59	
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
4,6-Tribromophenol	45		41 - 120				11/19/18 09:16	12/04/18 16:59	C
-Fluorobiphenyl	65		48 - 120				11/19/18 09:16	12/04/18 16:59	
-Fluorophenol	49		35 - 120				11/19/18 09:16	12/04/18 16:59	
litrobenzene-d5	65		46 - 120				11/19/18 09:16	12/04/18 16:59	
Phenol-d5	39		22 - 120				11/19/18 09:16	12/04/18 16:59	
-Terphenyl-d14	82		59 - 136				11/19/18 09:16	12/04/18 16:59	
Method: 6010C - Metals (ICP)								
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
ntimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/27/18 00:02	
rsenic	ND		0.010	0.0056	mg/L		11/23/18 08:08	11/27/18 00:02	
arium	0.059		0.0020	0.00070	mg/L		11/23/18 08:08	11/27/18 00:02	
admium	ND		0.0010	0.00050	mg/L		11/23/18 08:08	11/27/18 00:02	
hromium	0.0021	J	0.0040	0.0010	mg/L		11/23/18 08:08	11/27/18 00:02	
Copper	ND		0.010	0.0016	mg/L		11/23/18 08:08	11/27/18 00:02	
on	0.075		0.050	0.019	mg/L		11/23/18 08:08	11/27/18 00:02	
ead	ND		0.0050	0.0030	mg/L		11/23/18 08:08	11/27/18 00:02	
lagnesium	56.1		0.20	0.043	-		11/23/18 08:08	11/27/18 00:02	
langanese	0.041	B	0.0030	0.00040				11/27/18 00:02	
lickel	0.0017		0.010	0.0013	-			11/27/18 00:02	
liver	ND	-	0.0030	0.0017	-			11/27/18 00:02	
odium	3.1		1.0		mg/L			11/29/18 10:31	
	ND 0.0044	18	0.010	0.0015				11/27/18 00:02	
linc	100 anoth		0.010	0.0	_				
1.4	/ΔΔ\				-				
/lethod: 7470A - Mercury (C)		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa



TestAmerica Job ID: 480-145376-1

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

Client Sample ID: TB-111518

Date Collected: 11/15/18 00:00 Date Received: 11/15/18 16:45

Lab Sample ID: 480-145376-9 Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS Analyzed **Dil Fac** RL **MDL** Unit D Prepared Analyte **Result Qualifier** 11/21/18 03:22 1 1,1,2-Trichloroethane ND 1.0 0.23 ug/L 0.81 ug/L 11/21/18 03:22 1 ND 2.0 1,2-Dichloroethene, Total 11/21/18 03:22 10 3.0 ug/L 1 ND Acetone 0.41 ug/L 11/21/18 03:22 1 ND 1.0 Benzene 11/21/18 03:22 1 0.90 ug/L Vinyl chloride ND 1.0 Dil Fac Prepared Analyzed %Recovery Qualifier Limits Surrogate 11/21/18 03:22 1 113 77 - 120 1,2-Dichloroethane-d4 (Surr) 80 - 120 11/21/18 03:22 1 96 Toluene-d8 (Surr) 11/21/18 03:22 1 104 73-120 4-Bromofluorobenzene (Surr) 11/21/18 03:22 1 102 75-123 Dibromofluoromethane (Surr)

APPENDIX B

SUPPORT DOCUMENTATION

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TestAmerica Buffalo 10 Hazekwood Drive Amherst, NY 14228-2298 Phone (716) 691-2800 Fax (716) 691-7991	Chain of	of Custody Record	cord		TestAmening
Climatica	Sampler	Lab PM Davo Melissa I	aisea l	Camer Tracking No(s).	COC No 480-121444-13
Client muchination Client Contact Control Contact	Phone Phone	E-Mail moltess	E-Mail melitera devo@teetamericaine com		Page
	5				Jub # 48(1-145329 COC
	Due Date Requested:		Analysis kequested	nested	Preservation Codes:
257 West Genesee Street Suite 400			1		
Cuty Buffaio			y- 517		
State, 2p NY 14202-2657	STANARD		(sw		
Phone	PO# 60411174 Task11175616,00000				F - MeOH R - Na2S203 G - Amchtor S - H2SO4 H - Asconduct Act T - TSP Dodecathodrate
Email ann marie kropovitch@aecom com	WO # ann marie kropovitch@aecom.com	E	unodu I spun		e J - Di Water V - MCAA
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Sample Identification	Sample Date Time ((C=Coπp, constrated, 25 G=grab) Βτ-πεινο, Ακλιτ) μτ	ל, ב- 85800 - 8510D - 8010C'		The Special Instructions/Note:
	X	1 111 1	XD N A A N		X
GW-0.7D	11/13/18 1345	G Water	*53		3
G.J + 0.5	8211 81/51/11	G Water	2 3		6
GN-CIN	002/13/13 1300	G Water	123		0
Gen - 075	11/1/18 1350	G Water	3		3
202 - Lu J	11/1/13 0725	G Water	1 2322		10
G ~ -08D	acal 8/4/1/11	G Water	12322		/9
FB 11+4 CW -080 Mrs	11/14/18 1620	G Water	1 2 3 2 2		D MATCH' SPIKES
Coul- OBD-MSD	11/14/18 1820	C Water	12326		DIATEN SPIKE THO
	0011 @1/4/11	G Water	2		2 FICLD BLANK
EB-111418	11/1/18/1105	ن Water	22		1 But - BANK
C214-355	11/1/10 1240	G Water	12324		10
Possible Hazard Identification		Dadiofonical	Sample Disposal (A fee may beesessed if samples are retained longer than 1 month)	essessed if samples are ret	tained longer than 1 month) Archive For
ested 1, 11, 11, 1V, Other (specify)			Special Instructions/OC Requirements.	ents:	
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Relinquished by	Date/Time	Company	Received by:	Date/Time.	Company
Custody Seals Intact Custody Seal No.			Cooler Temperature(s) ^a C and Other Remarks	#- w	22353629
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Chain of Custody Record



Amherst. NY 14228-2298 Phone (716) 691-2600 Fax (716) 691-7991	5		citalit of custouy record	na Ver	5					2012	200155258.0403	aveoration and the	
Client Information	Sampler C. Murc	31-4		Lab PM Deyo, Melissa I	lissa E			Carrier Tracking No(s)	(a) No(a)	COC No 480-12	COC No. 480-121444-13273.	73.2	
Client Contact. Ms. Ann Marie Kropovitch	Phone 16 923	-1176		E-Mari melissa d	E-Mail melissa deyo@testamericainc com	americal	nc com	1		Page	Page 2 of 2 2		
							Analysis Requested	equested		100 100			
Adaress 257 West Genesee Street Suite 400	Due Date Requested:				53638		24			Pres	Preservation Codes:		
C _{iv} Buffalo	TAT Requested (days):				1993					c a u	NaOH Zn Acetate	M + None N - None O - AsNaO2	
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Prone	PO#: 60411174 Task1117	175616.00000	8	(0)	P^ GC/		- CI	7		L U I	MeUn Amchior Ascorbic Acid	к - Na2SZO3 S - H2SO4 T - TSP Dodecahydrate	
Email ann.marie kropovitch@aecom com	WO # ann.mane.kropoví	tch@aecon	com				1- SW			5 0 0 	1 - Ice J - DI Water	U - Acetone V - MCAA	
Project Name. Pfohl Brothers Landfill GW Monitoring	Project # 48002609	-				o) ola	-wi \$V:				L-EDA	W - pri 4-3 Z - other (specify)	
Site	SSOW#	2	×			agrO a				of co	er.		
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FD-111418	11/11/13		s O	Water	12	m	22	Ŭ	<u>ए</u> - भ	ġ,			_
C 07D	11,4/10	1430	N D	Water	12					3			
GW-675	@1//+1/1:	1450	N D	Water	1/12	2				3			
Evenat S	21/21/2	1225	S	Water		3				r/]			
GHC- (1C)	1 21/21/12	بورجا		Water		23				9			_
Sto- rico	1 31/1/1/1	705		Water	112	2				M			
TC -1112 + 1114	11/1-1/11	Ì	v ا دُک	Water		2				27	TRIP 3	BLANK	
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] at	Poison B		Radiological		Sample C	le Disposal (A f Return To Client	Sample Disposal (A fee may be essessed if samples are retained longer than 1 month) Return To Client The Disposal By Lab Archive For Mo	e assessed if sam Disposal By Lab	f samples are	Archive For	longer than e For	1 month) Months	
ested: I, II, III, IV, Other (specify)		ł.	•		Special In	struction	Special Instructions/QC Requirements:	nents:					T
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Reinquished by	Date/Time		5	Сотрапу	Received by	ed by			Date/Time			Company	
Custody Seals Intact: Custody Seal No					Cooler	Temperatu	Cooler Temperature(s) ^a C and Other Remarks	r Remarks					
		1		D.			2					Vec. 08/04/2016	1

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

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 the 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 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA and/or 13C2 PFUA 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

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

Job ID: 480-145329-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

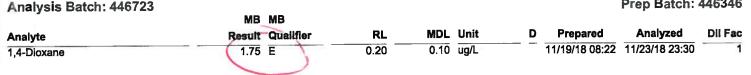
laboratory control sample (LCS) being contaminated: GW-08SR (480-145329-5), GW-08D (480-145329-6), GW-08D (480-145329-6[MS]), GW-08D (480-145329-6[MS]), EB-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-111418 (480-145329-8), GW-35S (480-145329-9), GW-26D (480-145329-10) and FD-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

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

Lab Sample ID: LCS 480- Matrix: Water Analysis Batch: 448732	446368/2 - A					Clie	nt Sai	mple ID	: Lab Cor Prep Tyj Prep Ba	pe: Tot	al/NA
	LCS	LCS									
Surrogate	%Recovery	Qualifier	Limits								
p-Terphenyl-d14	88		59 - 136								
Lab Sample ID: 480-1453 Matrix: Water Analysis Batch: 448732		Comple	0-lka	ме	MS			Clier	nt Sample Prep Tyj Prep Ba %Rec.	pe: Tot	al/NA
A = 1.4.	-	Sample	Spike Added		Qualifier	Unit	D	%Rec	Limits		
Analyte	ND	Qualifier		27.3		ug/L	— Ĕ	85	51 - 120		
1,3-Dichlorobenzene						-		86	32 - 150		
1,4-Dichlorobenzene	ND		32.0	27.6		ug/L		118	32 - 150 16 - 150		
Bis(2-ethylhexyl) phthalate	ND		32.0	37.6		ug/L			16 - 150		
Phenol	ND		32.0	21.1		ug/L		66	10-120		
	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: 480-1453 Matrix: Water Analysis Batch: 448732		Sample	Spike	MSD	MSD			Clier	nt Sample Prep Tyj Prep Ba %Rec.	pe: Tot	al/NA
Awalista	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limi
Analyte	ND	Quamer	33.3	28.1				84	51 - 120	3	3
1,3-Dichlorobenzene	ND		33.3	28.7		ug/L		86	32 - 150	4	3
1,4-Dichlorobenzene	ND		33.3	40.5		ug/L		122	16 - 150	7	1
Bis(2-ethylhexyl) phthalate	ND		33.3	40.5		ug/L		68	16 - 120	ż	34
Phenol	ND		33.3	22.1		uy/L		00	10-120	•	Ŭ
	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								
Aethod: 8270D SIM ID	- Semivol	atile Org	anic Com	pounds	s (GC/M	S SIM	/ Iso	tope D	llution)		
Lab Sample ID: MB 480-4 Matrix: Water Analysis Batch: 446723	and the first the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second								nple ID: M Prep Tyj Prep Ba	pe: Tot	al/NA



QC Sample Results

			Sample	Resi	1115		Test	America	Job ID: 480-1	45329-1
Client: AECOM Project/Site: Pfohl Brothers L	andfill GW N.	lonitoring <i>MB MB</i>					1690	America	JUD ID. 400-	140020-1
Isotope Dilution	%Reco	very Qualifier	Limits					repared	Analyzed	Dil Faç
1,4-Dioxane-d8		27	15-110				11/1	9/18 08:22	11/23/18 23:3	0 1
Lab Sample ID: LCS 480-4 Matrix: Water Analysis Batch: 446723	146346/2-A					Clien	nt Sar		Lab Control Prep Type: Prep Batch	Total/NA
Analysis Buton: 440120			Spike	LCS	LCS				%Rec.	
Analyte			Added	1	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane			1.00	5.87	E+)	ug/L	(587	40 - 140	
	LCS			\sim				\smile		
Isotope Dilution	%Recovery	Qualifier	Limits							
1,4-Dioxane-d8	29		15-110							
Lab Sample ID: 480-14532 Matrix: Water Analysis Batch: 446723	Sample	Sample	Spike		MS				Sample ID: Prep Type: Prep Batch %Rec.	Total/NA
Analyte		Qualifier	Added		Qualifier	Unit	<u>P</u>	%Rec _	Limits	
1,4-Dioxane	8.9 MS	EB*	1.00	10.0	E 4	ug/L		112	40 - 140	
Instance Dilution	ms %Recovery		Limits							
Isotope Dilution 1.4-Dioxane-d8	24		15-110							
Matrix: Water Analysis Batch: 446723 Analyte	•	Sample Qualifier	Spike Added		MSD Qualifler	Unit	D	%Rec	Prep Type: Prep Batch %Rec. Limits R	
1,4-Dioxane		EB*	1.03	9.72	E4	ug/L		79	40 - 140	3 20
	MSD	MSD								
Isotope Dilution	%Recovery	Qualifier	Limits							
1,4-Dioxane-d8	26		15-110							
Lab Sample ID: MB 480-44 Matrix: Water Analysis Batch: 449683	47793/1-A	MB MB					Clie	ent Sam	ole ID: Metho Prep Type: Prep Batch	Total/NA
Analyte	Re	sult Qualifier	RL		MDL Unit	C		repared	Analyzed	Dil Fac
1,4-Dioxane	(0	.277	0.20		0.10 ug/L		11/2	8/18 08:05	12/08/18 07:5	5 1
isotope Dilution	%Reco	MB MB very Qualifier	Limits				P	repared	Analyzed	Dil Fac
1,4-Dioxane-d8		29	15-110					8/18 08:05		5 1
Lab Sample ID: LCS 480-4 Matrix: Water Analysis Batch: 449683	447793/2-A					Clier	nt Sar	mple ID:	Lab Contro Prep Type: Prep Batch	Total/NA
A			Spike Added		LCS Qualifier	Unit	n	%Rec	%Rec.	
Analyte			Added		E *	ug/L	/	144 -	40 - 140	
1,4-Dioxane	100	LCS	1.00	1.44	L	uyr L	1	, TT	10-140	
Isotope Dilution	%Recovery		Limits					\sim		
1,4-Dioxane-d8	29		15-110							
	10									

QC Sample Results

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

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

Lab Sample ID: 480-1453 Matrix: Water	29-6 MS							Clien	t Sample Prep Typ		
Analysis Batch: 449683									Prep Ba		
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
1,4-Dioxane	0.29	HB*	0.962	1.36	HE	ug/L		111	40 - 140	1.1 1.1 1.1 1.1 1.2	
	MS	MS									
Isotope Dilution	%Recovery	Qualifier	Limits								
4.4.5: 10	28		15-110								
1,4-Dioxane-d8 5 1 ab Sample ID: 480-1453			15-110					Clien	t Sample	ID: GW	/-08D
1,4-Dioxane-dð Lab Sample ID: 480-1453 Matrix: Water Analysis Batch: 449683	29-6 MSD	Sample	Spike	MSD	MSD			Clien	t Sample Prep Tyj Prep Ba %Rec.	be: Tot	al/NA 17793
Lab Sample ID: 480-1453 Matrix: Water	29-6 MSD Sample	Sample Qualifier		MSD Result		Unit	D	Clien %Rec	Prep Typ Prep Ba	be: Tot	al/NA 17793 RPD
Lab Sample ID: 480-1453 Matrix: Water Analysis Batch: 449683	29-6 MSD Sample Result	-	Spike		Qualifier	Unit ug/L	<u>D</u>		Prep Tyj Prep Ba %Rec.	be: Tot itch: 44	al/NA 17793
Lab Sample ID: 480-1453 Matrix: Water Analysis Batch: 449683 Analyte	29-6 MSD Sample Result	Qualifier H B *	Spike Added	Result	Qualifier		<u>D</u>	%Rec	Prep Typ Prep Ba %Rec. Limits	ntch: 44	al/NA 17793 RPD Limit
Lab Sample ID: 480-1453 Matrix: Water Analysis Batch: 449683 Analyte	29-6 MSD Sample Result 0.29	Qualifier H B * MSD	Spike Added	Result	Qualifier		<u>D</u>	%Rec	Prep Typ Prep Ba %Rec. Limits	ntch: 44	al/NA 17793 RPD Limit

Method: 537 (modified) - Fluorinated Alkyl Substances

MB MB

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

ł			MD							
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
l	Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		11/28/18 11:34	11/30/18 06:35	1
ł	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
i	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	ND		2.0	0.82	ng/L		11/28/18 11:34	11/30/18 06:35	1
	(PFHpS)									
	Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		11/28/18 11:34		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 11:34	11/30/18 06:35	1
	N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 11:34	11/30/18 06:35	1
ŧ	1H,1H,2H,2H-perfluorooctanesulfonic	ND		20	1.0	ng/L		11/28/18 11:34	11/30/18 06:35	1
	acid (6:2) 1H,1H,2H,2H-perfluorodecanesulfonic	ND		20	0.56	ng/L	÷	11/28/18 11:34	11/30/18 06:35	1
	acid (8:2)									



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Chain of Custody Record

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10 Hazelwood Drive	Chain of	Chain of Custody Record	ecord		
Amharst NY 14228-2298 Phone (716) 691-2600 Fax (716) 691-7991					Not practic exception of the second second second second
Client Information	Sampler R. M. L. C. P. V.	Lat Pi Deyo	. Melissa L	Carner Tracking Rio(s)	COC No 480-121444-13273,3
Clem Contact MS. Ann Marie Kropovitch	Phone 716-6723-1176	E-Mait melis	E Mail melissa deyo@testamencainc.com		Page 3 of 3- / OF /
Gompany A E C C Ad			Sis	Requested	
Address 257 West Genesee Street Suite 400	Due Data Requestad:			:	tion Code
civ. Buffalo	TAT Requested (days):				
Suite Zip NY 14202-2657	SCANDALD				6 - Narris E - Narris
Phone	PO# 60411174 Task11175616.00000		A GCI		F - 7/28/UF G - Amch H - Aucor
Ernau ann marie kropovitch@aecom com	WO e ann.marie.kropovitch@aecom com	ШQ	(oe)	811	1 - Ice J. Di Wid
Project Name Plohi Brothers Landfill GW Monitoring	Project # 48002609		odwo;		
Site	SSOWa		Y) OSI Minak	. 01 00	Others
	S. O	Type (Numeria	A Filta Market A 4787 . 70 A 747 . 70 A 747 . 70 A 747 . 70 A 10 A 10 A 10 A 10 A 10 A 10 A 10 A 1		
Sample identification		Gagrab) status and	1109	100	Special Instructions/Note:
the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	-	Preservation Code	XXD N A		
GW- 345	11/1/14 0620	C Water	123		
1.W-03N	11/11/12 0950	G Water	621		64
601 - 285	5E01 Q1/S1/11	3	1 2 3	6	
(5W-295	14/18/18 1142	G w	193	6	
642-305	11/15/18 1230	G	1 23		
612-315	11/15/19 1327	G	21	20	
6W-325	141418 1419	C 1 W	1 23		
64-335	11/15/18/15/11	۳ ع	1 1 2 3	0	0
12. 1151B	1/1/18 -	3			of The Parante
Possible Hazard Identification	Poison B	Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client P Disposal By Lab Archive For Mor	assessed if samples are retail Disposal By Lab	ined longer than 1 month) Ichive For Months
verable Requested			Special Instructions/OC Requirements	ents	
Empty Kit Relinquished by:	Date:			Method of Shipment DZ	Lot off
Remarkant A way	Deventer 5/19 1645	Company	Ł	ALL ALLA	3 1645 Construction
Reinaushed by	Datadime /	Campany	Recorded 1	DaterTime	Company
Reinquisted by	Data/i.m.o	Company	Received by	Date/Time	Compariy
Custody Seals Intact: Custody Seal No.: A Yes A No			Cooler Temperature(s) "C and Other Remarks	temers H) > c	

Ver: 08/04/2016

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.

Client: AECOM Project/Site: Pfohl Brothers Landfill GW Monitoring TestAmerica Job ID: 480-145376-1

Client Sample ID: Method Blank

APRIL P

Lab Sample ID: LCS 480	-446368/2-A		2			Clie	nt Sa	mple ID		rol Sample
Matrix: Water Analysis Batch: 448732			Spike	LCS	LCS					e: Total/NA ch: 446368
Analyte			Added	Result	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	
	LCS	LCS								
Surrogate	%Recovery	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 <u>-</u> 136							

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-446790/1-A

Matrix: Water								Prep Type: To	
Analysis Batch: 448106								Prep Batch:	446790
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0068	mg/L		11/23/18 08:08	11/29/18 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	ſ	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

Allalysis Balcii: 440 100	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	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	

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	e Details		Box 1	
Sit	e No. 91504	43				
Sit	e Name Pfohl Bro	others Landfill				
City	e Address: Aero D //Town: Cheektow unty:Erie	rive and Transit Road /aga	Zip Code: 14225			
Site	e Acreage: 94.000					
Re	porting Period: Fel	bruary 12, 2018 to Februa	ary 12, 2019			
					YES	NO
1.	Is the information	above correct?			X	
	If NO, include han	dwritten above or on a se	eparate sheet.			
2.		f the site property been so ent during this Reporting		, or undergone a		x
3.	Has there been ar (see 6NYCRR 37	ny change of use at the s 5-1.11(d))?	ite during this Reporting	Period		X
4.		state, and/or local permiterty during this Reporting		ge) been issued		x
	If you answered that documentat	YES to questions 2 thru ion has been previously	ı 4, include documenta v submitted with this c	tion or evidence ertification form.		
5.	Is the site current	ly undergoing developme	nt?			X
					Box 2	
					YES	NO
3 .	Is the current site Closed Landfill	use consistent with the u	se(s) listed below?		X	—. —
7.	Are all ICs/ECs in	place and functioning as	designed?		X	
		SWER TO EITHER QUES OT COMPLETE THE RES			nd	
Α (Corrective Measure	es Work Plan must be sul	omitted along with this f	orm to address th	nese iss	ues.
Sia	nature of Owner, R	Remedial Party or Designation	ated Representative	Date		

SITE NO. 915043	Box 3
Description of Institutional Controls	
Parcel <u>Owner</u>	Institutional Control
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 on 4/25/03 and included as Appendix P in the Remedial Action Constru Controls are in place: A. Entire Site: i) Groundwater use prohibition, ii) Surface water use pro B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs C. Cleared Portion within the Perimeter Barrier System: i) Only Comm allowed. Construction restrictions.	action Report, Vol. II, the following phibition. s prohibited.
81.04-1-27 Paul Pfohl	
	Ground Water Use Restriction Landuse Restriction
In accordance with the Declaration of Covenants and Restrictions filed on 4/25/03 and included as Appendix P in the Remedial Action Constru Controls are in place: A. Entire Site: i) Groundwater use prohibition, ii) Surface water use pro B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrubs C. Cleared Portion within the Perimeter Barrier System: i) Only Comm allowed. Construction restrictions. 81.04-1-28.1 Paul Pfohl	uction Report, Vol. II, the following phibition. s prohibited.
In accordance with the Declaration of Covenants and Restrictions filed on 4/25/03 and included as Appendix P in the Remedial Action Constru Controls are in place: A. Entire Site: i) Groundwater use prohibition, ii) Surface water use pro B. Capped Area: i) Fencing, ii) No Excavation, iii) Planting trees/shrub C. Cleared Portion within the Perimeter Barrier System: i) Only Comm allowed. Construction restrictions. 81.04-2-10.1 Paul Pfohl	uction Report, Vol. II, the following phibition. s prohibited.

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
on 4/25/03 and included as A Controls are in place: A. Entire Site: i) Groundwate B. Capped Area: i) Fencing,	ration of Covenants and Restrictions filed with ppendix P in the Remedial Action Construction in use prohibition, ii) Surface water use prohibiti ii) No Excavation, iii) Planting trees/shrubs pro- Perimeter Barrier System: i) Only Commercia ions. Paul Pfohl	n Report, Vol. II, the following tion. bhibited.
01.04-2-5.1		Ground Water Use Restriction Landuse Restriction Building Use Restriction
on 4/25/03 and included as A Controls are in place: A. Entire Site: i) Groundwate B. Capped Area: i) Fencing,	ration of Covenants and Restrictions filed with ppendix P in the Remedial Action Construction in use prohibition, ii) Surface water use prohibit ii) No Excavation, iii) Planting trees/shrubs pro- e Perimeter Barrier System: i) Only Commercia- ions. Elizabeth L. McBride	n Report, Vol. II, the following tion. phibited.
02.03-4-10		Ground Water Use Restriction Landuse Restriction Building Use Restriction
on 4/25/03 and included as A Controls are in place: A. Entire Site: i) Groundwate B. Capped Area: i) Fencing,	ration of Covenants and Restrictions filed with ppendix P in the Remedial Action Construction of use prohibition, ii) Surface water use prohibit ii) No Excavation, iii) Planting trees/shrubs pro- Perimeter Barrier System: i) Only Commercia ions. Paul Pfohl	n Report, Vol. II, the following tion. bhibited.
		Ground Water Use Restriction Landuse Restriction Building Use Restriction

on 4/25/03 and included as Appe Controls are in place: A. Entire Site: i) Groundwater us B. Capped Area: i) Fencing, ii) N C. Cleared Portion within the Per allowed. Construction restrictions	on of Covenants and Restrictions filed with ndix P in the Remedial Action Construction e prohibition, ii) Surface water use prohibit lo Excavation, iii) Planting trees/shrubs pro rimeter Barrier System: i) Only Commercia a. ul Pfohl	n Report, Vol. II, the following ion. hibited.
62.00-4-0		Ground Water Use Restriction Landuse Restriction Building Use Restriction
on 4/25/03 and included as Appe Controls are in place: A. Entire Site: i) Groundwater us B. Capped Area: i) Fencing, ii) N C. Cleared Portion within the Per allowed. Construction restrictions	on of Covenants and Restrictions filed with ndix P in the Remedial Action Construction e prohibition, ii) Surface water use prohibit to Excavation, iii) Planting trees/shrubs pro rimeter Barrier System: i) Only Commercia i. ul Pfohl	n Report, Vol. II, the following ion. hibited.
on 4/25/03 and included as Appe Controls are in place: A. Entire Site: i) Groundwater us B. Capped Area: i) Fencing, ii) N C. Cleared Portion within the Per allowed. Construction restrictions	on of Covenants and Restrictions filed with ndix P in the Remedial Action Construction e prohibition, ii) Surface water use prohibit lo Excavation, iii) Planting trees/shrubs pro rimeter Barrier System: i) Only Commercia s. ul Pfohl	n Report, Vol. II, the following ion. hibited.
on 4/25/03 and included as Appe Controls are in place: A. Entire Site: i) Groundwater us B. Capped Area: i) Fencing, ii) N C. Cleared Portion within the Per allowed. Construction restrictions	on of Covenants and Restrictions filed with andix P in the Remedial Action Construction be prohibition, ii) Surface water use prohibit lo Excavation, iii) Planting trees/shrubs pro rimeter Barrier System: i) Only Commercia a ro Land, Inc. c/o Jerome Hirsh	n Report, Vol. II, the following ion. hibited.

In accordance with the Declaration of C on 4/25/03 and included as Appendix P	ovenants and Restrictions filed with in the Remedial Action Constructio	the Erie County Clerk's Office n Report, Vol. II, the following	
Controls are in place: A. Entire Site: i) Groundwater use prohi B. Capped Area: i) Fencing, ii) No Exca C. Cleared Portion within the Perimeter allowed. Construction restrictions.	avation, iii) Planting trees/shrubs pro	phibited.	
82.03-4-9.12 Stuart Jer	nkins		
		Ground Water Use Restriction Landuse Restriction Building Use Restriction	
In accordance with the Declaration of Co on 4/25/03 and included as Appendix P Controls are in place: A. Entire Site: i) Groundwater use prohi B. Capped Area: i) Fencing, ii) No Exca	in the Remedial Action Construction bition, ii) Surface water use prohibit	n Report, Vol. II, the following	
C. Cleared Portion within the Perimeter allowed. Construction restrictions.	Barrier System: i) Only Commercia	nipited. Il/Industrial Development is	
	d, Inc. c/o Jerome Hirsh		
		Ground Water Use Restriction Landuse Restriction Building Use Restriction	
In accordance with the Declaration of Co on 4/25/03 and included as Appendix P Controls are in place: A. Entire Site: i) Groundwater use prohi B. Capped Area: i) Fencing, ii) No Exca C. Cleared Portion within the Perimeter allowed. Construction restrictions.	in the Remedial Action Construction bition, ii) Surface water use prohibit vation, iii) Planting trees/shrubs pro	n Report, Vol. II, the following ion. hibited.	
		Box 4	
		B0X 4	
Description of Engineering Cont			
Parcel 81.04-1-26	Engineering Control		
01.04-1-20	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		

Demost	Engineering Control
Parcel For Declaration of Covenants and Restri Report, Vol. II	Engineering Control ictions, see Appendix P in the Remedial Action Construction
81.04-2-10.1	
	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
For Declaration of Covenants and Restri Report, Vol. II 81.04-2-1 1	ictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
Report, Vol. II	ictions, see Appendix P in the Remedial Action Construction
81.04-2-9.1	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
For Declaration of Covenants and Restri Report, Vol. II 82.03-4-10	ictions, see Appendix P in the Remedial Action Construction
	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 Restri Report, Vol. II 82.03-4-5	ictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
For Declaration of Covenants and Restri Report, Vol. II 82.03-4-6	ictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
For Declaration of Covenants and Restri Report, Vol. II 82.03-4-8	ictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control
For Declaration of Covenants and Restri Report, Vol. II 82.03-4-9.11	ictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation Cover System

Parcel	Engineering Control
	Leachate Collection
	Fencing/Access Control
For Declaration of Covenants and Res Report, Vol. II 82.03-4-9.12	strictions, see Appendix P in the Remedial Action Construction
	Vapor Mitigation
	Cover System
	Leachate Collection
	Fencing/Access Control
For Declaration of Covenants and Res Report, Vol. II 82.03-4-9.2	trictions, see Appendix P in the Remedial Action Construction
02.00 + 0.2	Vapor Mitigation
	Cover System
	Leachate Collection
	Fencing/Access Control
For Declaration of Covenants and Res Report, Vol. II	trictions, see Appendix P in the Remedial Action Construction

			Box 5
	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 dire reviewed by, the party making the certification; 	ection of,	and
	b) to the best of my knowledge and belief, the work and conclusions described are in accordance with the requirements of the site remedial program, and gene		
	engineering practices; and the information presented is accurate and compete.	YES	NO
		x	
2.	If this site has an IC/EC Plan (or equivalent as required in the Decision Document), fo or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below the following statements are true:		
	(a) the Institutional Control and/or Engineering Control(s) employed at this site since the date that the Control was put in-place, or was last approved by the De		
	(b) nothing has occurred that would impair the ability of such Control, to protect the environment;	public ł	ealth and
	(c) access to the site will continue to be provided to the Department, to evaluate remedy, including access to evaluate the continued maintenance of this Control		
	(d) nothing has occurred that would constitute a violation or failure to comply w Site Management Plan for this Control; and	th the	
	(e) if a financial assurance mechanism is required by the oversight document for mechanism remains valid and sufficient for its intended purpose established in t		
		YES	NO
		X	
	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 is:	sues.
	Signature of Owner, Remedial Party or Designated Representative Date		

IC CERTIFICATIONS SITE NO. 915043				
	Box 6			
O & M MANAGER SITE G WNER OR DESIGNATED REPRESENTATIVE SIGNATURE				
I certify that all information and statements in Boxes 1,2, and 3 are true. statement made herein is punishable as a Class "A" misdemeanor, pursu Penal Law.				
Town of Cheektowaga				
Patrick T. Bowen, P.E. at 275 Alexander Ave., Cheek	towaga, NY 14211			
print name print business addre	ess ,			
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. Banen	2/19/19			
Signature of Gwner, Remedial Party, or Designated Representative	Date			
Rendering Certification Site O & M Provider/Manager				

IC/EC CERT	IFICATIONS
	Box 7
Professional E	ngineer Signature
I certify that all information in Boxes 4 and 5 are trupunishable as a Class "A" misdemeanor, pursuant	e. I understand that a false statement made herein is to Section 210.45 of the Penal Law.
Town	of Cheektowaga
	exander Ave., Cheektowaga, NY 14211
print name	print business address
am certifying as a Professional Engineer for the	Town of Cheektowaga
	(G wner er Remedial Part y) Site O & M Provider/Manager
Patrick 7. Bowen Signature of Professional Engineer, for the Owner Remedial Par ty, Rendering Certification Site O & M Provider/Manager	LICE AD SEAL OF PE)