2019 Annual Report

Hidden Valley Landfill
Puyallup, Washington

Pierce County Recycling, Composting
& Disposal, LLC dba LRI
17925 Meridian Street East
Puyallup, Washington 98375

SCS ENGINEERS

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This 2019 Annual Report for the Hidden Valley Landfill located in Puyallup, Washington, was prepared by Sam Graber and Kevin Lakey, LHG, and was reviewed by Daniel Venchiarutti, LHG, of SCS Engineers.

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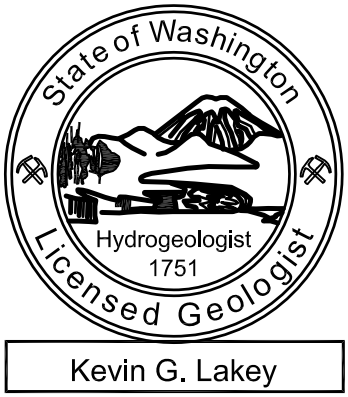

Daniel A. Venchiarutti, LG, LHG
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1.0 INTRODUCTION

This document represents the 2019 Annual Monitoring Report for the Hidden Valley Landfill (HVL) prepared on behalf of Pierce County Recycling, Composting and Disposal LLC, dba LRI (LRI). The facility is a closed municipal solid waste landfill that stopped accepting waste on December 31, 1998. The Hidden Valley Landfill is located at 17925 Meridian Street East, Puyallup, Washington (Figure 1). Post-closure activities are performed consistent with Consent Decree No. 032146876 between the Washington Department of Ecology (Ecology), Pierce County (County) and LRI. Ecology is the lead agency for post-closure activities. In addition, the Tacoma-Pierce County Health Department (TPCHD) is kept informed of post-closure activities and provided with the opportunity to review and comment upon proposed remedial action plans.

1.1 FACILITY CONTACT INFORMATION

Hidden Valley Landfill
17925 Meridian East
Puyallup, Washington 98375
Facility Contact: George Duvendack (253) 847-7555

1.2 FACILITY DESCRIPTION

The landfill property is approximately 92 acres in size and is situated in the north half of the northwest quarter of Section 34, Township 19N, Range 4E. The landfill includes approximately 56 acres of unlined fill and a 30-acre lined cell. Also present at the site are an office, maintenance shop, leachate pre-treatment facility, transfer station, and recycling center.

Hidden Valley Landfill began operations in the mid-1960s and accepted waste until December 31, 1998. Waste disposed of at the landfill included municipal solid waste, demolition wastes, commercial waste, industrial wastes, and small quantities of bulk liquids and sludge.

1.3 PROJECT HISTORY

The U.S. Environmental Protection Agency (EPA) conducted an environmental assessment of the Hidden Valley Landfill between 1981 and 1985 and prepared a Preliminary Assessment (PA) and a Hazard Ranking System (HRS) score for the site. As a result of the HRS, the Hidden Valley Landfill was placed on the National Priority List (NPL) in April 1989.

A Remedial Investigation (RI) was conducted under Ecology Consent Order DE 86 S173. The final RI report was submitted to Ecology in March 1992. The RI found groundwater impacts downgradient of the landfill. Groundwater contaminants have included dissolved iron and manganese, chloride, ammonia, nitrate, sulfate, specific conductance, total dissolved solids, and low levels of volatile organic compounds (VOCs) including benzene, chlorobenzene, tetrachloroethene, 1,1-dichloroethane, and 1,4-dichlorobenzene.

In January 2004, Consent Decree No. 032146876 was finalized and signed. The Consent Decree and associated Cleanup Action Plan address long-term maintenance and monitoring activities at the landfill and establish groundwater cleanup levels.

In April 2014, the Consent Decree was amended (First Amendment) to revise the groundwater monitoring plan. In August 2014, the Groundwater Monitoring Plan (GWMP) was modified to include Appendix I WAC 173-351 metals testing. This requirement included eight rounds of total and

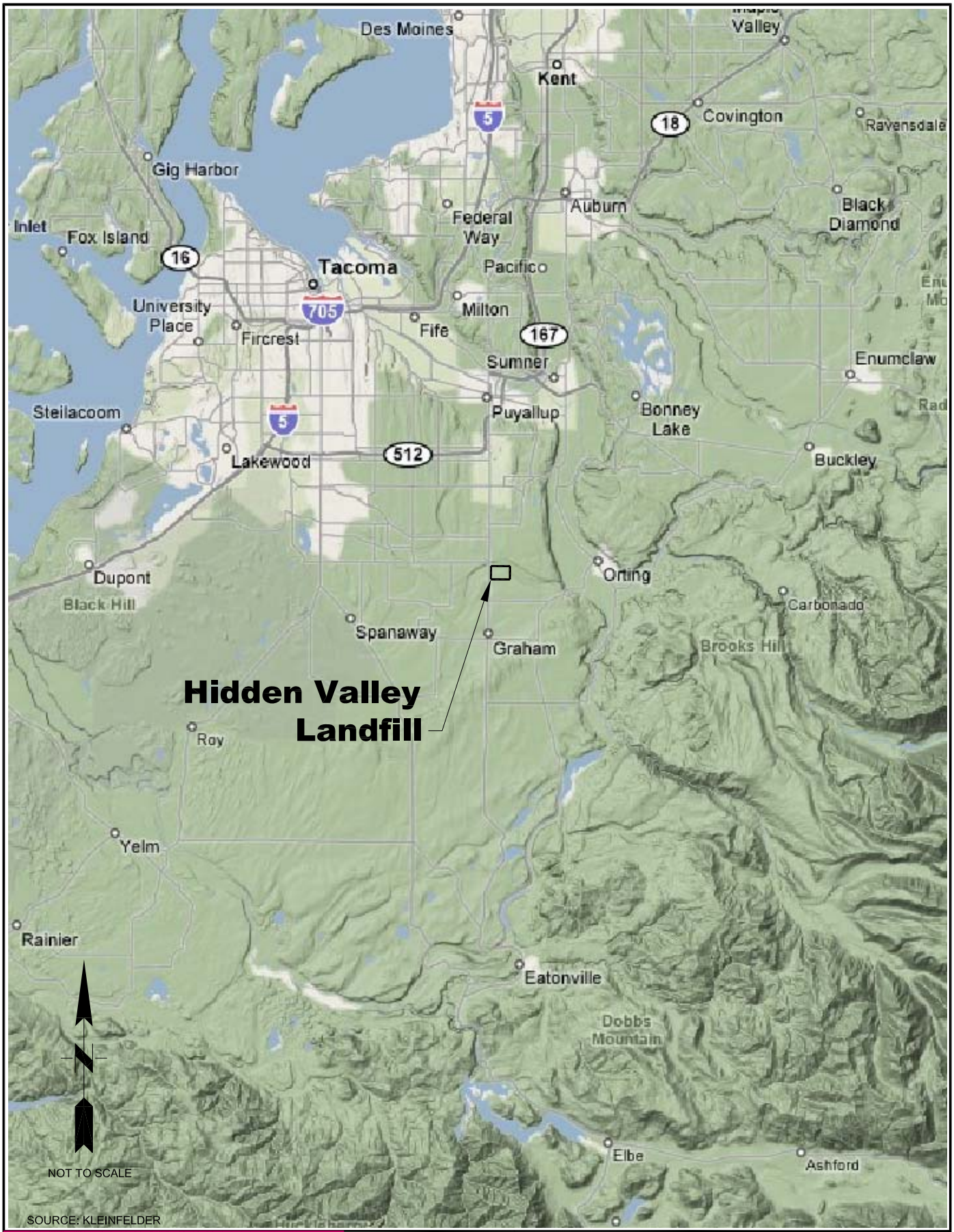
dissolved metals testing for 15 metals from 23 monitoring wells. Total metals testing began in July 2014 and was completed in April 2016. Following completion of the required monitoring, a Groundwater Monitoring Optimization Report was submitted to Ecology and the TPCHD in December 2016.

Consistent with the Groundwater Monitoring Optimization Report and approval received from Ecology, the groundwater monitoring frequency was changed from quarterly to semi-annual in 2017. The GWMP was revised in October of 2018 to reflect updates to the groundwater monitoring network, groundwater monitoring on a semi-annual schedule, and Appendix I metals testing on a five year schedule beginning in 2021. The October 18, 2018 GWMP is the current, approved, plan for HVL.

1.4 2019 MONITORING ACTIVITIES

Groundwater monitoring was performed in January (first semi-annual monitoring event) and August (second semi-annual monitoring event) during 2019. Leachate monitoring was conducted in January. The side slope-leak detection system was sampled in April. Landfill gas (LFG) monitoring was performed monthly.

Monitoring results for the first semi-annual monitoring event of 2019 were previously submitted to the TPCHD and Ecology in a report dated September 4, 2019. Groundwater laboratory reports for the second semi-annual monitoring event of 2019 and an updated groundwater database were provided to the TPCHD in a separate submittal. Groundwater data from 2019 were uploaded into Ecology's Environmental Information Management (EIM) system database.



SCS ENGINEERS Environmental Consultants and Contractors 2405 140th Avenue NE, Suite 107 Bellevue, Washington 98005 (425) 746-4600 FAX: (425) 746-6747	PROJECT NO. 04220002.02	DES BY LEL	SITE LOCATION MAP HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	DATE MARCH 2020
	SCALE NOT TO SCALE	CHK BY S.G.		FIGURE 1
	CAD FILE FIGURE 1	APP BY KGL		

2.0 LANDFILL GAS MONITORING

Landfill gas probes were monitored monthly during 2019. Gas probe locations are shown on Figure 2. Parameters measured at the gas probes included carbon dioxide, oxygen, and combustible gas (measured as methane). Soil gas probe readings were less than five percent methane by volume in all probes each month during 2019. Monthly gas probe monitoring results are included in Appendix A.

On-site buildings were monitored for the presence of combustible gas (measured as methane) on February 20, June 12, August 23, and November 22, 2019 using a flame ionization detector (FID). The main office, maintenance building, scale house/pay booth, recycling building, leachate treatment buildings No. 1 and No. 2, gas to energy building, and transfer station were monitored. No methane detections were reported above background concentrations in any of the buildings during 2019. Copies of the building survey reports are included in Appendix A.

A portion of the LFG extraction system on the south slope of the landfill was shut off in September 2009 in response to a suspected area of subsurface oxidation (affected gas wells include N42, N43, N60, N61, N62, and N54). Although the suspected subsurface oxidation event has ceased and the affected landfill cover was repaired in 2014, this section of the LFG extraction system will remain off-line until in-situ methane levels measured in interior waste probes LFG-1, -2, and -3, increase and stabilize.

E 52,500 E 53,000 E 53,500 E 54,000 E 54,500

N 26,000

N 25,500

N 25,000

SR-161 (MEDIDIAN STREET)

GP-22 LOCATED IN RIFLE RANGE

MAINTENANCE BUILDING

OFFICE BUILDING

FLARE NO.1

FLARE STATION

FLARE NO.2

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11 GP-12 GP-13 GP-14 GP-15 GP-16 GP-17 GP-18 GP-19

CS-1 CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8 CS-9 CS-10

N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12 N13 N14 N15 N16 N17 N18 N19 N19A N20 N21 N23 N24 N25 N26 N27 N28 N29 N30 N31 N32 N33 N34 N35 N36 N36A N37 N37A N38 N39 N41 N42 N43 N44 N45 N46 N47 N48 N49 N50 N51 N52 N53 N54 N55 N55A N56 N57 N58 N59 N60 N60A N61 N62 N63 N64 N64A N64B,C N65 N66 N67 N68 N69 N70 N71 N72 N73 N75

H1 H2

E-32 E-36 E-37 E-40 E2 E2A E3A E5 E6B E7 E8A E9 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23 E24 E25 E25A E26 E27 E28 E29 E31 E33 E34 E34A E38 E39 E41 E42 E43

12"x10" REDUCER

12"ø TEE

10"x8" REDUCER

8"x6" REDUCER

10"x6" REDUCER

12"ø SCH 40 PVC

10"ø SCH 40 PVC

3"ø SCH 40 PVC LATERAL (TYP.)

CONDENSATE DISPOSAL TRENCH

LEACHATE COLLECTION PIPE CLEANOUT

VERTICAL EXTRACTION WELLS AND HORIZONTAL COLLECTORS UNDER EAST LINED AREA SIDESLOPE LINER

LFG-1 LFG-2 LFG-3

LIMIT OF REFUSE

RECYCLING CENTER

LEACHATE PRETREATMENT FACILITY

GAS TO ENERGY FACILITY

TRANSFER STATION

PROPERTY LINE

UNDERGROUND AIR SUPPLY & CONDENSATE DISCHARGE PIPE

LEGEND:

- GP-1 Gas Probe
- Vertical Extraction Well Buried Under Liner
- Vertical Extraction Well
- CO Leachate Cleanout Riser
- Condensate Sump
- Control Valve
- Reducer
- Condensate Recirculation Lines
- Header Pipes
- 12"ø Header Pipe
- 10"ø PVC
- 8"ø PVC
- 6"ø PVC
- 4"ø PVC
- Underground Header Pipe

N

0 200

Scale in Feet

NOTE: GAS PIPING SHOWN IN RED IS ROUTED TO THE GAS ENERGY FACILITY

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PROJECT NO. 04220002.02	DES BY KGL	GAS SYSTEM HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	DATE MARCH 2020
SCALE AS SHOWN	CHK BY S.G.		FIGURE 2
CAD FILE FIGURE 2	APP BY KGL		

3.0 LEAK DETECTION MONITORING

3.1 LEAK DETECTION SYSTEM

The East Lined Area at the Hidden Valley Landfill includes a leak detection system between the primary geosynthetic liner and the secondary composite liner in the portion of the cell that was constructed over refuse (side slope liner area). Pursuant to Section II C of the Stipulation and Agreed Order of Dismissal (Order), LRI was required to implement the March 1994 Leak Detection Response Action Plan (RAP) once refuse was placed onto the side slope liner. The RAP provides a mechanism for evaluating the performance of the side slope liner. Major components of the plan include routine monitoring of leachate quantities and fluid in the leak detection system, data analysis, record keeping, delineation of acceptable liner performance levels, response actions, and an outline of how groundwater impacts would be evaluated in the event that excessive leakage is observed in the leak detection system.

3.2 LINER PERFORMANCE STANDARD

The RAP defines an acceptable performance standard of 300 gallons per acre per day for the primary side-slope liner in the Cell 2 East Lined Area. The side slope liner covers approximately 13.5 acres of refuse, and therefore, the corresponding liner performance standard is 4,050 gallons per day.

3.3 SUMMARY OF PERFORMANCE DATA

Leachate volumes pumped from the main sump (Cell 1) and side-slope liner sump (Cell 2), as well as volumes pumped from the side-slope leak detection system and rainfall totals from an on-site rain gauge, are recorded on a daily basis by on-site personnel. A summary of monthly leachate volume data is provided in Table 1, and copies of the monthly reports are included in Appendix B. The volume of fluid pumped from the side-slope liner leak detection system in 2019 remained well below the performance standard of 4,050 gallons per day defined in the RAP.

Table 1. 2019 Leachate and Side Slope Liner Data

Month	Cell 1 Monthly Leachate Volume (gallons)	Cell 2 Monthly Leachate Volume (gallons)	Cell 2 Monthly Leakage Volume (gallons)	Monthly Rainfall (inches)
January	4,597	226	0	2.55
February	8,275	0	0	2.95
March	48,482	0	0	4.25
April	13,278	2,168	0	5.35
May	0	0	0	1.05
June	9,798	0	0	0.95
July	12,665	0	0	2.93
August	3,334	0	0	0.85
September	0	0	0	7.20
October	1,200	0	0	4.70
November	36,333	1,923	1,462	3.15
December	15,557	0	0	9.26
Totals	**153,519**	**4,317**	**1,462**	**45.19**

3.4 SUMMARY OF LEAK DETECTION MONITORING DATA

A sample of fluids that accumulate in the side-slope liner leak detection system was collected on April 29, 2019. The test results for this sample were similar to previous results and to the January 2019 test results from the side-slope leachate sump (see Appendix D, Table 10 Semi-Annual Monitoring Event No. 1).

3.5 HYDRAULIC GRADIENT CONTROL SYSTEM MONITORING

In addition to the leak detection system, a hydraulic gradient control system is present beneath the main leachate collection sump for the East Lined Area. This system is routinely checked for the presence of liquid. If liquids are removed, the volume pumped is recorded and arrangements are made to collect an annual representative sample to be tested for leachate constituents.

A sample was collected from the hydraulic gradient control system on January 15, 2019. The results from this sample do not exhibit elevated levels of leachate indicator parameters such as ammonia, chloride, nitrate, or total dissolved solids (see Appendix D, Table 10 Semi-Annual Monitoring Event No. 1).

4.0 GROUNDWATER LEVELS AND FLOW DIRECTIONS

4.1 LOCAL HYDROGEOLOGY

Hidden Valley Landfill is situated within a Vashon age glacial melt-water channel that trends in an east-west direction and is approximately 50 to 100 feet deep and several hundred feet wide. The northern boundary of the channel lies just north of the landfill. The landfill is underlain by glacial outwash deposits consisting of coarse sand and gravel to a depth of about 55 feet below grade. North of the landfill (and the outwash channel), the outwash deposits are overlain by Vashon till (upper till unit). The outwash deposits are underlain by successive layers of Vashon till (lower till unit), Vashon advance outwash, Salmon Springs till and interglacial deposits, and Salmon Springs advance outwash.

Three aquifers underlie the Hidden Valley Landfill. The aquifers are referred to as the shallow perched aquifer, the upper regional aquifer, and the lower regional aquifer. An intermittent aquitard, referred to as the Vashon till aquitard, is present between the shallow perched aquifer and the upper regional aquifer. A thick section of low permeability deposits referred to as the Salmon Springs aquitard separates the upper regional aquifer and the lower regional aquifer.

The shallow perched aquifer is an unconfined (water table) aquifer that occurs within the Vashon recessional outwash deposit. The shallow perched aquifer represents the uppermost-saturated unit at the site. Depth to groundwater within the lower areas of the glacial melt-water channel ranges from approximately 11 to 15 feet below ground surface (bgs) in winter and spring months to about 25 feet bgs in late fall. Groundwater flow in the shallow perched aquifer beneath the site is towards the northwest with local components to the north and west. The downgradient extent of the shallow perched aquifer appears to be limited. Northwest of the landfill, the recessional outwash is either not saturated, or saturated to only a few feet. In areas where the recessional outwash is unsaturated, the uppermost zone of groundwater saturation occurs within the lower Vashon till unit.

The upper regional aquifer is present within Vashon advance outwash deposits. This aquifer is confined beneath the Vashon till aquitard and appears to be of regional extent. Groundwater flow, water level gradients, and seasonal water level fluctuations in the upper regional aquifer are similar to the shallow perched aquifer.

The lower regional aquifer is present within the Salmon Springs advance outwash deposits. The aquifer is confined and is interpreted to be of regional extent. Monitoring wells BC-4R, MW-14R, and MW-20R are completed at similar depth elevations and display similar water levels. Monitoring well MW-26R is completed approximately 80 feet higher in elevation and may be installed within a water-bearing zone in the Salmon Springs aquitard.

Detailed descriptions of the hydrogeologic units, as well as geologic cross-sections and boring logs/monitoring well details are included in the *Hidden Valley Landfill Remedial Investigation Report* (EMCON, 1991) and *Hidden Valley Landfill Hydrogeologic Report Addendum* (EMCON, 1998).

4.2 WATER LEVEL MEASUREMENTS

Static water levels were measured on January 16 and August 22, 2019. The water level database and water level contour maps are presented in Appendix C.

Groundwater flow within both the shallow perched aquifer and the upper regional aquifer was generally toward the northwest during all of the 2019 monitoring events. Horizontal hydraulic gradients for both the shallow perched aquifer and the upper regional aquifer were less than 0.005 ft/ft in the central part of the site and approximately 0.025 ft/ft northwest of the landfill. This flow pattern remains consistent with previous data reported for the site. Water level gradients were similar to past measurements, indicating that the previously reported flow rates of 3.2 ft/day to 6.5 ft/day for the shallow perched aquifer and 0.5 to 1.3 ft/day for the upper regional aquifer have not changed significantly. Water level data for wells MW-14R, MW-20R, and BC-4R indicate that the groundwater flow direction in the lower regional aquifer is towards the northeast.

Background monitoring well MW-10S has a blockage approximately 5 feet down in the well. The blockage appears to be due to a compression fitting that was used to repair the pump tubing. The fitting prevents advancement of the water level probe beyond that point. An attempt to remove the pump and tubing was made during the Second Quarter 2013 sampling event; however, this attempt was unsuccessful and the pump appears to be wedged at depth. Rather than risk pulling the tubing loose from the pump, or possibly damaging the well screen, the pump will remain in place until it needs to be repaired or replaced. Until that time, there is adequate water level elevation data to determine groundwater flow directions and gradients without a measurement from MW-10S.

5.0 GROUNDWATER QUALITY

During 2019, groundwater samples were collected on a semi-annual basis from twenty-one monitoring wells; including eleven wells completed within the shallow perched aquifer, seven wells completed within the upper regional aquifer, and three wells completed within the lower regional aquifer. Groundwater sampling locations are shown on Figure 3.

Copies of groundwater quality summary data tables for each semi-annual monitoring event are provided in Appendix D. The summary tables include field parameters, laboratory parameters, and quality control samples. Time series plots for selected water quality parameters are included in Appendix E. Trilinear diagrams for each aquifer and leachate data are included in Appendix F. Statistical calculations performed on groundwater data are presented in Appendix G. The groundwater database was provided to the TPCHD as a Microsoft Access file in electronic format (on compact disk). In addition, groundwater data generated from the Hidden Valley Landfill during 2019 were validated and input into Ecology's EIM database system.

5.1 WATER SUPPLY WELL DATA

Water quality samples were collected from water supply wells at Corliss Resources, Inc. (Corliss) located immediately south of the landfill, and at the Paul Bunyan Rifle and Sportsman's Club (Paul Bunyan) located west of the landfill across Meridian East (see Figure 4) in January and August of 2019. Water quality results for the two water supply wells in 2019 were generally typical of previous results. No VOCs were detected in the samples collected during 2019. Low concentrations of total metals and inorganic parameters, including chloride and nitrate, indicate the water quality at the Corliss and Paul Bunyan water supply wells is not affected by the Hidden Valley Landfill. A summary of the laboratory test results for the water supply wells is provided in Table 2.

5.2 BACKGROUND WATER QUALITY

Background water quality at the Hidden Valley Landfill is monitored using wells MW-10S (shallow perched aquifer) and MW-10D (upper regional aquifer). These wells have provided background water quality information since 1985.

In 2019, concentrations of inorganic parameters in samples from the background wells remained low and consistent with previous results. No detections of dissolved iron or manganese were reported above the laboratory method reporting limit in the background well samples in 2019.

5.3 DOWNGRADIENT WATER QUALITY

Phased closure of the unlined portion of the landfill, which began in 1989 and was completed in 1993, included capping the waste with a low permeability composite cover and installing a landfill gas collection and control system (GCCS). These closure activities were designed to minimize the infiltration of precipitation through the refuse and remove landfill gas. These actions have improved the groundwater quality in the shallow perched aquifer and the upper regional aquifer.

Time series plots for specific conductance, ammonia, nitrate, dissolved iron, and dissolved manganese were prepared for wells in the shallow perched and upper regional aquifers that are located close to and downgradient of the landfill (MW-11S, MW-11D(2), MW-12S, MW-12D, MW-13S, MW-13D, MW-14S, MW-14D, and MW-17S, see Appendix E). These plots graphically display consistent trends of decreasing concentrations of these parameters in monitoring wells located downgradient of the landfill when the full data set is evaluated. Over the last 10 years, slightly

increasing trends were noted at MW-12S for dissolved manganese, MW-13S for dissolved iron and MW-14D for dissolved iron and manganese.

A cation-anion balance was prepared based in milliequivalents per liter (meq/L) for each water sample to determine whether it was electro-neutral (balanced cation and anion charges). A threshold of ten percent difference was used if the total sum of cations and anions were less than or equal to 5.0 meq/L, and a threshold of five percent difference was used if the total cation-anion sums was greater than 5.0 meq/L. Calculated cation-anion balances were found to exceed these thresholds during at least one monitoring event during 2019 at MW-12S, MW-13D, MW-14D, MW-14R, MW-15S, MW-17S, MW-18S, and FMMW-2 (see Appendix C).

Trilinear (Piper) diagrams were prepared for groundwater sample results from each of the three water bearing zones at the landfill; the shallow perched aquifer, upper regional aquifer, and lower regional aquifer (see Appendix F). As shown on the attached trilinear diagrams, the groundwater sample results from all three aquifers plot within a consistent area of the graph, while the leachate results (sampled annually in January) plot in a second, chemically distinct area.

The Hidden Valley Landfill Consent Decree established site groundwater cleanup levels and the groundwater point of compliance. Table 3 provides a summary of the site-specific groundwater cleanup levels and identifies the monitoring events in 2019 when water quality results were greater than the site-specific cleanup levels.

Shallow perched aquifer water quality results exceeded the cleanup level for the following parameters during at least one of the semi-annual monitoring events: nitrate (MW-12S and FMMW-2), dissolved iron (MW-13S), and dissolved manganese (MW-12S, MW-14S, MW-15S, MW-17S, MW-29S, and FMMW-2). Upper regional aquifer water quality results exceeded the cleanup level for the following parameters during at least one of the semi-annual monitoring events: dissolved iron (MW-14D and MW-18D) and dissolved manganese (MW-14D). Lower regional aquifer water quality results exceeded the cleanup level for the following parameters during at least one of the semi-annual monitoring events: dissolved iron (MW-26R) and dissolved manganese (MW-14R and MW-26R).

Results for the lower regional aquifer are interpreted to represent background water quality. As discussed in previous reports, the presence of dissolved iron and manganese in the lower regional aquifer does not appear to be related to the Hidden Valley Landfill. This interpretation is based on an overall assessment of the groundwater quality data, which include low concentrations of inorganic parameters and a general absence of VOCs.

The following VOC's were reported present in groundwater samples collected at the Hidden Valley Landfill in 2019:

- Tetrachloroethene (PCE) was reported present in samples from MW-11D(2) during both semi-annual monitoring events at concentrations of 0.88 and 0.99 µg/L, respectively. These detections are slightly greater than the WAC 173-200 groundwater quality criteria of 0.80 µg/L, but are consistent with recent monitoring results and are lower than the primary drinking water standard of 5.0 µg/L.
- Tetrachloroethene (PCE) was reported present in samples from MW-15D during both semi-annual monitoring events at concentrations of 0.61 and 0.74 µg/L, respectively. These detections are both below the WAC 173-200 groundwater quality criteria of 0.80 µg/L.
- Acetone (110 µg/L), methylene chloride (2.8 µg/L), and toluene (1.8 µg/L) were reported in the sample from MW-11S during the first semi-annual monitoring event. However, acetone

and methylene chloride are common laboratory contaminants and toluene was reported in the associated field blank sample at a concentration of 1.2 µg/L. Therefore, the VOC detections at MW-11S likely represent a laboratory artifact.

5.4 STATISTICAL ANALYSIS

Groundwater quality data for the five-year period of January 2015 through July 2019 were statistically evaluated and compared to site-specific cleanup levels for all monitoring wells in the groundwater-monitoring network. A compound-specific evaluation was used to determine the data distribution type for each compound as normal, lognormal, or non-parametric. The Consent Decree established a cleanup level for 1,4-dichlorobenzene at 1.82 micrograms per liter (µg/L). Only one detection of 1,4-dichlorobenzene has been reported in samples collected over the last five years; 0.73 µg/L at well MW-12S in April 2016. No other VOCs have Consent Decree defined cleanup levels for the Hidden Valley Landfill. However, the distribution of data was also determined for tetrachloroethene at well MW-11D(2) for tracking purposes. Chlorobenzene was evaluated in previous reports, but no detections of chlorobenzene were reported in groundwater samples collected over the past five years. Therefore, a statistical evaluation for this compound was discontinued.

If the data distribution was either normal or lognormal, the upper 95 percent confidence limits of the mean (UCL 95) were calculated for each data set using the MTCAStat 97: Site Module, obtained from Ecology. The MTCAStat program was used to evaluate data distributions (i.e., normal, lognormal, or neither) for constituents that were detected in at least 50 percent of the sampling events. One-half the MRL was used when a parameter was not detected at a concentration above the MRL.

If the distribution was neither normal nor lognormal, the UCL 95 was determined using the method of Van der Parren (1970) as described in the Statistical Guidance for Ecology Site Managers (Ecology 1992). For the data evaluated, this procedure defaults to the highest reported value. In addition, the highest reported value was used if either lognormal or normal distributions had the UCL 95 value outside of the data sample range. The UCL 95 was not calculated (NC) when any of the evaluated parameters were either not detected for 50 percent of the sampling events, or had less than five data entries.

Table 4 provides a summary of UCL 95 values. Shallow perched aquifer UCL 95 values that exceed site-specific cleanup levels include nitrate (MW-11S, MW-12S, MW-17S, MW-18S, and FMMW-2) and dissolved manganese (MW-12S, MW-13S, MW-14S, MW-15S, MW-17S, and FMMW-2). Upper regional aquifer UCL 95 values that exceed site-specific cleanup levels include dissolved iron (MW-14D) and dissolved manganese (MW-14D and MW-15D). Lower regional aquifer UCL 95 values that exceed site-specific cleanup levels include dissolved iron (MW-26R) and dissolved manganese (MW-14R and MW-26R). Statistical calculations are provided in Appendix G. These statistical results are consistent with previous analyses.

Table 2. 2019 Water Supply Well Data Summary

Parameter	MRL	Corliss		Paul Bunyon	
		January-15	August-20	January-15	August-20
Volatile Organics (µg/L)					
No VOCs detected	0.5	*	*	*	*
Total Metals (mg/L)					
Arsenic	0.005	*	*	*	*
Iron	0.18	*	*	*	*
Manganese	0.001	*	0.0013	0.007	0.0011
Zinc	0.01	*	*	0.025	0.013
Inorganic Parameters (mg/L)					
Chloride	0.3-0.6	5.7	5.8 H	7.0	6.6
Ammonia as Nitrogen	0.1	*	*	*	*
Nitrate as Nitrogen	0.2	1.1	1.3	2.2	1.9
Nitrite as Nitrogen	0.5	*	*	*	*
Sulfate	0.2	11	8.0 H	11	11
Chemical Oxygen Demand	5	*	*	*	*
Total Organic Carbon	1	*	*	*	*
Color	5	*	*	*	*
Field Parameters					
pH	—	6.78	6.70	7.06	6.39
Conductance (µS)	—	240	239	278	309
Temperature (^{0}C)	—	9.3	19.2	9.6	18.1

^{0}C = Degrees Celsius
H = Sample was prepared or analyzed beyond specified holding time
µS = microSiemens
* = Not reported at or above the Method Reporting Limit

Table 3. 2019 Groundwater Quality Data versus Site-Specific Cleanup Levels
Shallow Perched Aquifer

Parameter	Cleanup Level	MW-10S (BG)	MW-11S	MW-12S	MW-13S	MW-14S	MW-15S	MW-17S	MW-18S	MW-29S	FMMW-1	FMMW-2
Inorganic (mg/L)												
Chloride	250	–	–	–	–	–	–	–	–	–	–	–
Nitrate as Nitrogen	10.0	–	–	**SA 1**	–	–	–	–	–	–	–	**SA 1**
Sulfate	250	–	–	–	–	–	–	–	–	–	–	–
Specific Conductance	700	–	–	–	–	–	–	–	–	–	–	–
TDS	500	–	–	–	–	–	–	–	–	–	–	–
Metals (mg/L)												
Iron	0.30	–	–	–	**SA 1**	–	–	–	–	–	–	–
Manganese	0.05	–	–	**SA 1, 2**	–	**SA 1**	**SA 1, 2**	**SA 1, 2**	–	**SA 1, 2**	–	**SA 1**
Volatile Organics (µg/L)												
1,4-Dichlorobenzene	1.82	–	–	–	–	–	–	–	–	–	–	–

Notes:
– indicates results were less than cleanup level
SA indicates results were greater than cleanup level
1 & 2 indicate the semi-annual monitoring event in which results were greater than the cleanup level

Table 3. 2019 Groundwater Quality Data versus Site-Specific Cleanup Levels (Continued)
Upper Regional Aquifer and Lower Regional Aquifer

Parameter	Cleanup Level	Upper Regional Aquifer							Lower Regional Aquifer		
		MW-10D (BG)	MW-11D(2)	MW-12D	MW-13D	MW-14D	MW-15D	MW-18D	MW-14R	MW-20R	MW-26R
Inorganic (mg/L)											
Chloride	250	–	–	–	–	–	–	–	–	–	–
Nitrate as Nitrogen	10.0	–	–	–	–	–	–	–	–	–	–
Sulfate	250	–	–	–	–	–	–	–	–	–	–
Specific Conductance	700	–	–	–	–	–	–	–	–	–	–
TDS	500	–	–	–	–	–	–	–	–	–	–
Metals (mg/L)											
Iron	0.30	–	–	–	–	**SA 1, 2**	–	**SA 2**	–	–	**SA 1, 2**
Manganese	0.05	–	–	–	–	**SA 1, 2**	–	–	**SA 2**	–	**SA 1, 2**
Volatile Organics (µg/L)											
1,4-Dichlorobenzene	1.82	–	–	–	–	–	–	–	–	–	–

Notes:
– indicates results were less than cleanup level
SA indicates results were greater than cleanup level
1 & 2 indicate the semi-annual monitoring event in which results were greater than the cleanup level

Table 4. Summary of 5-Year Groundwater Statistics
Shallow Perched Aquifer

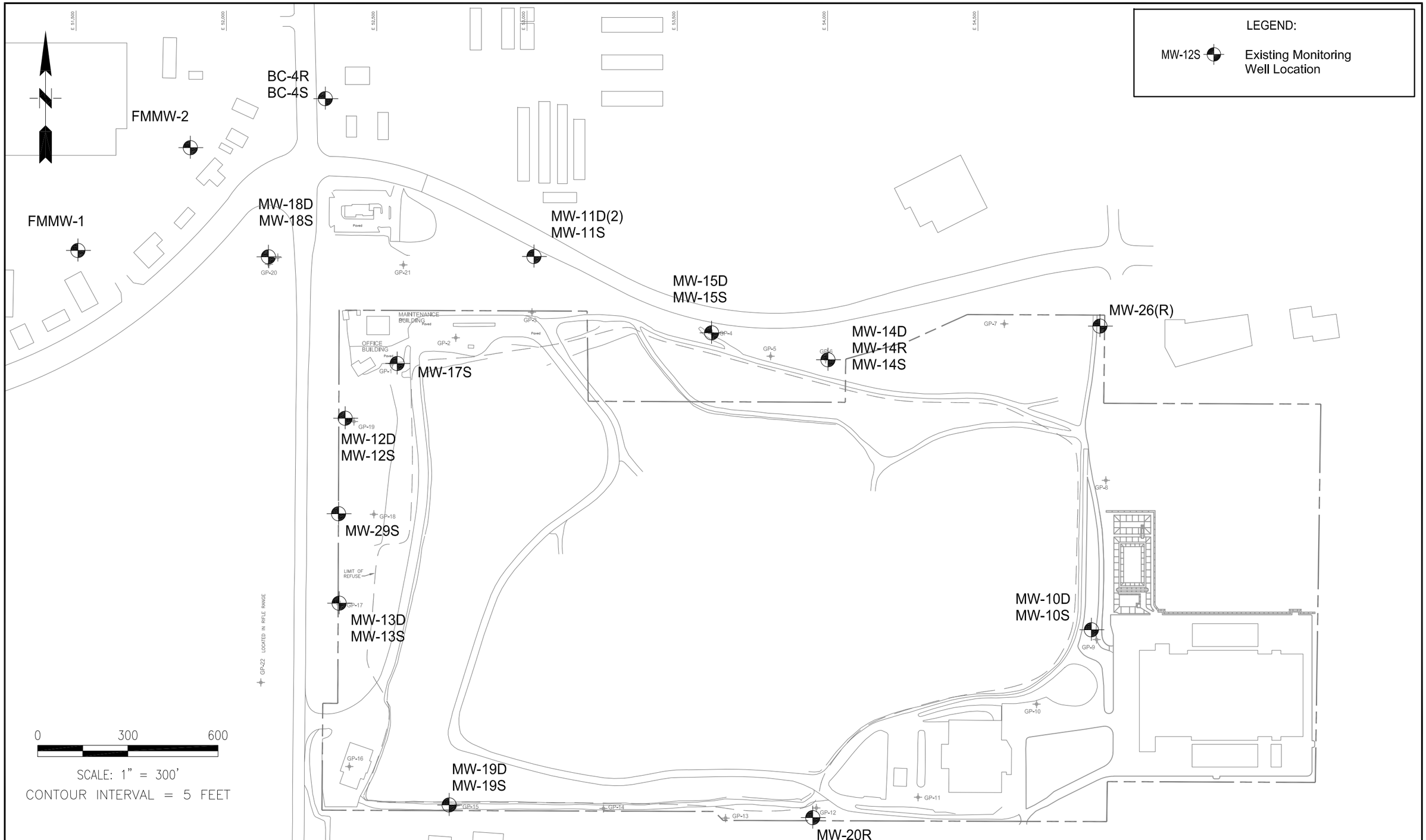
Parameter	Cleanup Level	MW-10S (BG)	MW-11S	MW-12S	MW-13S	MW-14S	MW-15S	MW-17S	MW-18S	FMMW-1	FMMW-2
Inorganic (mg/L)											
Chloride	250	11.2	16.2	19.4	17.3	16.2	15.9	20.8	26.0*	18.4	19.0
Nitrate as Nitrogen	10.0	1.0	**11.0***	**40.0***	10.0*	2.2*	NC	**21.0***	**11.0***	2.0	**15.7**
Sulfate	250	13.6	13.7	5.6	18.3	9.9	11.0*	5.1	6.4	14.5	12.2
Specific Conductance	700	258	260	386	356	222	293	442	372	310	394
TDS	500	150	169	380*	216	134	200*	340*	260*	240*	250
Metals (mg/L)											
Iron	0.30	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Manganese	0.05	NC	0.0072*	**0.71**	**0.19***	**0.40**	**0.95**	**1.80***	NC	NC	**0.06**
Volatile Organics (µg/L)											
1,4-Dichlorobenzene	1.82	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethene	—	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
Values shown are the upper confidence limit on the mean (UCL 95). Evaluated data are from January 2015 through July 2019.
(—) = not applicable.
Bold indicates greater than Cleanup Level. (NC) = not calculated; less than 50 percent detection frequency.
(*) = maximum detected concentration listed because the UCL 95 calculated value was greater than the data range, or the distribution was neither normal nor lognormal.

Table 4. Summary of 5-Year Groundwater Statistics (Continued)
Upper Regional Aquifer and Lower Regional Aquifer

Parameter	Cleanup Level	Upper Regional Aquifer							Lower Regional Aquifer		
		MW-10D (BG)	MW-11D(2)	MW-12D	MW-13D	MW-14D	MW-15D	MW-18D	MW-14R	MW-20R	MW-26R
Inorganic (mg/L)											
Chloride	250	6.5	6.4	13.0*	13.9	11.5	9.8	9.6*	2.2*	2.0*	4.8*
Nitrate as Nitrogen	10.0	2.3*	1.8	1.4	1.6	NC	0.8	1.7*	NC	NC	NC
Sulfate	250	11.3	8.7	6.9	16.7	11.5	11.0*	7.0	3.9*	3.1	9.5
Specific Conductance	700	230	221*	299	348	249	287	268	113*	106*	203*
TDS	500	180*	260*	199	230*	146	380*	190*	120*	94	135
Metals (mg/L)											
Iron	0.30	NC	NC	NC	NC	**2.8**	NC	NC	NC	NC	**0.66**
Manganese	0.05	NC	NC	NC	NC	**1.1**	**0.28***	NC	**0.42***	NC	**1.0***
Volatile Organics (µg/L)											
1,4-Dichlorobenzene	1.82	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethene	—	NC	1.0*	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
Values shown are the upper confidence limit on the mean (UCL 95). Evaluated data are from January 2015 through July 2019.
(—) = not applicable.
Bold indicates greater than Cleanup Level. (NC) = not calculated; less than 50 percent detection frequency.
(*) = maximum detected concentration listed because the UCL 95 calculated value was greater than the data range, or the distribution was neither normal nor lognormal.



SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO. 04220002.02	DES BY SG	GROUNDWATER MONITORING WELL LOCATIONS HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	DATE MARCH 2020
SCALE AS SHOWN	CHK BY KGL		FIGURE 3
CAD FILE FIGURE 3	APP BY KGL		

0 400 800

APPROX SCALE IN FEET

LEGEND

WATER SUPPLY WELL LOCATION

SOURCE: KLEINFELDER

SCS ENGINEERS
Environmental Consultants and Contractors
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Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO.	DES BY
04220002.02	LEL
SCALE	CHK BY
NOT TO SCALE	S.G.
CAD FILE	APP BY
FIGURE 4	KGL

WATER SUPPLY WELL LOCATION

HIDDEN VALLEY LANDFILL
PIERCE COUNTY, WASHINGTON

DATE
MARCH 2020

FIGURE
4

Leachate Quality

Leachate quality is monitored on an annual basis. Samples of untreated leachate were collected from the East Lined Area leachate collection system (main sump [Cell 1]) and the Side Slope Area leachate collection system (Cell 2) on January 15, 2019. The samples were analyzed for the parameters specified in WAC 173-351, Appendix I and II. Leachate quality results for 2019 were generally typical of previous results. The analytical results for the leachate samples are summarized below in Table 5 and are included with the groundwater results in Appendix D.

Table 5. 2019 Leachate Data Summary

Parameters	MRL	Leachate – East Area Cell 1	Leachate – Side Slope Cell 2
Volatile Organics (µg/L)			
1,4-Dichlorobenzene	0.5	2.3	*
Acetone	10	34	29
Benzene	0.5	1.5	*
Carbon disulfide	0.5	0.57	*
Ethylbenzene	1.0	2.2	*
m-Xylene & p-Xylene	0.5	5.0	*
o-Xylene	0.5	3.0	*
Toluene	0.5	3.7	0.61
Total Metals (mg/L)			
Antimony	0.002	0.007	0.560
Arsenic	0.005	0.042	0.130
Barium	0.005	0.76	0.40
Calcium	0.2	90	25
Chromium	0.005	0.130	0.056
Cobalt	0.01	0.015	0.13
Copper	0.01	*	0.61
Iron	0.18	3.2	1.6
Lead	0.002	*	0.022
Magnesium	0.1	58	17
Manganese	0.005	1.6	0.18
Nickel	0.02	0.38	0.62
Potassium	2.0	350	500
Selenium	0.005	*	0.010
Sodium	1-1.1	3,700	6,400
Vanadium	0.01	0.120	0.067
Zinc	0.01	0.014	0.870
Inorganic Parameters (mg/L)			
Alkalinity	5-10	5,600	4,600
Ammonia	0.1-4.4	610	360
Chloride	0.3-300	2,900	5,500

Parameters	MRL	Leachate – East Area Cell 1	Leachate – Side Slope Cell 2
Nitrate as N	0.5-8.4	*	270
Sulfate	0.2-5	17	770
Total Dissolved Solids	10-94	11,000 H	17,000 H
Total Organic Carbon	1-2.8	450	670
Total Suspended Solids	4.0	8.0	7.6
Field Parameters			
pH	—	7.48	8.43
Specific Conductance (µS/cm)	—	16,484	25,696
Temperature (°C)	—	16.5	18.6

Notes:
Analyses performed by TestAmerica, Arvada, CO
VOCs were not listed when not present at concentrations exceeding the MRL
µg/L = micrograms per liter, mg/L = milligrams per liter, * = Not detected above MRL
H = Sample was prepped or analyzed beyond specified holding time

6.0 POST-CLOSURE MAINTENANCE

6.1 COVER SYSTEM MAINTENANCE

The landfill cover system was inspected on a quarterly basis during 2019. Informal cover inspections were also performed on an ongoing basis by LRI staff, as well as during the monthly LFG monitoring events. The inspections found minor areas requiring maintenance of the cover system during 2019. Copies of the inspection reports are included in Appendix I.

6.2 LANDFILL GAS COLLECTION & CONTROL SYSTEM (GCCS) MAINTENANCE

The LFG extraction wells, piping and blower/flare station were inspected, monitored and maintained on a monthly basis throughout 2019. In addition, the LFG condensate recirculation system was inspected quarterly during 2019 and the condensate sumps were observed to be working as designed. Sumps 5 and 10 did not collect condensate for a number of years, and therefore, the pumps were previously removed. Monthly records of GCCS maintenance activities and quarterly records of condensate sump inspections are included in Appendix I.

A record of the monthly volume of LFG combusted and the average monthly methane concentration at the flare station is provided in Table 6.

Table 6. 2019 Flare Station Data

Month	LFG Volume Combusted (scf)	Methane (% by volume)
January	7,138,406	35.1
February	5,667,608	40.7
March	8,406,550	35.2
April	10,664,096	27.9
May	10,151,526	34.3
June	8,643,892	21.3
July	5,682,986	34.2
August	11,326,138	31.4
September	9,315,988	37.6
October	10,322,694	32.6
November	9,530,760	29.0
December	6,915,934	37.2
Totals	103,766,578	**33.0 (average)**
Note: (scf) indicates standard cubic feet		

6.4 GROUNDWATER WELL MAINTENANCE

No significant well maintenance activities were performed in 2019.

Appendix A

LANDFILL GAS MONITORING DATA

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

January 17, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	17-Jan-19	7:54	0.00	0.0	4.6	12.3	-	-	
GP-1B	17-Jan-19	7:57	0.00	0.0	6.9	13.5	-	-	
GP-1C	17-Jan-19	7:59	0.00	0.0	6.9	13.0	-	-	
GP-2A	17-Jan-19	8:14	0.00	0.4	8.3	10.9	0.3	-	
GP-2B	17-Jan-19	8:17	0.02	0.0	0.3	21.5	-	-	
GP-3S	17-Jan-19	8:05	0.03	0.0	4.0	11.3	-	-	
GP-3M	17-Jan-19	8:07	0.02	0.0	2.9	12.9	-	-	
GP-3D	17-Jan-19	8:10	0.00	0.0	1.7	18.0	-	-	
GP-4A	17-Jan-19	8:35	0.02	0.0	0.4	20.1	-	-	
GP-4B	17-Jan-19	8:38	0.03	0.0	0.2	21.2	-	-	
GP-5A	17-Jan-19	8:41	0.02	0.0	0.1	21.3	-	-	
GP-5B	17-Jan-19	8:44	0.01	0.0	0.1	21.5	-	-	
GP-6	17-Jan-19	8:49	0.02	0.0	0.1	21.4	-	-	
GP-7S	17-Jan-19	8:57	0.02	0.0	0.3	21.4	-	-	
GP-7D	17-Jan-19	8:54	0.02	0.0	0.3	21.2	-	-	
GP-8A	17-Jan-19	9:05	0.02	0.0	0.7	21.1	-	-	
GP-8B	17-Jan-19	9:07	0.02	0.0	0.4	21.1	-	-	
GP-9	17-Jan-19	9:13	0.02	0.0	4.0	14.1	-	-	
GP-10	17-Jan-19	9:20	0.03	0.0	0.2	21.6	-	-	
GP-11	17-Jan-19	9:26	0.04	0.0	3.1	13.6	-	-	
GP-12	17-Jan-19	9:31	0.03	0.0	2.3	17.5	-	-	
GP-13A	17-Jan-19	9:39	-0.20	4.3	13.4	0.5	4.3	-	
GP-13B	17-Jan-19	9:42	0.12	0.0	0.4	21.3	-	-	
GP-14S	17-Jan-19	9:46	0.03	0.0	4.8	17.1	-	-	
GP-14D	17-Jan-19	9:49	0.03	0.0	3.5	15.4	-	-	
GP-15A	17-Jan-19	9:53	0.03	0.2	3.8	10.9	0.2	-	
GP-15B	17-Jan-19	9:55	0.03	0.0	3.6	15.2	-	-	
GP-16A	17-Jan-19	10:01	0.03	0.0	0.4	21.3	-	-	
GP-16B	17-Jan-19	10:04	0.13	0.0	0.9	20.5	-	-	
GP-17	17-Jan-19	10:10	0.08	0.0	3.6	18.5	-	-	
GP-18	17-Jan-19	10:15	0.03	0.0	1.1	20.1	-	-	
GP-19	17-Jan-19	10:19	0.01	0.0	0.2	21.4	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

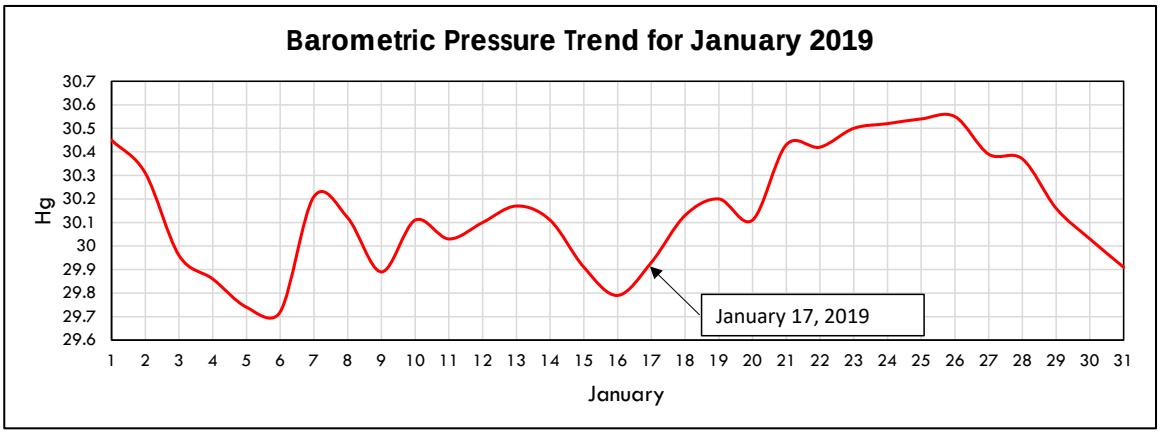
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Sunny
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	17-Jan-19	Temperature (^{o}F):	43

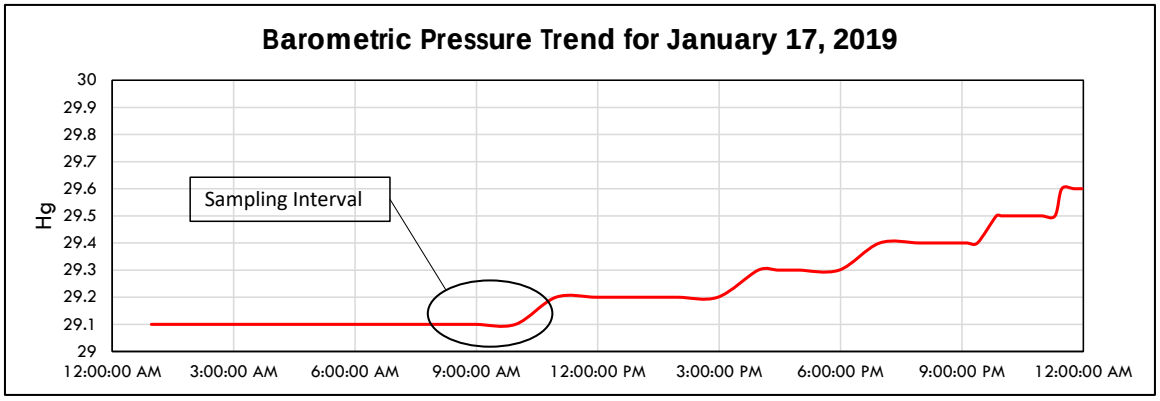
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - January 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Pierce County - Thun Field Station
Lat: 47.1 Long: 122.29 Elev: 538 ft-AMSL

Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-1-17

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

February 19, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	19-Feb-19	8:30	0.02	0.0	4.2	11.9	-	-	
GP-1B	19-Feb-19	8:32	0.06	0.0	7.8	11.9	-	-	
GP-1C	19-Feb-19	8:36	0.00	0.0	2.1	17.7	-	-	
GP-2A	19-Feb-19	8:40	0.04	0.1	0.8	19.7	0.1	-	
GP-2B	19-Feb-19	8:42	0.01	0.0	0.2	20.6	-	-	
GP-3S	19-Feb-19	8:47	0.03	0.0	4.4	8.5	-	-	
GP-3M	19-Feb-19	8:49	0.07	0.0	3.3	8.5	-	-	
GP-3D	19-Feb-19	8:52	0.05	0.0	9.7	4.8	0.1	-	
GP-4A	19-Feb-19	8:59	0.05	0.0	4.5	14.1	-	-	
GP-4B	19-Feb-19	9:02	0.09	0.1	0.3	21.0	0.1	-	
GP-5A	19-Feb-19	9:06	0.07	0.1	0.2	20.9	0.1	-	
GP-5B	19-Feb-19	9:10	0.04	0.0	0.2	20.5	-	-	
GP-6	19-Feb-19	9:16	0.05	0.0	0.2	20.8	-	-	
GP-7S	19-Feb-19	9:24	0.05	0.0	0.2	20.8	-	-	
GP-7D	19-Feb-19	9:22	0.05	0.0	0.3	20.5	-	-	
GP-8A	19-Feb-19	9:32	0.05	0.0	0.6	20.2	-	-	
GP-8B	19-Feb-19	9:34	0.05	0.0	0.3	20.6	-	-	
GP-9	19-Feb-19	9:39	0.06	0.0	4.1	13.1	-	-	
GP-10	19-Feb-19	9:46	0.06	0.0	0.3	20.6	-	-	
GP-11	19-Feb-19	9:50	0.06	0.0	3.4	16.6	-	-	
GP-12	19-Feb-19	9:56	0.06	0.0	2.4	16.1	-	-	
GP-13A	19-Feb-19	10:02	0.34	1.7	10.7	0.2	1.8	-	
GP-13B	19-Feb-19	10:06	0.19	0.0	0.2	20.6	-	-	
GP-14S	19-Feb-19	10:10	0.05	0.0	7.0	14.0	-	-	
GP-14D	19-Feb-19	10:13	0.06	0.0	9.1	3.9	-	-	
GP-15A	19-Feb-19	10:16	0.05	0.0	5.2	5.0	-	-	
GP-15B	19-Feb-19	10:18	0.05	0.6	11.5	0.0	0.6	-	
GP-16A	19-Feb-19	10:24	0.05	0.0	3.4	16.3	-	-	
GP-16B	19-Feb-19	10:26	0.20	0.0	3.4	16.3	-	-	
GP-17	19-Feb-19	10:33	0.00	0.0	1.1	19.8	-	-	
GP-18	19-Feb-19	10:36	0.05	0.0	0.6	19.8	-	-	
GP-19	19-Feb-19	10:41	0.07	0.0	3.3	18.2	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

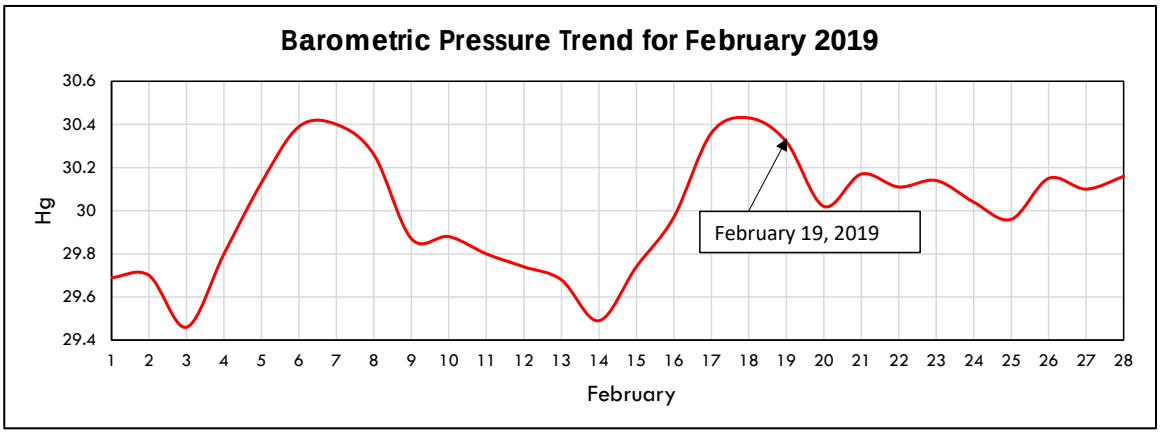
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Cloudy
Instruments:	GEM 2000	Wind / Rain / Snow:	Light Rain
Calibration Date:	19-Feb-19	Temperature (^{o}F):	38

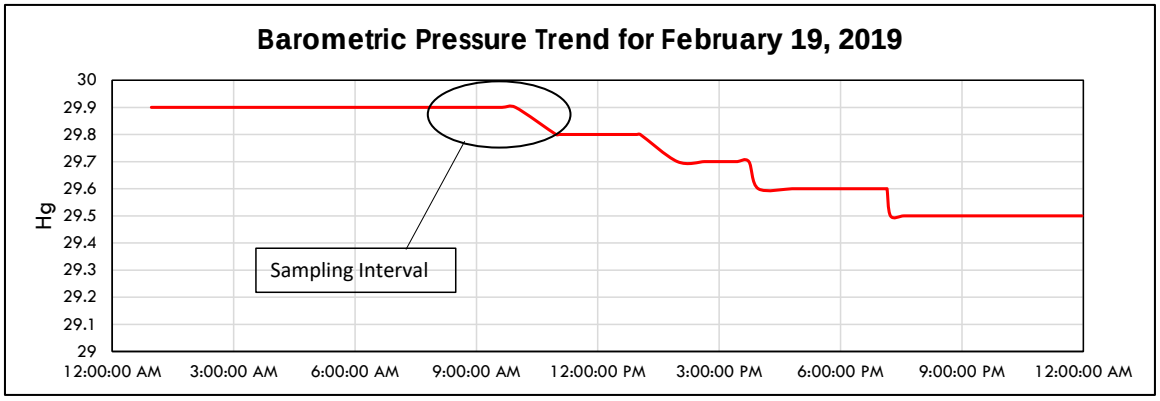
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - February 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Pierce County - Thun Field Station
Lat: 47.1 Long: 122.29 Elev: 538 ft-AMSL

Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-2-19

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill
PCRCD dba LRI

04219002.02
March 25, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	25-Mar-19	8:08	0.00	0.0	5.0	12.1	-	-	
GP-1B	25-Mar-19	8:11	0.16	0.0	7.7	13.6	-	-	
GP-1C	25-Mar-19	8:14	0.14	0.0	2.9	17.5	-	-	
GP-2A	25-Mar-19	8:18	0.05	0.4	3.8	15.9	0.2	-	
GP-2B	25-Mar-19	8:21	0.04	0.0	0.3	20.9	-	-	
GP-3S	25-Mar-19	8:25	0.09	0.0	4.5	7.8	-	-	
GP-3M	25-Mar-19	8:28	0.07	0.0	3.7	6.0	-	-	
GP-3D	25-Mar-19	8:30	0.06	1.7	10.3	2.5	1.8	-	
GP-4A	25-Mar-19	8:36	0.03	0.0	2.2	17.7	-	-	
GP-4B	25-Mar-19	8:38	0.03	0.0	0.2	21.2	-	-	
GP-5A	25-Mar-19	8:42	0.04	0.0	0.2	21.2	-	-	
GP-5B	25-Mar-19	8:44	0.04	0.0	2.1	18.7	-	-	
GP-6	25-Mar-19	8:49	0.04	0.0	0.4	21.0	-	-	
GP-7S	25-Mar-19	8:57	0.04	0.0	0.3	20.9	-	-	
GP-7D	25-Mar-19	8:54	0.04	0.0	0.3	20.8	-	-	
GP-8A	25-Mar-19	9:04	0.03	0.0	1.2	18.4	-	-	
GP-8B	25-Mar-19	9:06	0.03	0.0	1.9	18.6	-	-	
GP-9	25-Mar-19	9:10	0.03	0.0	3.4	16.4	-	-	
GP-10	25-Mar-19	9:16	0.03	0.0	0.2	20.8	-	-	
GP-11	25-Mar-19	9:21	0.03	0.0	1.7	18.2	-	-	
GP-12	25-Mar-19	9:27	0.03	0.0	1.7	15.7	-	-	
GP-13A	25-Mar-19	9:34	0.04	1.2	4.8	11.9	1.2	-	
GP-13B	25-Mar-19	9:37	0.04	0.0	0.2	20.9	-	-	
GP-14S	25-Mar-19	9:41	0.02	0.0	6.9	15.0	-	-	
GP-14D	25-Mar-19	9:43	0.03	0.0	8.5	4.5	-	-	
GP-15A	25-Mar-19	9:47	0.02	0.0	6.7	7.6	-	-	
GP-15B	25-Mar-19	9:49	0.01	0.0	11.5	0.7	-	-	
GP-16A	25-Mar-19	9:56	0.01	0.0	2.9	17.0	-	-	
GP-16B	25-Mar-19	9:55	0.12	0.0	3.0	16.9	-	-	
GP-17	25-Mar-19	10:02	-0.08	0.0	1.3	19.5	-	-	
GP-18	25-Mar-19	10:07	0.02	0.0	1.3	19.0	-	-	
GP-19	25-Mar-19	10:11	0.03	0.0	2.1	19.3	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

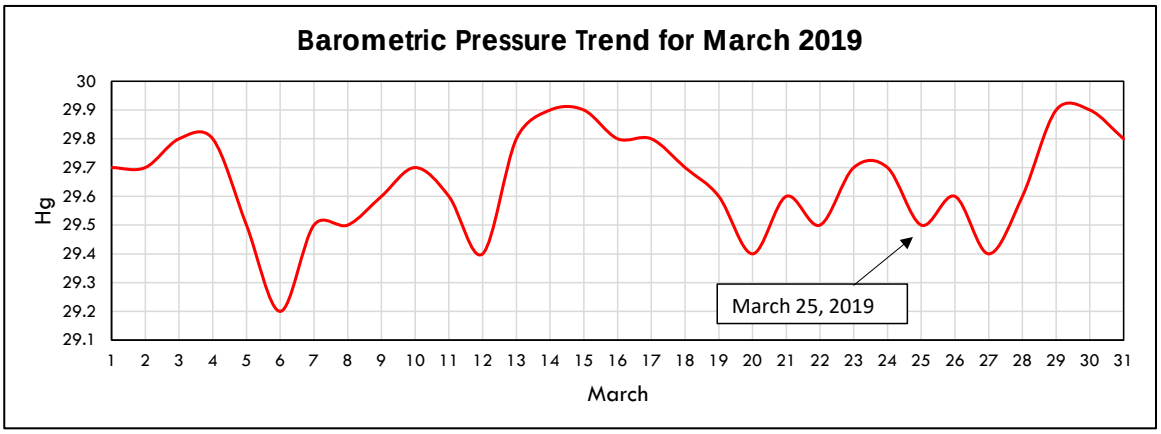
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Cloudy
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	25-Mar-19	Temperature (^oF):	49

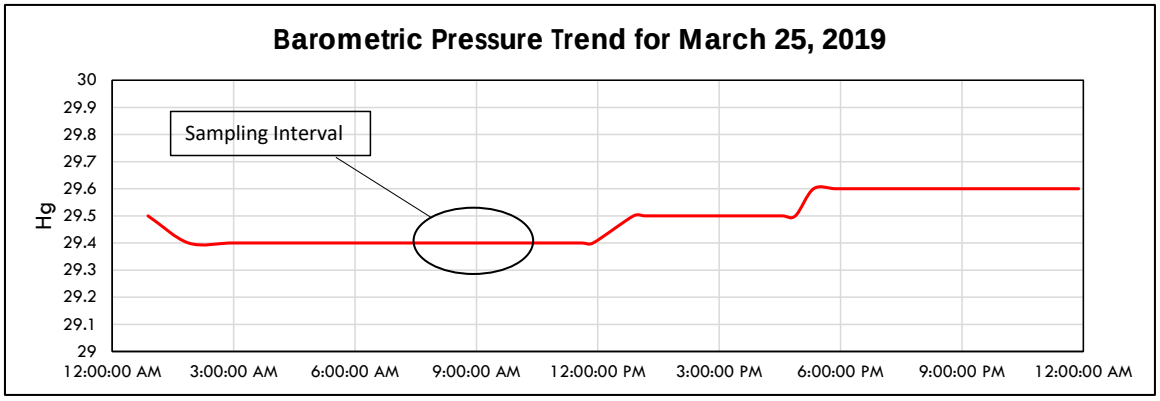
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - March 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Pierce County - Thun Field Station
Lat: 47.1 Long: 122.29 Elev: 538 ft-AMSL

Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-3-25

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill — 04219002.02

PCRCD dba LRI — April 23, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	23-Apr-19	8:28	0.06	0.0	4.1	12.7	-	-	
GP-1B	23-Apr-19	8:30	0.04	0.0	7.0	14.3	-	-	
GP-1C	23-Apr-19	8:32	0.06	0.0	1.5	18.6	-	-	
GP-2A	23-Apr-19	8:36	0.77	0.4	1.8	17.7	0.2	-	
GP-2B	23-Apr-19	8:38	0.07	0.0	0.2	20.1	-	-	
GP-3S	23-Apr-19	8:43	-0.03	0.0	2.8	11.5	-	-	
GP-3M	23-Apr-19	8:45	-0.07	0.0	2.8	7.4	-	-	
GP-3D	23-Apr-19	8:47	-0.06	3.7	12.2	1.4	3.7	-	
GP-4A	23-Apr-19	8:59	0.03	0.0	1.5	18.8	-	-	
GP-4B	23-Apr-19	9:01	0.11	0.0	0.2	20.2	-	-	
GP-5A	23-Apr-19	9:05	0.00	0.0	0.2	20.2	-	-	
GP-5B	23-Apr-19	9:07	-0.03	0.0	0.0	20.5	-	-	
GP-6	23-Apr-19	9:11	-0.02	0.0	0.2	20.3	-	-	
GP-7S	23-Apr-19	9:18	-0.01	0.0	0.6	19.9	-	-	
GP-7D	23-Apr-19	9:16	-0.02	0.0	0.1	20.4	-	-	
GP-8A	23-Apr-19	9:25	-0.02	0.0	0.9	19.6	-	-	
GP-8B	23-Apr-19	9:28	-0.02	0.0	0.5	20.0	-	-	
GP-9	23-Apr-19	9:34	0.34	0.0	3.3	16.6	-	-	
GP-10	23-Apr-19	9:54	-0.28	0.0	0.2	20.2	-	-	
GP-11	23-Apr-19	10:32	-0.01	0.0	1.6	18.7	-	-	
GP-12	23-Apr-19	10:38	-0.01	0.0	0.1	20.3	-	-	
GP-13A	23-Apr-19	10:46	0.04	0.0	0.0	20.5	-	-	
GP-13B	23-Apr-19	10:48	0.00	0.0	0.0	20.5	-	-	
GP-14S	23-Apr-19	10:53	-0.01	0.0	4.4	15.6	-	-	
GP-14D	23-Apr-19	10:55	-0.02	0.0	8.1	4.2	-	-	
GP-15A	23-Apr-19	10:59	-0.01	0.0	0.3	20.5	-	-	
GP-15B	23-Apr-19	11:01	-0.02	0.0	6.7	13.0	-	-	
GP-16A	23-Apr-19	11:06	-0.03	0.0	0.6	20.2	-	-	
GP-16B	23-Apr-19	11:08	-0.03	0.0	0.1	20.5	-	-	
GP-17	23-Apr-19	11:14	-0.42	0.0	2.0	18.3	-	-	
GP-18	23-Apr-19	11:18	-0.02	0.0	1.5	18.6	-	-	
GP-19	23-Apr-19	11:24	-0.17	0.0	0.1	20.5	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

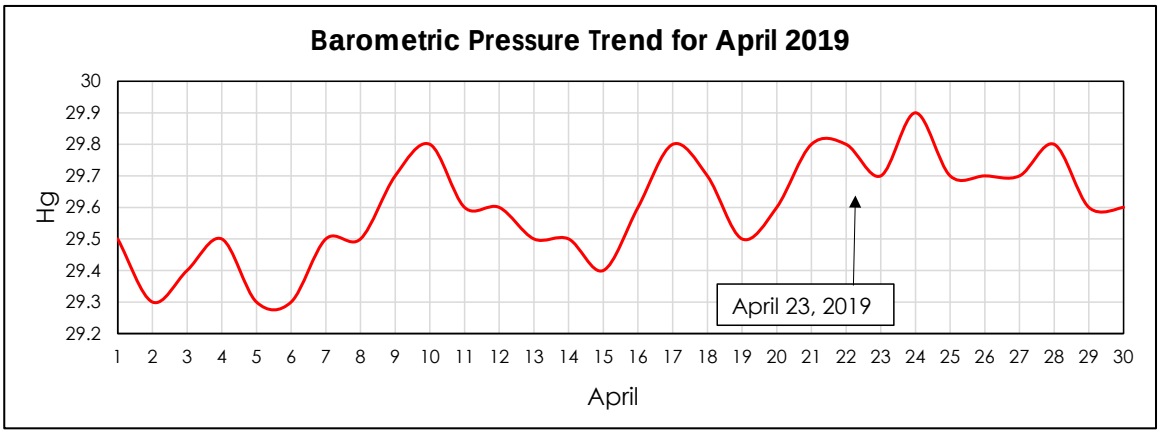
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Cloudy
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	23-Apr-19	Temperature (^{o}F):	57

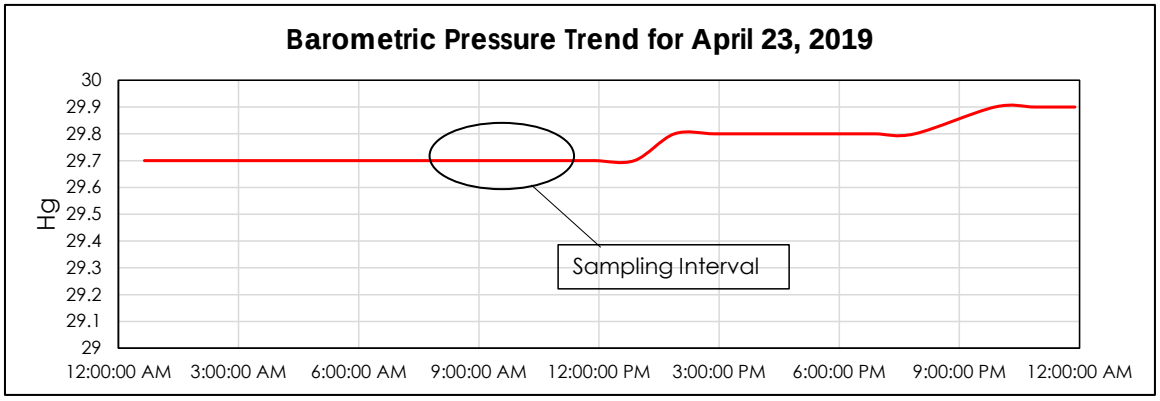
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - April 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Pierce County - Thun Field Station
Lat: 47.1 Long: 122.29 Elev: 538 ft-AMSL

Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-4-23

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill
PCRCD dba LRI

04219002.02
May 28, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	28-May-19	8:53	0.01	0.0	3.4	13.2	-	-	
GP-1B	28-May-19	8:55	0.01	0.0	6.9	13.9	-	-	
GP-1C	28-May-19	8:57	0.02	0.0	0.8	19.3	-	-	
GP-2A	28-May-19	9:01	0.01	0.1	0.3	19.7	0.1	-	
GP-2B	28-May-19	9:03	0.06	0.0	0.1	20.2	-	-	
GP-3S	28-May-19	9:07	0.02	0.0	1.6	15.5	-	-	
GP-3M	28-May-19	9:09	0.02	0.0	3.0	6.6	-	-	
GP-3D	28-May-19	9:11	0.01	0.0	7.1	15.0	-	-	
GP-4A	28-May-19	9:17	0.01	0.0	0.1	20.3	-	-	
GP-4B	28-May-19	9:19	0.21	0.0	0.1	20.2	-	-	
GP-5A	28-May-19	9:23	0.02	0.0	0.2	20.1	-	-	
GP-5B	28-May-19	9:25	0.02	0.0	0.1	20.2	-	-	
GP-6	28-May-19	9:30	0.03	0.0	0.2	20.1	-	-	
GP-7S	28-May-19	9:38	0.02	0.0	0.6	19.9	-	-	
GP-7D	28-May-19	9:35	0.02	0.0	0.2	20.0	-	-	
GP-8A	28-May-19	9:45	0.02	0.0	1.9	18.1	-	-	
GP-8B	28-May-19	9:47	0.02	0.0	1.4	19.2	-	-	
GP-9	28-May-19	9:54	0.01	0.0	2.9	17.3	-	-	
GP-10	28-May-19	10:03	0.03	0.0	0.2	19.9	-	-	
GP-11	28-May-19	10:08	0.01	0.0	1.4	19.0	-	-	
GP-12	28-May-19	10:13	0.01	0.0	0.9	18.2	-	-	
GP-13A	28-May-19	10:18	0.01	0.0	0.1	20.3	-	-	
GP-13B	28-May-19	10:21	0.00	0.0	0.0	20.3	-	-	
GP-14S	28-May-19	10:25	0.01	0.0	4.6	15.9	-	-	
GP-14D	28-May-19	10:27	0.01	0.0	7.9	4.2	-	-	
GP-15A	28-May-19	10:31	0.00	0.0	2.3	18.3	-	-	
GP-15B	28-May-19	10:33	0.00	0.0	4.1	17.5	-	-	
GP-16A	28-May-19	10:38	0.00	0.0	0.5	19.9	-	-	
GP-16B	28-May-19	10:40	0.00	0.0	0.3	20.1	-	-	
GP-17	28-May-19	10:45	0.00	0.0	2.0	17.9	-	-	
GP-18	28-May-19	10:51	0.00	0.0	4.5	16.1	-	-	
GP-19	28-May-19	10:56	0.00	0.0	0.2	20.3	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

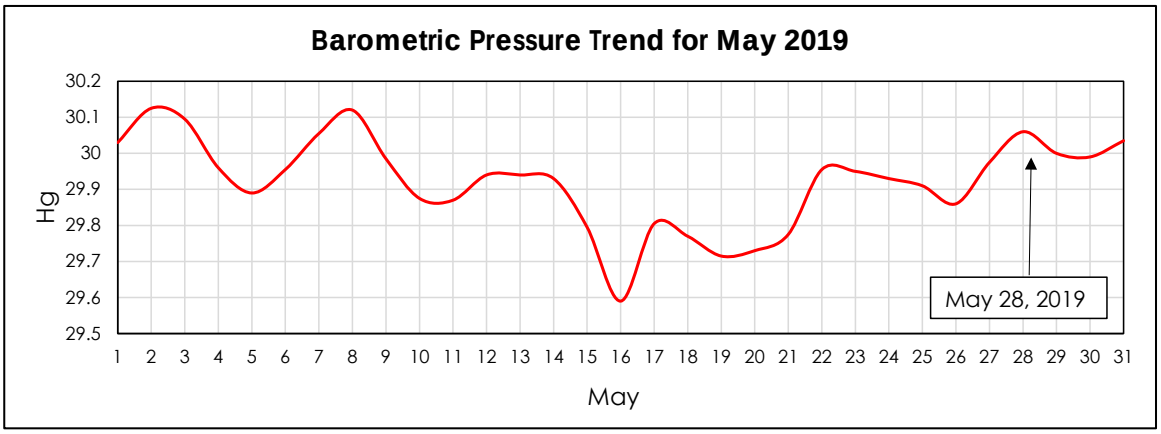
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Cloudy
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	28-May-19	Temperature (^{o}F):	64

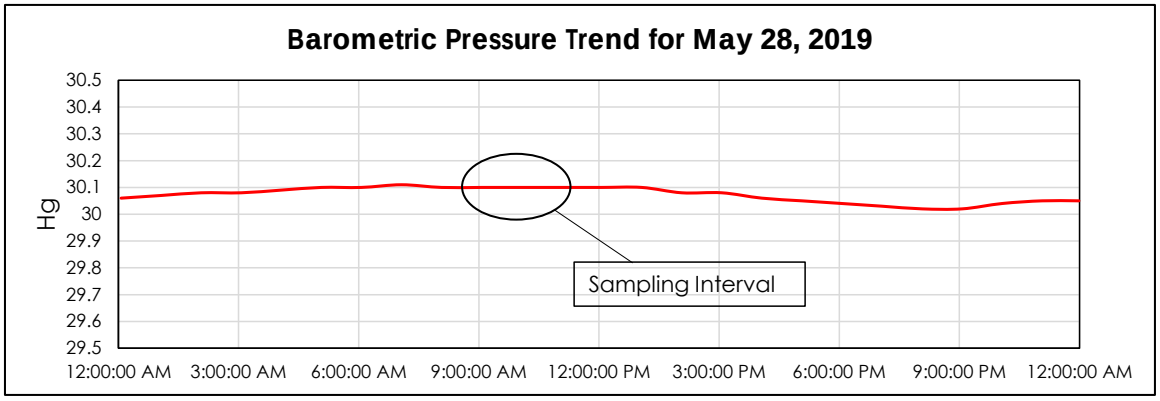
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - May 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Wunderground.com (Puyallup)
Lat: 47.12 Long: 122.26 Elev: 591 ft-AMSL

Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-05-31/2019-05-31/monthly

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

June 11, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	11-Jun-19	11:08	0.02	0.0	3.9	11.6	-	-	
GP-1B	11-Jun-19	11:10	0.00	0.0	7.5	12.5	-	-	
GP-1C	11-Jun-19	11:12	0.02	0.0	1.1	18.0	-	-	
GP-2A	11-Jun-19	11:16	0.01	0.2	0.7	17.9	0.1	-	
GP-2B	11-Jun-19	11:19	-0.86	0.0	0.1	19.0	-	-	
GP-3S	11-Jun-19	11:24	-0.04	0.0	1.2	15.6	-	-	
GP-3M	11-Jun-19	11:26	-0.04	0.0	2.6	8.0	-	-	
GP-3D	11-Jun-19	11:28	-0.05	0.0	5.2	14.7	0.1	-	
GP-4A	11-Jun-19	11:38	-0.03	0.0	0.8	18.4	-	-	
GP-4B	11-Jun-19	11:40	0.00	0.0	0.1	19.0	-	-	
GP-5A	11-Jun-19	11:44	-0.06	0.0	0.4	18.7	-	-	
GP-5B	11-Jun-19	11:46	-0.05	0.0	1.5	15.1	-	-	
GP-6	11-Jun-19	11:51	-0.08	0.0	0.3	18.7	-	-	
GP-7S	11-Jun-19	11:58	-0.08	0.0	0.6	18.5	-	-	
GP-7D	11-Jun-19	11:55	-0.08	0.0	0.2	18.5	-	-	
GP-8A	11-Jun-19	12:05	-0.08	0.0	1.8	16.6	-	-	
GP-8B	11-Jun-19	12:07	-0.08	0.0	2.3	14.8	-	-	
GP-9	11-Jun-19	12:14	-0.10	0.0	0.1	18.5	-	-	
GP-10	11-Jun-19	12:18	-0.10	0.0	0.2	18.6	-	-	
GP-11	11-Jun-19	12:22	-0.09	0.0	1.2	17.3	-	-	
GP-12	11-Jun-19	12:28	-0.11	0.0	0.6	17.0	-	-	
GP-13A	11-Jun-19	12:34	-0.12	0.0	0.0	18.8	-	-	
GP-13B	11-Jun-19	12:36	-0.12	0.0	0.0	18.9	-	-	
GP-14S	11-Jun-19	12:40	-0.12	0.0	4.2	14.7	-	-	
GP-14D	11-Jun-19	12:42	-0.13	0.0	7.0	4.4	-	-	
GP-15A	11-Jun-19	12:47	-0.12	0.0	2.6	16.0	-	-	
GP-15B	11-Jun-19	12:49	-0.10	0.0	3.8	15.9	-	-	
GP-16A	11-Jun-19	12:54	-0.13	0.0	1.4	16.6	-	-	
GP-16B	11-Jun-19	12:56	0.31	0.0	1.3	16.9	-	-	
GP-17	11-Jun-19	13:05	-0.11	0.0	2.4	16.3	-	-	
GP-18	11-Jun-19	13:10	-0.09	0.0	5.3	10.5	-	-	
GP-19	11-Jun-19	13:15	-0.08	0.0	3.8	16.3	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

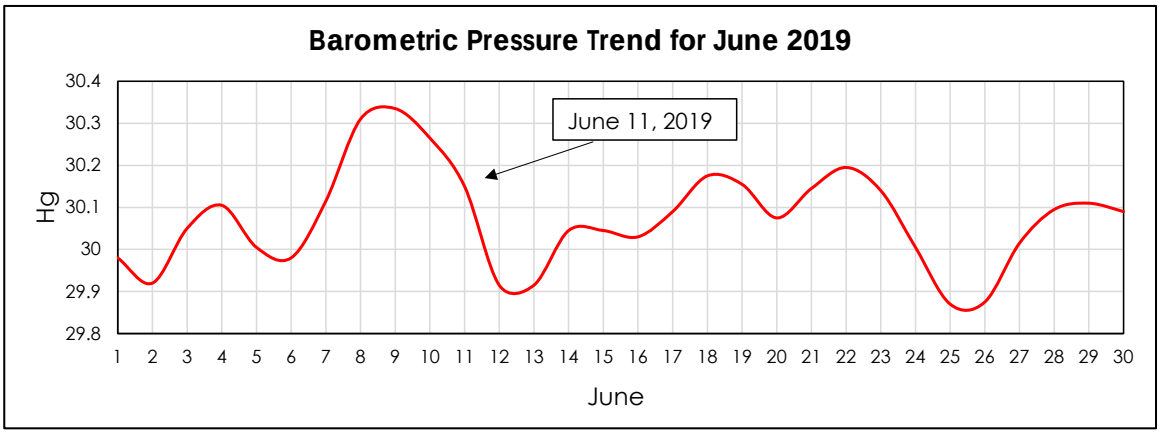
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Sunny
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	11-Jun-19	Temperature (^{o}F):	77

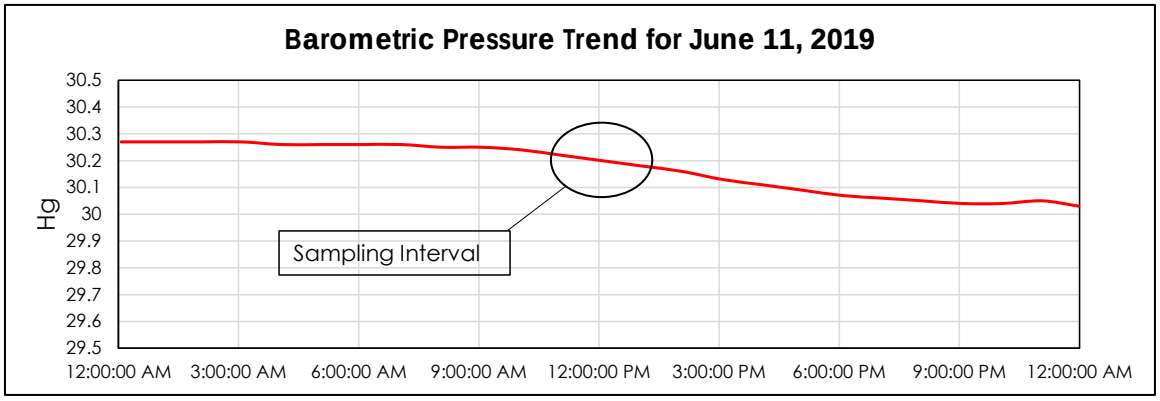
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - June 2019
Hidden Valley Landfill, Pierce County, Washington





Source: Wunderground.com (Puyallup)
Lat: 47.12 Long: 122.26 Elev: 591 ft-AMSL

Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-06-11/2019-06-11/daily

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill — 04219002.02

PCRCD dba LRI — July 19, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	19-Jul-19	8:26	0.00	0.0	3.5	12.1	-	-	
GP-1B	19-Jul-19	8:28	-0.02	0.0	7.4	13.6	-	-	
GP-1C	19-Jul-19	8:31	0.00	0.0	0.8	20.3	-	-	
GP-2A	19-Jul-19	8:35	0.00	0.1	0.3	20.6	0.1	-	
GP-2B	19-Jul-19	8:37	0.04	0.0	0.1	21.1	-	-	
GP-3S	19-Jul-19	8:41	0.01	0.0	0.5	19.9	-	-	
GP-3M	19-Jul-19	8:43	0.02	0.0	2.0	13.5	-	-	
GP-3D	19-Jul-19	8:45	0.02	0.0	2.1	16.7		-	
GP-4A	19-Jul-19	8:51	0.02	0.0	0.3	20.8	-	-	
GP-4B	19-Jul-19	8:53	0.06	0.0	0.1	21.2	-	-	
GP-5A	19-Jul-19	8:56	0.03	0.0	0.2	20.6	-	-	
GP-5B	19-Jul-19	8:58	0.02	0.0	0.1	21.1	-	-	
GP-6	19-Jul-19	9:05	0.03	0.0	0.1	21.0	-	-	
GP-7S	19-Jul-19	9:12	0.02	0.0	0.8	20.1	-	-	
GP-7D	19-Jul-19	9:10	0.01	0.0	0.3	20.6	-	-	
GP-8A	19-Jul-19	9:20	0.04	0.0	2.6	18.0	-	-	
GP-8B	19-Jul-19	9:23	0.03	0.0	2.2	19.5	-	-	
GP-9	19-Jul-19	9:28	0.02	0.0	3.3	14.8	-	-	
GP-10	19-Jul-19	9:34	0.01	0.0	0.6	20.3	-	-	
GP-11	19-Jul-19	9:39	0.03	0.0	2.5	17.7	-	-	
GP-12	19-Jul-19	9:46	0.00	0.0	2.3	16.5	-	-	
GP-13A	19-Jul-19	9:50	0.00	0.0	0.1	20.8	-	-	
GP-13B	19-Jul-19	9:52	-0.05	0.0	0.0	20.8	-	-	
GP-14S	19-Jul-19	9:57	0.00	0.0	3.9	17.5	-	-	
GP-14D	19-Jul-19	9:59	-0.03	0.0	5.7	9.2	-	-	
GP-15A	19-Jul-19	10:02	-0.01	0.0	2.8	17.5	-	-	
GP-15B	19-Jul-19	10:04	-0.01	0.0	3.8	15.0	-	-	
GP-16A	19-Jul-19	10:10	-0.01	0.0	0.9	20.1	-	-	
GP-16B	19-Jul-19	10:12	0.26	0.0	0.9	20.0	-	-	
GP-17	19-Jul-19	10:19	0.00	0.0	4.4	13.2	-	-	
GP-18	19-Jul-19	10:24	0.00	0.0	10.7	9.0	-	-	
GP-19	19-Jul-19	10:30	0.00	0.0	0.1	21.2	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

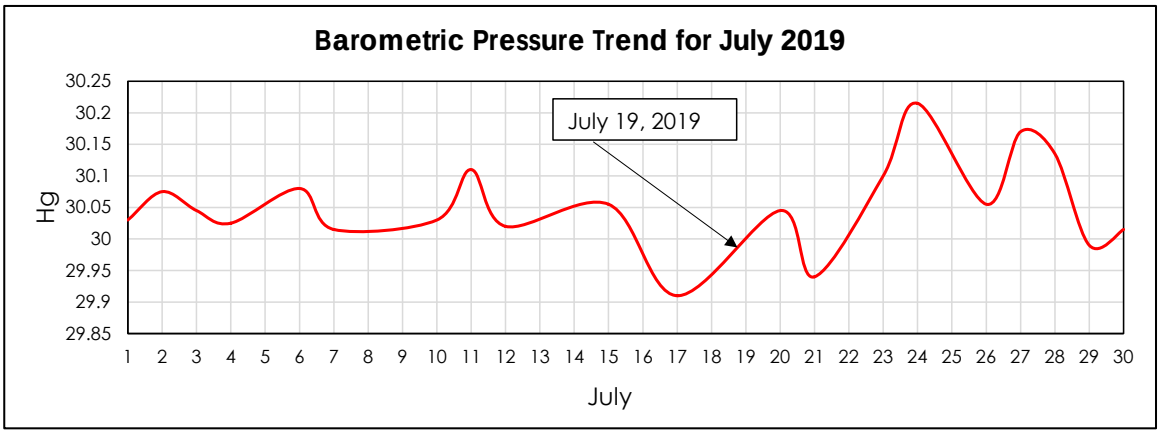
		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Sunny
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	19-Jul-19	Temperature (^{o}F):	64

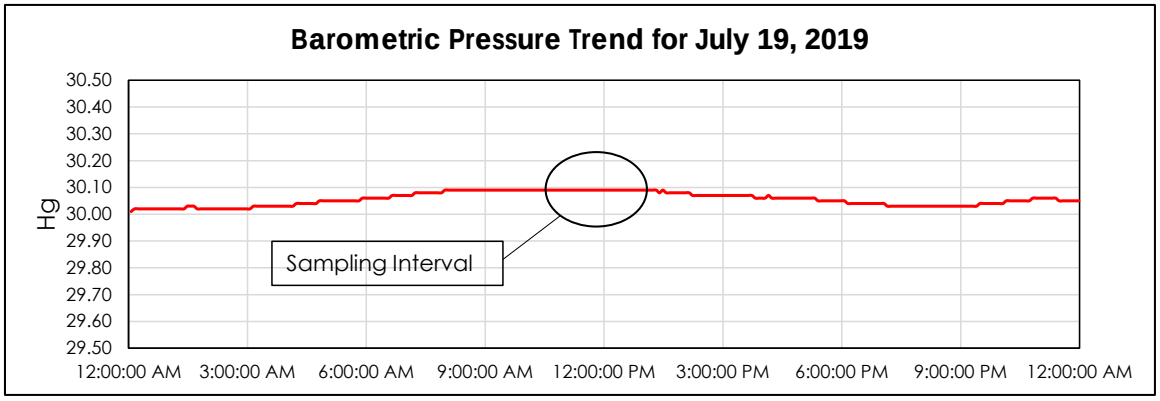
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Barometric Pressure Trend - July 2019
Hidden Valley Landfill, Pierce County, Washington





Monthly Data Source: Wunderground.com (Puyallup)
Lat: 47.12 Long: 122.26 Elev: 591 ft-AMSL

Data Source:https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-07-19/2019-07-19/monthly

Daily Data Source: Wunderground.com (Orting)
Lat: 47.11 Long: 122.23 Elev: 120 ft-AMSL

Data Source: https://www.wunderground.com/dashboard/pws/KWAORTIN4/table/2019-07-19/2019-07-19/daily

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill — 04219002.02

PCRCD dba LRI — August 22, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	22-Aug-19	8:16	0.02	0.0	3.0	11.0	-	-	
GP-1B	22-Aug-19	8:18	-0.01	0.0	4.6	15.5	-	-	
GP-1C	22-Aug-19	8:20	0.02	0.0	0.9	20.0	-	-	
GP-2A	22-Aug-19	8:25	0.14	0.0	0.2	20.6	-	-	
GP-2B	22-Aug-19	8:27	0.01	0.0	0.1	20.9	-	-	
GP-3S	22-Aug-19	8:32	0.22	0.0	0.5	19.9	-	-	
GP-3M	22-Aug-19	8:35	0.11	0.0	2.1	17.1	-	-	
GP-3D	22-Aug-19	8:37	0.00	0.0	1.0	20.3		-	
GP-4A	22-Aug-19	9:04	0.04	0.0	0.1	20.9	-	-	
GP-4B	22-Aug-19	9:08	0.01	0.0	0.2	20.7	-	-	
GP-5A	22-Aug-19	9:12	-0.01	0.0	0.1	20.6	-	-	
GP-5B	22-Aug-19	9:15	0.00	0.0	1.1	16.5	-	-	
GP-6	22-Aug-19	9:21	-0.01	0.0	0.6	20.3	-	-	
GP-7S	22-Aug-19	9:28	0.07	0.0	0.9	20.0	-	-	
GP-7D	22-Aug-19	9:31	0.00	0.0	0.3	20.7	-	-	
GP-8A	22-Aug-19	9:39	0.26	0.0	3.0	17.2	-	-	
GP-8B	22-Aug-19	9:42	0.00	0.0	2.0	19.2	-	-	
GP-9	22-Aug-19	9:49	0.18	0.0	4.0	12.8	-	-	
GP-10	22-Aug-19	9:55	0.00	0.0	1.3	18.2	-	-	
GP-11	22-Aug-19	10:00	0.00	0.0	1.5	19.2	-	-	
GP-12	22-Aug-19	10:08	0.00	0.0	1.6	19.0	-	-	
GP-13A	22-Aug-19	10:15	0.00	0.0	1.3	19.6	-	-	
GP-13B	22-Aug-19	10:19	0.00	0.0	0.1	20.9	-	-	
GP-14S	22-Aug-19	10:24	0.00	0.0	3.1	18.4	-	-	
GP-14D	22-Aug-19	10:27	0.00	0.0	5.4	9.4	-	-	
GP-15A	22-Aug-19	10:30	0.01	0.0	1.9	19.1	-	-	
GP-15B	22-Aug-19	10:33	0.00	0.0	2.5	17.9	-	-	
GP-16A	22-Aug-19	10:40	0.00	0.0	0.5	20.3	-	-	
GP-16B	22-Aug-19	10:42	0.02	0.0	0.4	20.4	-	-	
GP-17	22-Aug-19	10:48	0.00	0.0	5.0	12.3	-	-	
GP-18	22-Aug-19	10:52	0.00	0.0	9.5	10.2	-	-	
GP-19	22-Aug-19	10:58	0.01	0.0	0.2	21.0	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

		Weather Conditions	
Monitored by:	A. Deep	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	22-Aug-19	Temperature (^{o}F):	58

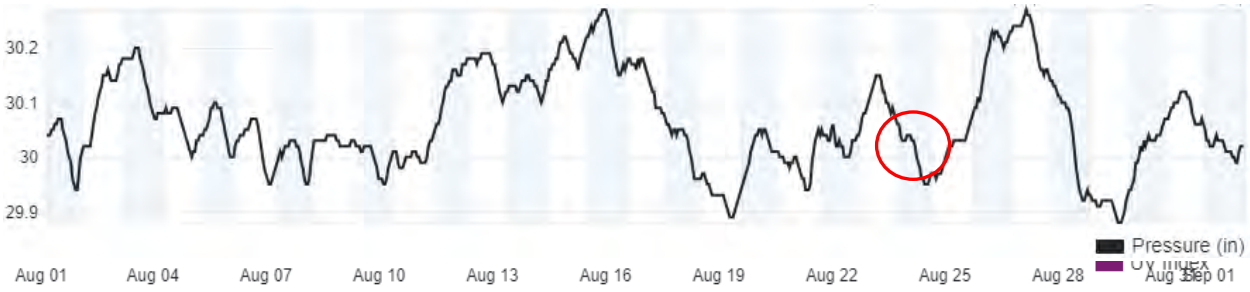
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

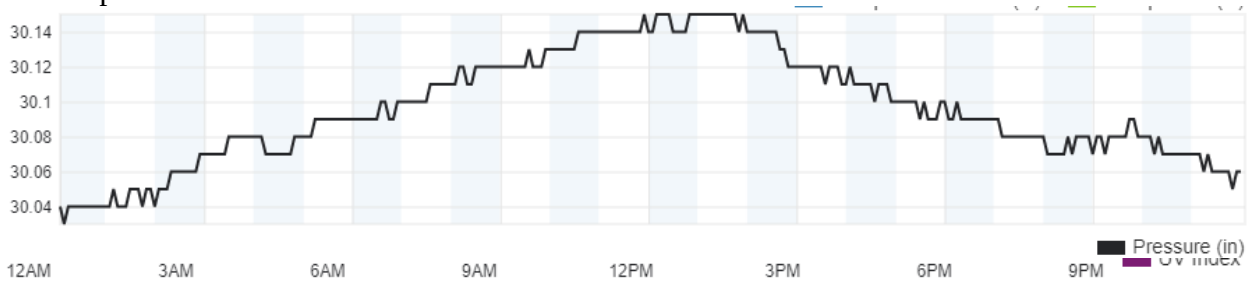
GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Hidden Valley Landfill
Barometric Pressure Trends
August 2019

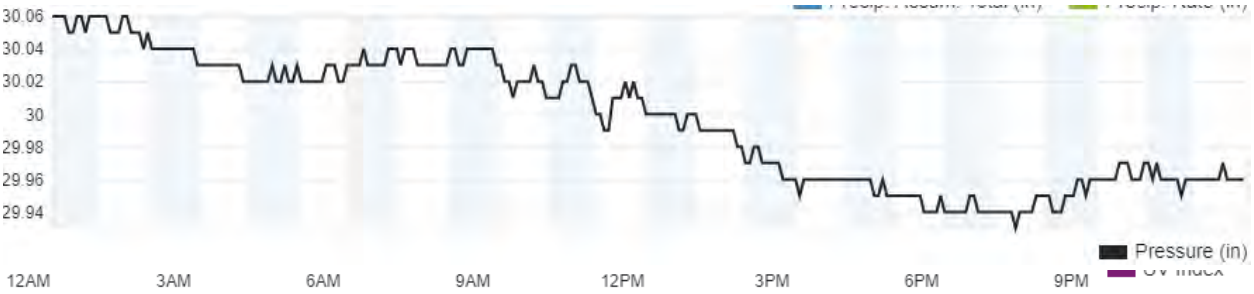
August 2019



August 22, 2019: Gas Probe Monitoring, Quarterly Condensate Measurements, and Quarterly Site Inspection



August 23, 2019: Gas Probe Monitoring and Quarterly Indoor Air Monitoring



Source: Weather Underground, SPANAFLIGHT KPLU Station (KWAPUYAL102)

https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-08-23/2019-08-23/daily

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

September 27, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	27-Sep-19	8:20	0.00	0.0	4.6	6.1	-	-	
GP-1B	27-Sep-19	8:22	0.01	0.0	6.2	13.4	-	-	
GP-1C	27-Sep-19	8:25	0.00	0.0	1.5	19.7	-	-	
GP-2A	27-Sep-19	8:28	0.00	0.2	0.7	20.3	-	-	
GP-2B	27-Sep-19	8:30	0.01	0.0	0.1	21.6	-	-	
GP-3S	27-Sep-19	8:35	0.01	0.0	0.6	20.8	-	-	
GP-3M	27-Sep-19	8:37	0.02	0.0	1.9	18.3	-	-	
GP-3D	27-Sep-19	8:40	0.00	0.0	2.1	19.7		-	
GP-4A	27-Sep-19	8:45	0.14	0.0	0.5	21.6	-	-	
GP-4B	27-Sep-19	8:47	0.18	0.0	0.1	21.7	-	-	
GP-5A	27-Sep-19	9:00	0.00	0.0	0.1	21.6	-	-	
GP-5B	27-Sep-19	9:03	0.00	0.0	0.4	20.3	-	-	
GP-6	27-Sep-19	9:07	0.00	0.0	0.3	21.2	-	-	
GP-7S	27-Sep-19	9:11	0.00	0.0	1.3	20.2	-	-	
GP-7D	27-Sep-19	9:13	0.00	0.0	0.4	21.0	-	-	
GP-8A	27-Sep-19	9:20	0.00	0.0	2.4	19.0	-	-	
GP-8B	27-Sep-19	9:22	0.01	0.0	1.2	20.4	-	-	
GP-9	27-Sep-19	9:27	0.00	0.0	5.3	13.1	-	-	
GP-10	27-Sep-19	9:32	0.00	0.0	0.7	20.2	-	-	
GP-11	27-Sep-19	9:36	0.00	0.0	1.5	19.1	-	-	
GP-12	27-Sep-19	9:41	0.00	0.0	0.6	19.8	-	-	
GP-13A	27-Sep-19	9:45	0.00	0.0	0.1	20.8	-	-	
GP-13B	27-Sep-19	9:48	0.01	0.0	0.1	21.0	-	-	
GP-14S	27-Sep-19	9:53	-0.01	0.0	4.2	17.0	-	-	
GP-14D	27-Sep-19	9:55	0.00	0.0	6.0	8.6	-	-	
GP-15A	27-Sep-19	9:58	0.00	0.0	2.4	18.1	-	-	
GP-15B	27-Sep-19	10:01	0.00	0.0	4.3	15.0	-	-	
GP-16A	27-Sep-19	10:08	0.01	0.0	0.4	20.8	-	-	
GP-16B	27-Sep-19	10:11	0.00	0.0	0.1	21.3	-	-	
GP-17	27-Sep-19	10:16	0.00	0.0	4.6	12.8	-	-	
GP-18	27-Sep-19	10:19	0.00	0.0	7.5	14.0	-	-	
GP-19	27-Sep-19	10:24	0.00	0.0	1.2	20.0	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

		Weather Conditions	
Monitored by:	A. Deep	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	27-Sep-19	Temperature (^{o}F):	53

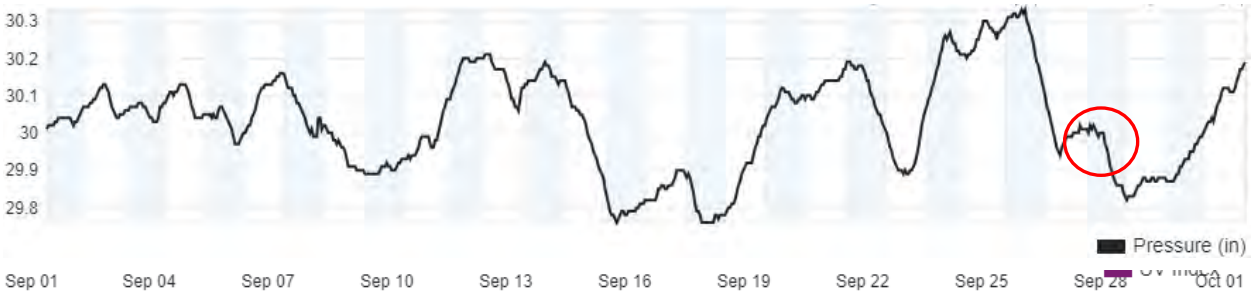
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

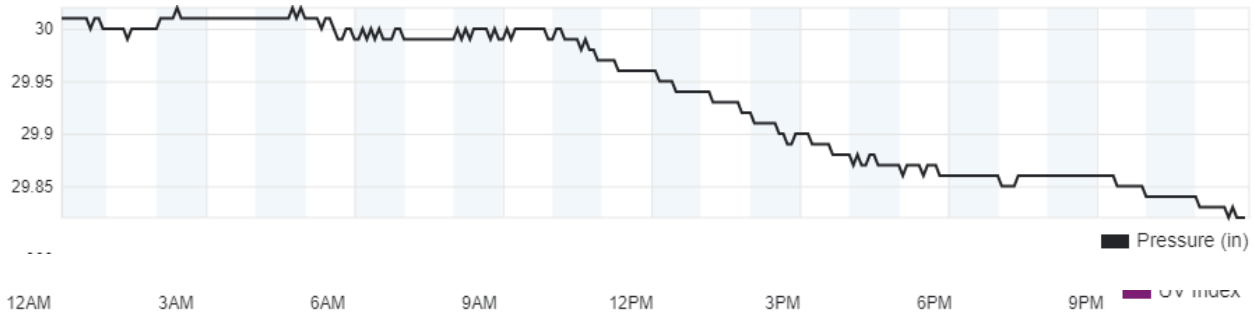
GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Hidden Valley Landfill
Barometric Pressure Trends
September 2019

September 2019



September 27, 2019: Gas Probe Monitoring



Source: Weather Underground, SPANAFLIGHT KPLU Station (KWAPUYAL102)

https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-09-27/2019-09-27/monthly

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill — 04219002.02

PCRCD dba LRI — October 23, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	23-Oct-19	7:18	0.04	0.0	3.8	9.6	-	-	
GP-1B	23-Oct-19	7:20	0.04	0.0	7.4	13.5	-	-	
GP-1C	23-Oct-19	7:21	0.07	0.0	1.3	20.1	-	-	
GP-2A	23-Oct-19	7:24	0.08	0.0	0.2	21.8	-	-	
GP-2B	23-Oct-19	7:26	0.08	0.0	0.1	21.9	-	-	
GP-3S	23-Oct-19	7:29	0.08	0.0	0.7	21.0	-	-	
GP-3M	23-Oct-19	7:31	0.06	0.0	1.4	16.9	-	-	
GP-3D	23-Oct-19	7:33	0.07	0.0	2.0	16.9		-	
GP-4A	23-Oct-19	7:38	0.09	0.0	0.3	21.5	-	-	
GP-4B	23-Oct-19	7:40	0.19	0.0	0.3	21.6	-	-	
GP-5A	23-Oct-19	7:43	0.09	0.0	0.1	22.0	-	-	
GP-5B	23-Oct-19	7:44	0.08	0.0	0.1	21.9	-	-	
GP-6	23-Oct-19	7:49	0.08	0.0	0.1	22.0	-	-	
GP-7S	23-Oct-19	7:56	0.10	0.0	0.7	21.4	-	-	
GP-7D	23-Oct-19	7:54	0.09	0.0	0.2	21.9	-	-	
GP-8A	23-Oct-19	8:03	0.10	0.0	2.2	19.9	-	-	
GP-8B	23-Oct-19	8:05	0.11	0.0	0.7	21.6	-	-	
GP-9	23-Oct-19	8:11	0.11	0.0	4.2	15.8	-	-	
GP-10	23-Oct-19	8:17	0.11	0.0	0.4	21.7	-	-	
GP-11	23-Oct-19	8:21	0.11	0.0	1.5	20.1	-	-	
GP-12	23-Oct-19	8:27	0.11	0.0	1.0	20.9	-	-	
GP-13A	23-Oct-19	8:31	0.12	0.0	0.1	21.9	-	-	
GP-13B	23-Oct-19	8:34	0.17	0.0	0.1	22.0	-	-	
GP-14S	23-Oct-19	8:39	0.11	0.0	4.6	17.5	-	-	
GP-14D	23-Oct-19	8:41	0.10	0.0	6.0	10.3	-	-	
GP-15A	23-Oct-19	8:46	0.11	0.0	1.6	20.6	-	-	
GP-15B	23-Oct-19	8:48	0.11	0.0	3.6	16.8	-	-	
GP-16A	23-Oct-19	8:53	0.11	0.0	0.9	21.3	-	-	
GP-16B	23-Oct-19	8:56	0.44	0.0	0.8	21.4	-	-	
GP-17	23-Oct-19	9:02	0.10	0.0	3.6	18.6	-	-	
GP-18	23-Oct-19	9:06	0.10	0.0	2.2	20.2	-	-	
GP-19	23-Oct-19	9:11	0.09	0.0	0.2	22.0	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	23-Oct-19	Temperature (^oF):	41

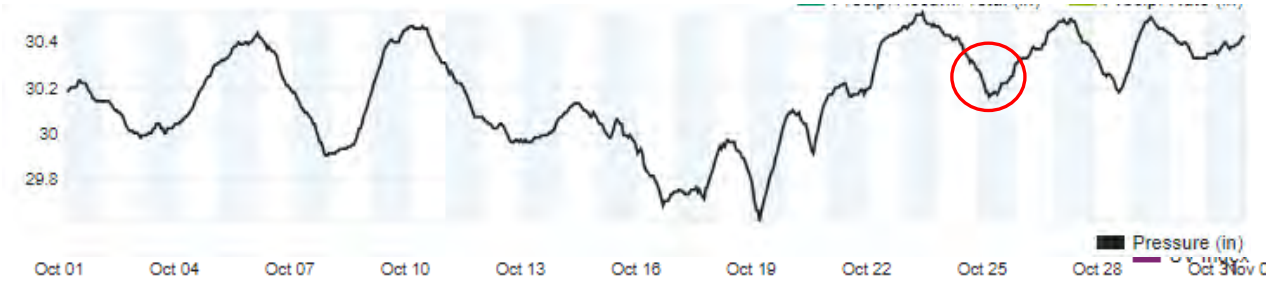
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

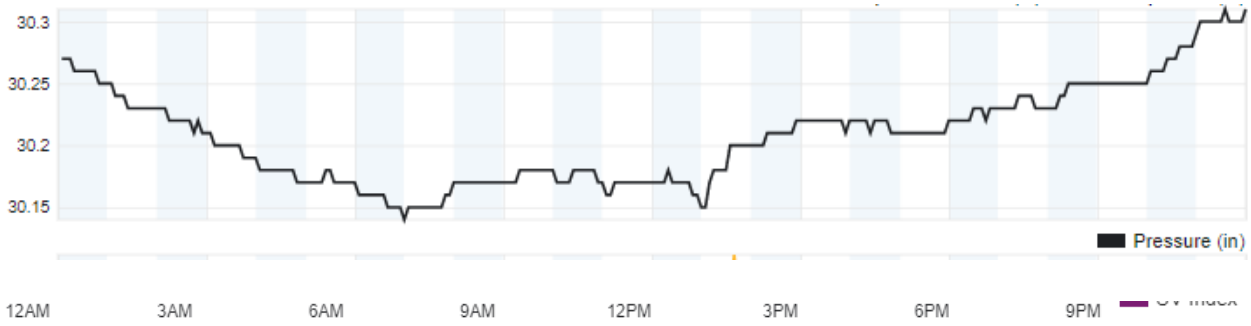
GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Hidden Valley Landfill
Barometric Pressure Trends
October 2019

October 2019



October 25, 2019: Gas Probe Monitoring



Source: Weather Underground, SPANAFLIGHT KPLU Station (KWAPUYAL102)

https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-10-25/2019-10-25/daily

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

November 26, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	26-Nov-19	9:22	0.02	0.0	5.4	7.9	-	-	
GP-1B	26-Nov-19	9:24	0.01	0.0	7.2	14.3	-	-	
GP-1C	26-Nov-19	9:26	0.06	0.0	5.3	15.4	-	-	
GP-2A	26-Nov-19	9:30	0.03	1.0	8.0	11.4	-	-	
GP-2B	26-Nov-19	9:32	0.00	0.0	0.3	20.9	-	-	
GP-3S	26-Nov-19	9:35	0.07	0.0	2.1	19.1	-	-	
GP-3M	26-Nov-19	9:37	0.07	0.0	2.6	15.0	-	-	
GP-3D	26-Nov-19	9:39	0.02	0.0	2.4	18.2		-	
GP-4A	26-Nov-19	9:46	0.05	0.0	1.8	18.4	-	-	
GP-4B	26-Nov-19	9:48	0.13	0.0	0.7	22.1	-	-	
GP-5A	26-Nov-19	9:51	0.04	0.0	0.6	22.6	-	-	
GP-5B	26-Nov-19	9:54	0.04	0.0	1.5	21.1	-	-	
GP-6	26-Nov-19	9:58	0.02	0.0	0.6	22.6	-	-	
GP-7S	26-Nov-19	10:07	0.02	0.0	0.4	21.2	-	-	
GP-7D	26-Nov-19	10:05	0.04	0.0	0.4	21.0	-	-	
GP-8A	26-Nov-19	10:14	0.03	0.0	1.3	22.2	-	-	
GP-8B	26-Nov-19	10:16	0.03	0.0	0.8	20.8	-	-	
GP-9	26-Nov-19	10:23	0.03	0.0	5.3	15.6	-	-	
GP-10	26-Nov-19	10:30	0.03	0.0	0.2	21.3	-	-	
GP-11	26-Nov-19	10:34	0.04	0.0	2.1	18.2	-	-	
GP-12	26-Nov-19	10:44	0.05	0.0	1.3	20.8	-	-	
GP-13A	26-Nov-19	10:48	0.12	0.0	2.8	20.5	-	-	
GP-13B	26-Nov-19	10:51	0.12	0.0	0.3	21.3	-	-	
GP-14S	26-Nov-19	10:56	0.03	0.0	3.4	19.4	-	-	
GP-14D	26-Nov-19	10:58	0.03	0.0	2.6	18.1	-	-	
GP-15A	26-Nov-19	11:01	0.04	0.0	1.0	21.4	-	-	
GP-15B	26-Nov-19	11:03	0.03	0.0	3.7	17.4	-	-	
GP-16A	26-Nov-19	11:08	0.03	0.0	4.4	18.1	-	-	
GP-16B	26-Nov-19	11:10	0.21	0.0	4.4	18.2	-	-	
GP-17	26-Nov-19	11:15	0.03	0.0	3.0	20.4	-	-	
GP-18	26-Nov-19	11:19	0.04	0.0	1.1	22.1	-	-	
GP-19	26-Nov-19	11:24	0.06	0.0	4.0	18.7	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	26-Nov-19	Temperature (^{o}F):	39

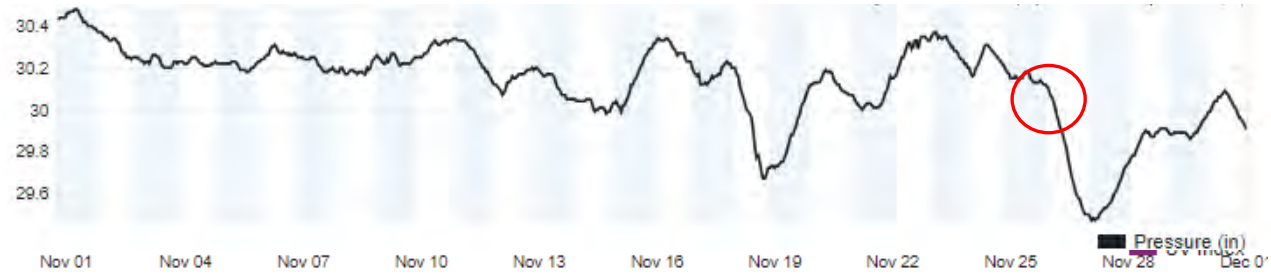
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

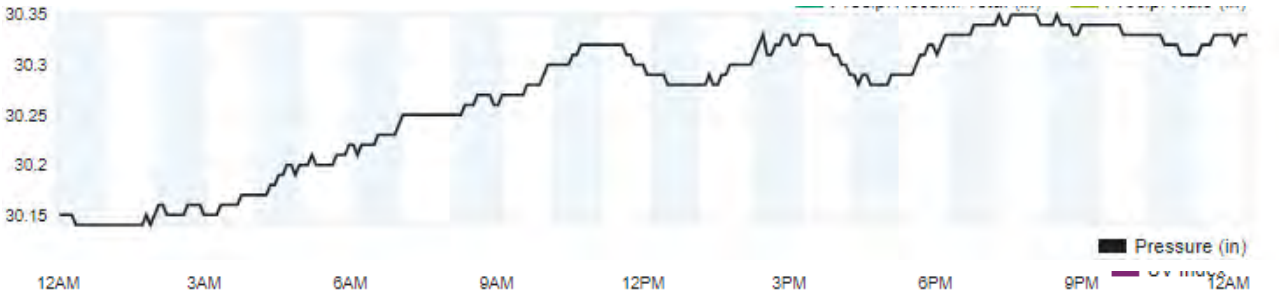
GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Hidden Valley Landfill
Barometric Pressure Trends
November 2019

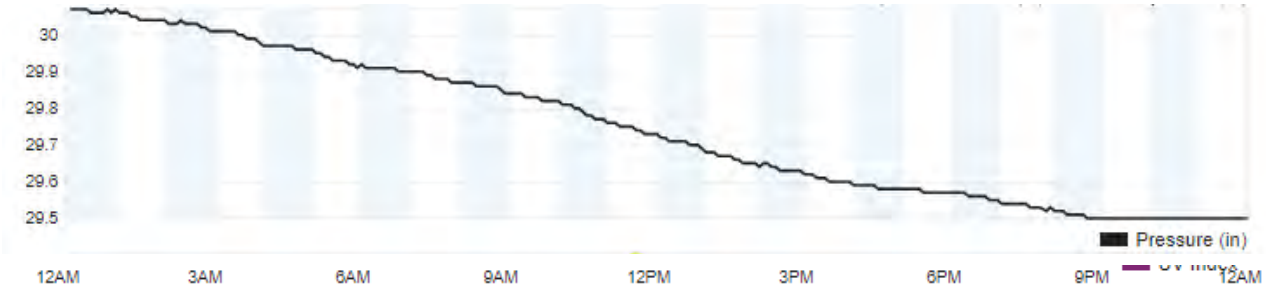
November 2019



November 22, 2019: Condensate Measurements



November 26, 2019: Gas Probe Monitoring, Site Inspection, and Quarterly Indoor Air Monitoring



Source: Weather Underground, SPANAFLIGHT KPLU Station (KWAPUYAL102)

https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-11-26/2019-11-26/daily

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04219002.02

PCRCD dba LRI

December 23, 2019

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	23-Dec-19	9:59	-0.07	0.0	5.2	8.6	-	-	
GP-1B	23-Dec-19	10:01	-0.09	0.0	7.0	12.2	-	-	
GP-1C	23-Dec-19	10:03	-0.10	0.0	4.7	13.9	-	-	
GP-2A	23-Dec-19	10:06	-0.06	0.2	1.0	18.3	-	-	
GP-2B	23-Dec-19	10:09	-0.02	0.0	0.2	19.6	-	-	
GP-3S	23-Dec-19	10:12	-0.07	0.0	2.6	14.8	-	-	
GP-3M	23-Dec-19	10:14	-0.07	0.0	2.3	13.0	-	-	
GP-3D	23-Dec-19	10:16	-0.07	0.0	6.2	7.8		-	
GP-4A	23-Dec-19	10:25	0.00	0.0	0.3	19.5	-	-	
GP-4B	23-Dec-19	10:26	0.07	0.0	0.3	19.5	-	-	
GP-5A	23-Dec-19	10:29	-0.03	0.0	0.1	19.8	-	-	
GP-5B	23-Dec-19	10:31	-0.05	0.0	0.1	19.8	-	-	
GP-6	23-Dec-19	10:36	-0.02	0.0	0.1	19.8	-	-	
GP-7S	23-Dec-19	10:40	-0.02	0.0	0.8	19.1	-	-	
GP-7D	23-Dec-19	10:43	-0.02	0.0	0.1	19.7	-	-	
GP-8A	23-Dec-19	10:49	0.01	0.0	0.8	19.0	-	-	
GP-8B	23-Dec-19	10:51	-0.01	0.0	0.3	19.7	-	-	
GP-9	23-Dec-19	10:57	0.00	0.0	3.0	16.3	-	-	
GP-10	23-Dec-19	11:02	0.00	0.0	0.2	19.5	-	-	
GP-11	23-Dec-19	11:07	-0.01	0.0	2.9	14.7	-	-	
GP-12	23-Dec-19	11:11	-0.01	0.0	0.5	18.8	-	-	
GP-13A	23-Dec-19	11:16	0.22	0.0	1.8	18.2	-	-	
GP-13B	23-Dec-19	11:18	0.00	0.0	0.2	19.7	-	-	
GP-14S	23-Dec-19	11:22	-0.03	0.0	5.0	14.8	-	-	
GP-14D	23-Dec-19	11:24	-0.12	0.0	7.9	5.6	-	-	
GP-15A	23-Dec-19	11:27	-0.01	0.0	1.9	14.1	-	-	
GP-15B	23-Dec-19	11:29	-0.04	0.0	7.2	7.6	-	-	
GP-16A	23-Dec-19	11:33	-0.01	0.0	1.0	18.8	-	-	
GP-16B	23-Dec-19	11:35	0.16	0.0	0.8	19.0	-	-	
GP-17	23-Dec-19	11:41	-0.04	0.0	0.2	19.6	-	-	
GP-18	23-Dec-19	11:44	-0.01	0.0	0.3	19.5	-	-	
GP-19	23-Dec-19	11:48	-0.05	0.0	0.1	19.7	-	-	
LFG-1							-	-	*Note 2*
LFG-2							-	-	*Note 2*
LFG-3							-	-	*Note 2*

General Data

		Weather Conditions	
Monitored by:	T. Berndahl	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	-
Calibration Date:	23-Dec-19	Temperature (^{o}F):	42

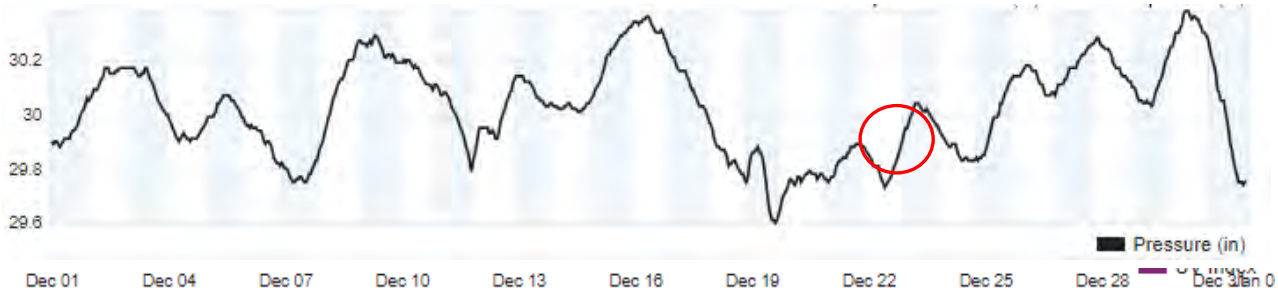
Notes

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded if observed during sampling
2. Not monitored. Probe casing rusted shut.

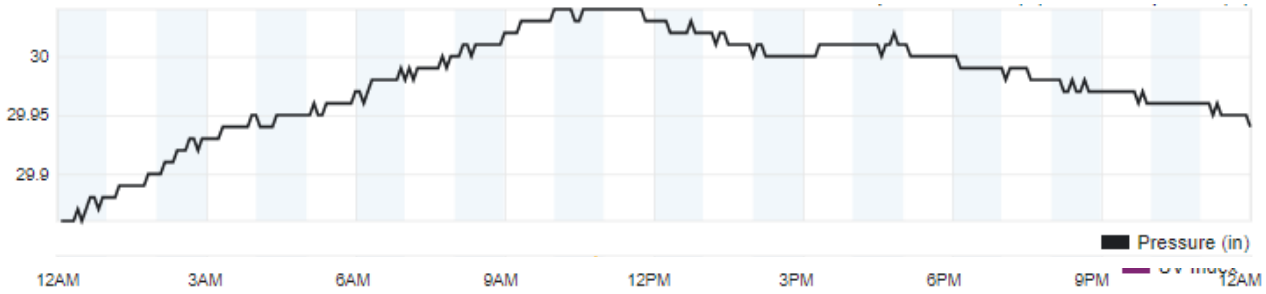
GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Hidden Valley Landfill
Barometric Pressure Trends
December 2019

December 2019



December 23, 2019: Gas Probe Monitoring



Source: Weather Underground, SPANAFLIGHT KPLU Station (KWAPUYAL102)

https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-12-23/2019-12-23/daily

Hidden Valley Landfill
Landfill Gas Monitoring of On-site Buildings

Project Number: 04219002.02

Date: 2/26/19
Weather Conditions: Cloudy
Instrument: Micro FID
Measured By: Travis Berndahl

The atmosphere inside buildings at the landfill were monitored for possible intrusion of methane gas. Per WAC 173-351, concentrations of methane in on-site structures must not exceed 25% of the lower explosive limit (LEL). If off-site gas migration is suspected, concentrations of methane in off-site structures must not exceed 100 ppm methane.

The areas monitored included:
- The general overall work area
- Floor drains
- Underground conduit protrusions
- Closed areas where landfill gas could collect, such as under cupboards and inside closets

The gas detection instrument must be calibrated using calibration gas containing methane equal to 50 % LEL. Calibration must be performed before and after the survey is completed.

Checked boxes indicate that the survey revealed **no detectable methane**.

- [X] Main Office - individual office spaces, storage areas and within open crawl-space area.
- [X] Repair Shop – survey atmosphere conditions throughout (lower height levels).
- [X] Pay/Scale Booth – interior of building.
- [X] Recycle Building – throughout facility and water drainage areas.
- [X] Leachate Treatment Building – all lower level office spaces, restrooms, water drainage system and storage/equipment areas.
- [X] Gas to Energy Building – central monitoring/control room, engine room and storage cabinets.
- [X] Transfer Station Building – throughout entire building and lower levels.

Background (Main Office)
Upwind → 5.1 ppm
Downwind → 5.3 ppm

Signature

Hidden Valley Landfill
Landfill Gas Monitoring of On-site Buildings

Project Number: 04219002.02

Date: 6/12/19
Weather Conditions: Sunny
Instrument: Micro FID
Measured By: Travis Berndahl

The atmosphere inside buildings at the landfill were monitored for possible intrusion of methane gas. Per WAC 173-351, concentrations of methane in on-site structures must not exceed 25% of the lower explosive limit (LEL). If off-site gas migration is suspected, concentrations of methane in off-site structures must not exceed 100 ppm methane.

The areas monitored included:
- The general overall work area
- Floor drains
- Underground conduit protrusions
- Closed areas where landfill gas could collect, such as under cupboards and inside closets

The gas detection instrument must be calibrated using calibration gas containing methane equal to 50 % LEL. Calibration must be performed before and after the survey is completed.

Checked boxes indicate that the survey revealed **no detectable methane**.

- [X] Main Office - individual office spaces, storage areas and within open crawl-space area.
- [X] Repair Shop – survey atmosphere conditions throughout (lower height levels).
- [X] Pay/Scale Booth – interior of building.
- [X] Recycle Building – throughout facility and water drainage areas. 0.9 ppm max
- [X] Leachate Treatment Building – all lower level office spaces, restrooms, water drainage system and storage/equipment areas. 8.0 ppm max
- [X] Gas to Energy Building – central monitoring/control room, engine room and storage cabinets. 1.1 ppm max
- [X] Transfer Station Building – throughout entire building and lower levels.

Background (Main Office)
Upwind → 0.9 ppm
Downwind → 1.1 ppm

Signature

Hidden Valley Landfill
Landfill Gas Monitoring of On-site Buildings

Project Number: 04219002.02

Date: 8/23/19
Weather Conditions: Sunny
Instrument: Micro FID
Measured By: Alexa Deep

The atmosphere inside buildings at the landfill were monitored for possible intrusion of methane gas. Per WAC 173-351, concentrations of methane in on-site structures must not exceed 25% of the lower explosive limit (LEL). If off-site gas migration is suspected, concentrations of methane in off-site structures must not exceed 100 ppm methane.

The areas monitored included:
- The general overall work area
- Floor drains
- Underground conduit protrusions
- Closed areas where landfill gas could collect, such as under cupboards and inside closets

The gas detection instrument must be calibrated using calibration gas containing methane equal to 50 % LEL. Calibration must be performed before and after the survey is completed.

Checked boxes indicate that the survey revealed **no detectable methane**.

- [x] Main Office - individual office spaces, storage areas and within open crawl-space area.
- [x] Repair Shop – survey atmosphere conditions throughout (lower height levels).
- [x] Pay/Scale Booth – interior of building.
- [x] Recycle Building – throughout facility and water drainage areas.
- [x] Leachate Treatment Building – all lower level office spaces, restrooms, water drainage system and storage/equipment areas.
- [x] Gas to Energy Building – central monitoring/control room, engine room and storage cabinets.
- [x] Transfer Station Building – throughout entire building and lower levels.

Background
upwind — 0.0 ppm
downwind — 0.5 ppm

Alexa Deep
Signature

Hidden Valley Landfill
Landfill Gas Monitoring of On-site Buildings

Project Number: 04219002.02

Date: 11-22-19
Weather Conditions: Sunny
Instrument: MicroFID
Measured By: Travis Berndahl

The atmosphere inside buildings at the landfill were monitored for possible intrusion of methane gas. Per WAC 173-351, concentrations of methane in on-site structures must not exceed 25% of the lower explosive limit (LEL). If off-site gas migration is suspected, concentrations of methane in off-site structures must not exceed 100 ppm methane.

The areas monitored included:

- The general overall work area
- Floor drains
- Underground conduit protrusions
- Closed areas where landfill gas could collect, such as under cupboards and inside closets

The gas detection instrument must be calibrated using calibration gas containing methane equal to 50 % LEL. Calibration must be performed before and after the survey is completed.

Checked boxes indicate that the survey revealed **no detectable methane**.

- [X] Main Office - individual office spaces, storage areas and within open crawl-space area.
- [X] Repair Shop – survey atmosphere conditions throughout (lower height levels).
- [X] Pay/Scale Booth – interior of building.
- [X] Recycle Building – throughout facility and water drainage areas.
- [X] Leachate Treatment Building – all lower level office spaces, restrooms, water drainage system and storage/equipment areas. 4.0ppm, N area
- [X] Gas to Energy Building – central monitoring/control room, engine room and storage cabinets.
- [X] Transfer Station Building – throughout entire building and lower levels.

Background
Upwind: 0.0ppm
Downwind: 0.2 ppm

Signature

Appendix B

LEACHATE TREATMENT &

SIDE-SLOPE LINER SYSTEM DATA

Table 1. 2019 Main Sump and Side-Slope Liner Area Performance Data
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Month	Main Sump Monthly Leachate Volume - Cell 1 (gallons)	Side-Slope Sump Monthly Leachate Volume - Cell 2 (gallons)	Side-Slope Sump Monthly Leakage Flow[a] - Cell 2 (gallons/month)	Monthly Rainfall (inches)
January	4,597	226	0	2.55
February	8,275	0	0	2.95
March	48,482	0	0	4.25
April	13,278	2,168	0	5.35
May	0	0	0	1.05
June	9,798	0	0	0.95
July	12,665	0	0	2.93
August	3,334	0	0	0.85
September	0	0	0	7.20
October	1,200	0	0	4.70
November	36,333	1,923	1,462	3.15
December	15,557	0	0	9.26
Year to date:	153,519	4,317	1,462	45.19

Notes:

a = Leakage is fluid pumped from the leak detection sump as recorded by LRI staff.

LEACHATE DAILY LOG #2

Month: January

Year: 2019

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	LB LVL	GP-HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12:00	7642178	8262587	53805	70.3	0.0	1990	2342	125560	636724	243634	1572	26849	8.50	32590
2	12:00	7674537	8295176	53829	70.6	0	2002	2342	125560	636724	243634	1554	26874	8.51	32586
3	12	7708183	8327763	53852	72	.3	2015	2349	"	"	"	1606	26899	842	32588
4	12	7742557	8360352	53876	72	.1	2026	2351	"	"	"	1510	26925	837	32588
5	12	7776331	8392940	53900	71	0	2038	2358	"	"	"	1605	26950	838	32588
6	12	7810648	8425530	53923	72	.2	2048	"	"	"	243972	1584	26975	835	32588
7	12	7843440	8458116	53947	72	0	2065	2359	"	"	244024	1509	26994	844	32588
8	12	7876868	8490706	53971	71	0	2071	2366	"	"	244335	1594	27019	841	32590
9	12:00	7910423	8523294	53994	71.3	.4	2087	2367	125560	636727	244525	1563	27044	8.33	32590
10	12:00	7945003	8555984	54017	71.6	.1	2094	2373	125560	636727	244558	1527	27069	8.36	32590
11	12	7979130	8588474	54041	73	0	2105	2379	"	"	"	1576	27095	836	32590
12	12	8013134	8621064	54064	73	0	2115	2380	"	"	"	1562	27120	836	32588
13	12	8045801	8653656	54088	73	0	2126	2381	"	"	"	1556	27145	838	32588
14	12	8080230	8686240	54114	73	.0	2134	2388	"	"	244651	1586	27171	835	32586
15	12:00	8114456	8718826	54137	71.5	.0	2137	2394	125560	636947	244651	1582	27828	8.59	32584
16	12:00	8147271	8751412	54161	70.4		2137	2395	125586	637441	244651	1579	27854	8.52	32588
17	12:00	8182537	8783996	54185	71.4	0	2128	2401	125786	637441	244651	1578	27879	8.45	32584
18	12	8214420	8816584	54210	72	.2	2123	2402	"	"	"	1479	27272	830	32588
19	12	8248834	8849170	54233	72	.2	2142	2408	"	"	"	1529	27297	829	32584
20	12	8282054	8881756	54257	72	.05	2165	2409	"	"	"	1601	27323	833	32588
21	12	8316590	8914342	54281	72	.0	2169	2410	"	"	"	1534	27348	834	32590
22	12:00	8350001	8946930	54304	71.5	0.0	2165	2417	125786	638283	245028	1586	27373	8.34	32584
23	12:00	8384671	8979518	54328	71.0	.2	2175	2419	125586	638283	245028	1548	27381	8.38	32588
24	12	8417712	9012106	54342	72	0	2179	2425	125786	"	"	1532	27424	832	32584
25	12	8451048	9044694	54366	72	0	2186	2427	"	"	"	1561	27449	830	32584
26	12	8486702	9077276	54390	72	0	2195	2432	"	"	"	1572	27474	839	32588
27	12	8519312	9109862	54414	72	0	2204	2434	"	"	"	1572	27500	839	32584
28	12	8553680	9142450	54438	72	0	3212	2440	"	"	"	1568	27525	842	32584
29	12:00	8586848	9175032	54472	71.8	0	2219	2441	125786	638283	245118	1574	27550	8.35	32588
30	12:00	8620448	9207618	54496	69.4	0	2229	2448	125786	638283	245472	1541	27575	8.39	32584
31	12	8652852	9240206	54521	71	0	2172	2449	125786	641321	245472	1575	27601	831	32584

2455

LEACHATE DAILY LOG #1

Month: January
Year: 2019

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/O2	D/SL/P	P-4A	P-4B	P-5A	P-5B	CO2 RH	M1U RH
1	12:00	2079	2014	25080	18338	24270	16474	45.2	2.50	2249	5515	7179	104617	10789	7.83	748
2	12:00	2081	2014	25081	18349	24270	16486	45.4	2.72	2250	5518	7179	104617	10796	7.81	7.40
3	12	2083	11	25101	11	24281	16495	11	2.2	2253	5526		8	10803	784	742
4	12	11	2016	25105	18366	24295	16501	11	2.6	2255	5534		7	10811	786	742
5	12	11	2017	25117	18374	11	16520	11	2	2258	5543		8	10818	782	739
6	12	11	2018	25130	18381	24314	11	11	1.2	2260	5551		8	10826	783	745
7	12	2087	2019	25132	18399	24320	16531	11	1.8	2262	5559		7	10834	780	742
8	12	2090	11	25152	11	24326	16545	11	1.6	2265	5567		8	10841	782	744
9	12:00	2092	2019	25156	18416	24345	16546	45.7	1.5	2267	5576	7179	104617	10849	7.81	7.38
10	12:00	2094	2019	25167	18425	24345	16565	45.7	1.18	2269	5583	7179	104618	16854	7.86	7.33
11	12	2096	11	25181	18431	24359	16570	11	2.3	2271	5592		7	10864	785	741
12	12	2099	2019	25183	18450	24370	16580	11	2.7	2274	5600		8	10871	786	724
13	12	2102	2020	25202	11	24373	16595	11	2.0	2277	5608		8	10879	788	743
14	12	11	2025	25206	18467	24394	11	11	3	2279	5617		7	10887	789	749
15	12:00	2102	2030	22217	18475	24395	16613	45.8	1.42	2282	5623	7179	104618	10894	7.78	7.39
16	12:00	2102	2035	25231	18480	24406	16621	45.8	1.57	2284	5631	7179	104617	10902	7.79	7.40
17	12:00	2102	2039	25231	18500	24421	16625	46.1	1.35	2286	5638	7179	104618	10909	7.87	7.35
18	12	2104	2042	25249	11	11	16643	11	2.2	2288	5645		11 7	10917	786	743
19	12	2110	11	25257	18512	24437	16646	11	1.7	2291	5651		104657	10920	785	748
20	12	2115	11	25263	18526	24446	16656	11	1.5	2293	5660		10473 7		788	752
21	12	2122	11	25282	18527	24452	16671	46.4	1.6	2296	5668		10480 8		789	741
22	12:00	2126	2043	25282	18548	24471	16671	46.4	1.4	2298	5676	7179	10488	10920	7.89	7.47
23	12:00	2126	2048	25299	18551	24471	16691	46.4	1.5	2301	5685	7179	10495	10920	7.77	7.36
24	12	11	2052	25307	18563	24486	16696	11	2.2	2303	5690		10503 8		789	740
25	12	11	2057	25313	18576	24496	16704	46.6	2.1	2306	5697		10511 7		790	752
26	12	11	2061	25332	18578	24500	16721	11	2.1	2308	5706		10518 8		787	740
27	12	11	2066	25332	18598	24519	16721	11	2	2311	5714		10526 7		786	736
28	12	2132	11	25349	18602	24521	16739	11	2.5	2313	5723		10533 8		786	735
29	12:00	2137	2066	25358	18613	24533	16746	46.8	2.67	2315	5730	7179	105418	10920	7.85	7.415
30	12:00	2143	2066	25364	18627	24546	16753	46.8	2.14	2318	5738	7179	105487	10920	7.29	7.414
31	12	2148	2066	25383	18627	24546	16771	46.8	1.6	2320	5746	7179	105568	10920	787	731

10564

LEACHATE DAILY LOG #2

Month: February 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC HRS	D AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	8686206	9272790	54545	72	.1	2183	2455	125786	641321	245472	1571	27626	832	32584
2	12	8720142	9305374	54569	72	.1	2155	2456	"	643364	"	1548	27651	828	32588
3	12	8753777	9337970	54593	72	.1	2164	2457	"	"	"	1574	27677	832	32584
4	12	8786294	9370548	54617	72	.4	2151	2464	"	"	"	1546	27702	835	32584
5	12:00	8821568	9403132	54640	70.1	.8	2164	2464	125786	643364	245786	1551	27727	8.47	32584
6	12:00	8855184	9435714	54664	70.11	.8	21.80	2465	125786	643364	245891	1545	27753	8.11	32584
7	12:00	8889376	9468300	54688	69.8	0	2223	2471	125786	643364	245989	1574	27778	8.49	32584
8	12	8923364	9500884	54713	71	grow	2215	2472	"	"	246293	1572	27803	841	32584
9	12	8955318	9533466	54737	71	?	2249	2478	"	"	"	1615	27828	838	32584
10	12	8989694	9566050	54761	70	?	2255	2479	"	"	"	1600	27853	835	32588
11	12	9022202	9598636	54785	70	0.8	2263	2480	"	"	"	1540	27878	850	32584
12	12:00	9055952	9631244	54808	68.5	0.2	2218	2487	125786	643364	246293	1560	27903	8.53	32584
13	12:00	9091630	9663806	54832	68.7	.2	2227	2488	125786	643364	246293	1537	27929	8.50	32584
14	12:00	9123824	9696392	54856	68.9	.2	22.38	2489	125786	643364	246293	1540	27954	8.25	32586
15	12	9157734	9728974	54880	69	.1	2243	2496	"	"	"	1538	27980	825	32588
16	12	9191336	9761560	54904	69	0	2258	2502	"	"	"	1562	28005	841	32590
17	12	9224632	9794150	54928	69	.05	2258	2504	"	"	"	1545	28027	844	32584
18	12	9258468	9826734	54952	70	.07	2279	2510	"	"	"	1550	28055	839	32588
19	12:00	9290884	9859318	54975	68.7	.08	2312	2511	125786	643364	246293	1587	28080	8.32	32588
20	12:00	9324824	9891904	55000	69.1	.1	2261	2514	125786	646476	246293	1568	28106	8.39	32584
21	12	9358532	9924492	55024	70	0	2218	2517	"	649596	"	1533	28131	834	32580
22	12	9391204	9957072	55048	69	.2	2233	2524	"	"	"	1585	28157	836	32588
23	12	9425046	9989656	55072	69	0	2242	2530	"	"	"	1540	28182	836	32584
24	12	9456756	22242.8	55096	69	.3	2251	2531	"	"	"	1578	28207	831	32584
25	12	9490034	54825.9	55120	68	.0	2262	2532	"	"	"	1585	28233	835	32584
26	12:00	9525182	87411.0	55143	68.7	.0	2262	2538	125786	649596	246593	1540	28258	8.43	32584
27	12:00	9558888	119914	55167	69.3	0	22.76	2539	125786	649596	246690	1581	28283	8.37	32588
28	12	9593292	152580	55191	70	0	2280	2545	"	"	"	1552	28308	834	32584
29															
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LEACHATE DAILY LOG #1

Month: February 2019
Year:

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	GOZPH	MIUPH
1	12	2149	2068	25383	18647	24566	16771	46	1.9	2323	5753	7179	10564 7	10920	786	739
2	12	11	2071	25396	18652	24572	16784	47.1	1.7	2325	5760	|	10571 8	|	788	739
3	12	11	2072	25408	18660	24579	16797	11	1.5	2328	5768	|	10579 7	|	788	734
4	12	11	2074	11	18676	24594	11	11	1.1	2329	5773	|	10586 8	|	786	748
5	12:00	2149	2074	25423	18677	24597	16817	47.1	1.8	2331	5780	7179	10594 7	10920	7.88	7.43
6	12:00	2149	2078	25434	18688	24606	16822	47.1	1.55	2334	5786	7179	10601 8	10920	7.90	7.51
7	12:00	2149	2080	25437	18703	24622	16826	47.1	1.53	2336	5795	7179	10609 7	10920	7.87	7.41
8	12	11	2083	25459	18704	11	16846	11	2.6	2339	5803	|	10616 8	|	781	739
9	12	11	2085	11	18724	24640	16847	47.6	2.5	2342	5811	|	10624 7	|	787	739
10	12	11	2087	25475	18728	24655	16852	11	2.7	2344	5819	|	10631 8	|	786	741
11	12	2149	2088	25484	18739	24667	16859	11		2347	5828	|	10639 8	|	791	739
12	12:00	2153	2089	25490	18753	24669	16877	47.8	2.5	2349	5835	7179	10647 7	10920	7.93	7.37
13	12:00	2154	2089	25509	18753	24688	16877	47.8	2.07	2351	5841	7179	10654 8	10920	7.84	7.38
14	12:00	2157	2089	25509	18773	24693	16892	47.8	2.04	2353	5848	7179	10662 7	10920	7.91	7.45
15	12	2159	2089	25523	18778	24701	16902	11	1.9	2356	5855	|	10669 8	|	792	749
16	12	2161	11	25535	18787	24718	16905	11	1.3	2359	5863	|	10677 7	|	784	743
17	12	2164	11	25538	18804	24718	16923	11	1.9	2361	5871	|	10684 8	|	786	736
18	12	2166	11	25558	18804	24733	16927	11	2.6	2363	5875	|	10692 15	|	782	744 *
19	12:00	2169	2089	25560	18820	24743	16935	47.9	2.25	2345	5882	7179	10707 8	10920	7.85	7.40
20	12:00	2171	2089	25571	18829	24745	16952	47.9	1.89	2368	5888	7179	10715 7	10920	7.78	7.35
21	12	2173	11	25585	18836	24764	11	48.1	2	2370	5895	|	10722 8	|	781	739
22	12	11	2092	25586	18854	24768	16967	11	2.1	2372	5902	|	10730 7	|	785	742
23	12	11	2094	25606	11	24778	11	11	2.7	2375	5907	|	10737 8	|	781	741
24	12	11	2096	25610	18869	24793	16980	11	2.7	2377	5911	|	10745 7	|	787	741
25	12	11	2099	25620	18879	24793	17000	48.3	1.9	2379	5916	|	10752 8	|	782	743
26	12:00	2175	2101	25636	18885	24796	17017	48.3	1.5	2382	5922	7179	10760 8	10920	7.86	7.50
27	12:00	2173	2103	25636	18905	24808	17025	48.3	2.4	2384	5930	7179	10768 7	10920	7.66	7.40
28	12	2173	2106	25655	18905	24821	17031	11	2.6	2387	5936	7179	10775 8	10920	767	737
29																
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10783

* PUMP LEFT ON 20GPM "ACCIDENT"

LEACHATE DAILY LOG #2

Month: March
Year: 2019

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	9625194	185166	55215	70	0	2286	2552	125786	649596	246690	1565	28334	836	32584
2	12	9658918	217750	55239	70	0	2295	2553	"	"	246802	1562	28359	833	32584
3	12	9692333	250334	55263	70	0	2300	2584	"	"	"	1549	28384	829	32584
4	12	9724422	282919	55287	69	0	2309	2561	"	"	246875	1555	28410	833	32584
5	12:00	9758608	315504	55311	69.5	.0	2320	2562	125786	649596	246988	1597	28435	8.31	32588
6	12:00	9791806	348088	55335	67.1	.0	2192	2563	125786	652598	247061	1607	28460	8.36	32588
7	12:00	9824768	380677	55359	66.8	0	1945	2569	125786	662854	247236	1559	28485	8.33	32584
8	12	9857114	413264	55383	68	0	1970	2571	"	671152	"	1577	28511	839	32584
9	12	9891494	445847	55407	68	0	1883	2577	"	"	"	1564	28536	834	32584
10	12	9922288	478431	55431	68	0	1875	2578	"	676254	"	1547	28561	829	32588
11	12	9956170	511010	55454	67	.6	1699	2580	"	681262	247479	1578	28586	838	32584
12	12	9989246	543603	55478	68.9	1.8	1676	2587	125786	686752	247582	1605	28611	8.28	32584
13	12:00	23514.6	576185	55502	67.0		1675	2589	125786	686253	247582	1537	28636	8.38	32584
14	12:00	54856	608772	55526	67.1	.05	1689	2595	125786	686253	247582	1581	28652	8.35	32584
15	12	89561.5	641355	55550	68	0	1697	2596	"	"	"	1568	28687	834	32588
16	12	121727	673943	55574	68	0	1708	2597	"	"	"	1567	28712	840	32584
17	12	155208	706528	55598	68	0	1718	2603	"	"	"	1562	28737	827	32588
18	12	187433	739114	55622	67	.0	1728	2605	"	"	247869	1566	28763	829	32588
19	12:00	220848	771702	55646	66.8	.1	1740	2606	125784	686253	247998	1583	29420	8.31	32584
20	12:00	254455	804288	55670	67.1	0	1749	2612	125786	686253	248332	1571	29444	8.22	32584
21	12	286318	836872	55694	68	0	1648	2613	"	690368	248549	1531	28838	822	32584
22	12	319142	869457	55718	68	.2	1660	2619	"	"	254189	1580	28864	833	32584
23	12	352673	902041	55742	69	0	1669	2620	"	"	254396	1534	28889	819	32584
24	12	385203	934624	55766	69	0	1680	2621	"	"	"	1545	28914	823	32584
25	12	418413	967207	55790	69	.6	1692	2628	"	"	254476	1587	28940	822	32584
26	12:00	451322	999793	55814	67.5		1701	2628	125786	690368	254510	1558	28965	8.25	32584
27	12:00	484763	1032376	55838	67.2	.1	16.53	2635	125786	692526	254510	15.93	28990	8.25	32586
28	12	518097	1064961	55862	68	0	1660	2636	"	"	254806	1541	29016	825	32588
29	12	5509908	1097546	55886	68	0	1611	2642	"	694733	"	1532	29041	832	32588
30	12	584928	1130130	55910	68	0	1556	2643	"	696933	"	1558	29066	826	32590
31	12	618985	1162725	55934	68	0	1535	2644	125786	698078	125786	1574	29091	829	32584

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LEACHATE DAILY LOG #1

Month: March
Year: 2019

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	GB2PH	MHUPH
1	12	2173	2108	25661	18917	24821	17049	48.5	2.3	2389	5942	7179	10783	10920	773	739
2	12	11	2111	25667	18930	24838	17050	11	2.8	2392	5949		10790	8	782	738
3	12	2174	2112	25686	18931	24846	17061	11	2.5	2394	5956		10798	7	790	745
4	12	2176	11	11	18981	24881	17075	11		2396	5962		10805	8	790	739
5	12:00	2178	2112	25701	18955	24870	17075	49.1	1.95	2398	5968	7179	10815	10920	7.75	7.46
6	12:00	2180	2112	25711	18965	24871	17093	49.1	2.61	2401	5975	7179	10820	10920	7.76	7.38
7	1	2183	2112	25714	18980	24881	17100	49.1	2.55	2403	5981	7179	10828	10920	7.66	7.15
8	12	2186	11	25734	11	24896	17103	11	2.3	2405	5988		10836	7	777	754
9	12	2192	11	25737	18987	11	17122	49.3	1.9	2408	5994		10843	8	791	746
10	12	2195	11	25746	19006	24910	17125	11	2.1	2410	6002		10851	7	793	747
11	12	2196	11	25762	19010	24921	17133	11	1.8	2412	6008		10858	8	787	743
12	12	2196	2115	25762	19029	24922	17150	49.3	1.25	2414	6014	7179	10866	10920	7.90	7.47
13	12:00	2196	2117	25781	19031	24943	17156	49.3	2.20	2417	6020	7179	10873	10920	7.71	7.37
14	12:00	2196	2118	25787	19042	24946	17164	49.3	1.21	2419	6026	7179	10881	10920	7.81	7.42
15	12	11	2120	25794	19056	24955	17175	11	1.9	2422	6032		10888	8	787	750
16	12	11	2121	25812	19057	24972	17178	11	2.0	2424	6040		10896	7	789	758
17	12	11	2123	11	19078	11	17197	11	2.5	2427	6046		10903	8	791	756
18	12	11	2125	25828	19081	24987	17206	49.6		2429	6053		10911	8	786	746
19	12	2196	2127	25838	19092	24997	17210	49.6	1.39	2431	6061	7179	10919	10920	7.70	7.45
20	12:06	2196	2130	25843	19107	25001	17226	49.6	1.65	2434	6069	7179	10926	10920	7.00	7.24
21	12	11	2134	25862	11	25019	17226	49.8	2.5	2436	6077		10934	7	790	758
22	12	2197	2135	25863	19125	25022	17240	11	1.5	2438	6086		10941	8	796	772
23	12	2201	11	25876	19132	25031	17251	11	1.6	2440	6094		10949	8	792	756
24	12	2204	11	25888	19140	25047	17254	11	2.1	2443	6102		10957	7	787	753
25	12	2209	11	25891	19157	11	17274	50	1.2	2445	6111		10964	8	791	756
26	12	2214	2135	25911	19157	25065	17276	50	1.5	2448	6119	7179	10972	10920	7.89	7.51
27	12:00	2218	2135	25914	19175	25072	17283	50	1.50	2450	6127	7179	10920	10920	7.81	7.37
28	12	2220	2138	25926	19183	25079	17301	11	2.4	2453	6136		10987	7	789	758
29	12	11	2143	25939	19189	25097	11	11	2.3	2455	6144		10994	8	785	750
30	12	11	2148	25940	19208	11	17321	11	1.9	2457	6152		11002	8	783	752
31	12	2220	2150	25961	19208	25112	17326	50.3	2.2	2460	6161	7179	11010	10920	784	747
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LEACHATE DAILY LOG #2

Month: APRIL
Year: 2019

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P.	BLW A/B	E-PH	DAILY EFFLUENT
1	12	651840	1195311	55958	OFF	Ø	1526	2650	125786	698933	255313	1577	29117	825	32588
2	12	685503	1227896	55982	67.5		1541	2651	125786	698933	255313	1596	29142	8.27	32584
3	12	718147	1260487	56008	67.5	.1	1465	2658	127954	698933	255328	1569	29160	8.26	32584
4	12	751420	1293067	56030	68	.1	1232	2659	11	706237	11	1562	29193	829	32588
5	12	784977	1325652	56054	68	.3	1151	2666	11	711299	255969	1562	29218	826	32584
6	12	818351	1358239	56078	68	.3	1165	2667	11	11	11	1583	29243	816	32584
7	12	850894	1390823	56102	68	.1	1183	2668	11	11	11	1621	29269	821	32584
8	12	8844473	1423407	56126	68	.8	1205	2675	11	711356	256266	1580	29294	837	32584
9	12:00	917669	1455991	56150	1.8	Ø.2	1215	2676	127954	711356	256266	1565	29319	8.30	32588
10	12:00	953278	1488576	56174	69	0.2	1230	2677	127954	711356	256266	1551	29344	822	32588
11	12:00	986135	1521164	56198	66	0.6	1250	2684	127954	711356	256266	1590	29370	8.23	32588
12	12:00	1017177	1553753	56222	OFF	.2	1258	2685	127954	711356	256266	1555	29395	831	32588
13	12	1050229	1586341	56246	67	.3	1272	2691	11	11	11	1582	29420	824	32584
14	12	1084194	1618929	56270	67	.25	1284	2692	11	11	11	1566	29446	825	32588
15	12	1119275	1651514	56294	67	.4	1298	2694	11	11	11	1574	29471	829	32584
16	12	1153965	1684101	56318	66.4	.4	1313	2700	127954	711356	256266	1537	29492	8.22	32588
17	12:00	1187305	1716685	56343	66.0	.0	13.17	2701	127954	711356	256266	1549	29521	821	32588
18	12:00	1221126	1749274	56365	66.6	0	13.32	2705	127954	711356	256266	1583	30179	8.21	32584
19	12	1254400	1781861	56389	68	.5	1341	2709	11	11	11	1596	30237	817	32588
20	12	1288924	1814446	56413	68	0	1352	2715	11	11	11	1557	30263	818	32584
21	12	1323559	1847033	56438	68	0	1363	2717	11	11	11	1539	30288	820	32588
22	12	1359067	1879619	56452	68	0.4	1377	2718	11	11	11	1560	30313	821	32588
23	12:00	1391990	1912207	56485	67.6	0.2	1390	2719	127954	711356	256266	1570	30306	8.23	32584
24	12:00	1426096	1944794	56509	67.2	0	14.01	2725	127954	711356	256266	1562	30363	8.30	32584
25	12	1460387	1977379	56533	68	0	1411	2727	11	11	11	1583	30389	831	32586
26	12	1493966	2009962	56557	68	0	1420	2733	11	11	256769	1569	30414	821	32590
27	12	1529311	2042548	56581	68	0	1446	2734	11	11	11	1576	30440	826	32588
28	12	1563983	2075136	56605	68	0	1451	2736	11	11	11	1547	30465	826	32580
29	12	1599620	2107718	56629	68	0	1449	2743	11	11	11	1580	30490	820	32584
30	12:00	1634709	2140303	56653	66.9	0	1457	2744	127954	711356	256769	1565	30515	8.25	32584
31								2745							

LEACHATE DAILY LOG #1

Month: APRIL
Year: 2019

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	CO2PM	MTUPH
1	12	2220	2154	25964	19224	25122	17335	50.3	1.28	2461	6169	7179 8	11017	10920	788	760
2	12	2220	2156	25976	19233	25126	17351	50.5	1.30	2463	6178	7179 7	11025	10920	7.80	7.35
3	12	2222	2159	25989	19239	25145	17351	50.5	1.50	2466	4186	7179 8	11032	10920	7.75	7.35
4	12	2226	11	25990	19258	25147	17367	11	2.2	2468	6194		11040	8	785	745
5	12	2231	11	26011	11	25157	17376	11	1.1	2470	6202		11048	7	788	758
6	12	2237	11	26015	19274	25173	17380	50.7	1.2	2473	6211		11055	8	789	754
7	12	2243	11	26025	19284	11	17399	11	1.1	2475	6219		11063	7	789	758
8	12	11	2165	26040	19289	25191	17401	11	1.6	2478	6227		11070	8	787	745
9	12:00	2243	2169	26040	19309	25198	17414	50.7	2.30	2480	6236	7179	11078	10920	777	7.42
10	12:00	2243	2171	26061	19309	25205	17427	51.1	2.49	2482	6244	7179	11085 8	10920	7.78	7.43
11	12:00	2243	2174	26066	19324	25223	17428	51.1	2.26	2485	6252	7179	11093 8	10920	7.61	7.441
12	12:00	2243	2174	26074	19334	25223	17447	51.1	2.37	2487	4261	7179	11101 7	10920	7.79	7.28
13	12	2243	2178	26091	19337	25238	17452	11	2.6	2488	6269		11108 8		788	758
14	12	11	2180	11	19358	25248	17461	11	2.2	2490	6278		11116 7		788	756
15	12	2244	2182	26110	19360	25253	17477	11	2.0	2493	6286		11123 8		783	747
16	12	2247	2182	26116	19375	25273	17477	51.1	1.81	2495	6295	7179	11131 7	10920	7.75	7.40
17	12:00	2249	2182	26126	19385	25274	17497	51.1	1.98	2497	4303	7179	11138 8	10920	7.75	7.38
18	12:00	2252	2182	26141	19390	25286	17502	51.2	2.60	2500	6311	7179	11141 8	10925	7.60	742
19	12	2254	11	11	19410	25299	17512	11	2.1	2502	6320		7	10933	781	746
20	12	2257	11	26162	11	25303	17527	11	2.3	2505	6328		8	10940	783	750
21	12	2260	11	26167	19426	25323	11	51.3	1.9	2507	6336		7	10948	769	753
22	12	2262	11	26179	19435	25324	17547	11	1.65	2510	6345		8	10955	788	756
23	12:00	2265	2182	26192	19442	25338	17553	51.3	1.05	2512	6353	7179	11141 7	10963	7.80	740
24	12:00	2246	2183	26194	19461	25349	17562	51.4	1.15	2515	6362	7179	11141 8	10970	7.72	7.39
25	12	11	2187	26215	11	25354	17578	11	1.1	2517	6370		7	10978	789	752
26	12	11	2190	26217	19478	25373	11	11	.9	2520	6378		8	10985	785	755
27	12	11	2195	26231	19486	25374	17597	51.6	.9	2522	6387		8	10993	783	743
28	12	11	2198	26243	19495	25389	17603	11	1.1	2525	6395		7	11001	787	758
29	12	11	2202	26248	19511	25400	17613	11	1.4	2528	6404		8	11008	788	752
30	11:00	2266	2206	26268	19512	25406	17628	51.8	1.08	2530	6413	7179	11141 7	11016	7.80	7.38
31														11023		

LEACHATE DAILY LOG #2

Month: MAY 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1		1669110	2172887	56677	66.9	0	1467	2745	127954	711356	256769	1567	30540	8.35	32588
2	12	1703493	2205472	56701	67	0	1475	2752	"	"	256855	1565	30566	830	32584
3	12	1738553	2238059	56725	67	0	1481	2753	"	"	257022	1559	30591	836	32584
4	12	1773661	2270643	56749	67	0	1495	2758	"	"	257078	1581	30617	829	32588
5	12	1807814	2303228	56773	67	.0	1504	2760	"	"	"	1573	30642	823	32584
6	12:00	1842036	2335815	56797	66.6	.0	1513	2761	127954	711356	257191	1557	30667	8.25	32584
7	12:00	1876104	2368400	56821	66.7	.0	1518	2768	127954	711356	257285	1547	30693	8.15	32588
8	12:00	1911893	2400988	56845	66.8	.0	1528	2770	127954	711356	257393	1561	30717	8.33	32588
9	12:00	1946006	2433573	56869	66.6	.0	1538	2777	127954	711356	257393	1576	30743	8.13	32588
10	12:00	1980143	2466162	56894	66.9	.0	1547	2779	127954	711356	257506	1576	30769	8.10	32584
11	12:00	2013291	2498747	56917	67.1	.0	1557	2785	127954	711356	257654	1570	30793	7.98	32584
12	12:00	2048251	2531332	56941	66.9	.0	1573	2786	127954	711356	257754	1561	30819	8.00	32588
13	12:00	2082566	2563917	56965	66.7	.0	1584	2789	127954	711356	257859	1567	30844	8.10	32584
14	12:00	2118376	2596504	56989	67.1	.2	1597	2789	127954	711356	257944	1552	30869	8.12	32584
15	12:00	2152021	2629089	57013	67.0	.1	1591	2796	127954	711356	258040	1590	30888	8.12	32584
16	12	2184849	2661671	57037	67	.2	1601	2797	"	"	258069	1584	30920	818	32588
17	12	2220546	2694257	57061	68	.05	1612	2803	"	"	"	1562	30946	816	32584
18	12	2252921	2726844	57085	68	0	1623	2805	"	"	259177	1578	30971	818	32584
19	12	2287711	2759428	57109	69	.1	1627	2806	"	"	"	1559	30996	810	32584
20	12	2321997	2792012	57133	68	.1	1632	2812	"	"	259476	1572	31022	814	32584
21		2356733	2824597	57157	67.6	.0	1634	2813	127954	711356	259698	1563	31047	8.14	32588
22		2391585	2857183	57181	67.7	0	1647	2821	127954	711356	259829	1553	31072	8.00	32588
23	12	2425704	2889770	57205	68	0	1659	2822	"	"	259955	1555	31097	798	32584
24	12	2459328	2922358	57229	68	0	1670	2823	"	"	"	1563	31123	803	32584
25	12	2493147	2954942	57253	68	0	1678	2829	"	"	260380	1570	31148	821	32584
26	12	2527790	2987530	57277	68	.3	1686	2830	"	"	"	1573	31173	821	32584
27	12	2561899	3020110	57301	67.4	.0	1693	2832	"	"	260579	1561	31199	804	32581
28	12	2595769	3052694	57325	67.3	.0	1699	2838	127954	711356	260578	1562	31224	8.07	32588
29	12	2630036	3085279	57349	67.2	.0	1705	2839	127954	711356	260579	1569	31249	8.15	32584
30	12	2663734	3117865	57373	67.1	0	1712	2846	127954	711356	260579	1565	31274	8.05	32588
31	12	2698054	3150451	57397	68	0	1720	2847	127954	711356	260579	1545	31300	792	32588

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LEACHATE DAILY LOG #1

Month: MAY 2019

Year:

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	CO2 PH	MTU PH
1		2270	2206	26268	19533	25425	17629	51.8	6.66	2533	6421	7179	11141 8	11623	7.82	757
2	12	2275	11	26285	19536	25425	17650	11	1.6	2535	6430		8	11031	785	755
3	12	2279	11	26293	19549	25442	17653	52	1.8	2538	6438		7	11039	793	763
4	12	2285	11	26302	19562	25450	17665	11	1.3	2540	6447		8	11046	787	754
5	12	2290	2207	26318	19566	25457	17679	11	1.3	2543	6455		7	11054	787	753
6	12:00	2290	2213	26318	19587	25475	17680	52.2	1.11	2545	6464	7179	11141 8	11061	780	740
7	12:00	2290	2218	26339	19587	25475	17700	52.2	0.52	2548	6472	7179	11141 7	11069	7.76	743
8	12:00	2290	2224	26344	19603	25499	17709	52.2	0.60	2551	6486	7179	11141 8	11076	7.81	7.43
9	12:00	2290	2229	26355	19612	25500	17715	52.4	0.41	2553	6493	7183	11141 8	11084	7.81	7.42
10	12:00	2294	2229	26369	19619	25506	17729	52.4	0.40	2556	6493	7188	11141 7	11092	7.81	7.37
11	12:00	2297	2229	26371	19637	25525	17729	52.4	0.36	2558	6493	7192	11141 8	11099	7.81	7.38
12	12:00	2299	2299	26392	19637	25525	17750	52.6	0.52	2560	6493	7197	11141 7	11107	7.80	7.44
13	12:00	2302	2229	26394	19656	25541	17754	52.6	0.44	2563	6493	7201	11141 8	11114	7.81	7.43
14	12:00	2304	2229	26409	19663	25550	17765	52.6	0.41	2566	6493	7206	11141 7	11122	7.76	7.37
15	12:00	2307	2229	26419	19673	25557	17779	52.8	0.69	2568	6493	7210	11141 8	11129		
16	12	2309	11	26424	19688	25575	11	11	1.9	2571		7215	7	11137	785	758
17	12	2312	11	26445	16989	11	17800	11	.9	2573		7219	8	11144	787	738
18	12	2313	2230	11	19708	25591	17804	53	.7	2576		7224	8	11152	788	760
19	12	11	2232	26461	19713	25600	17814	11	.6	2578		7228	7	11160	790	752
20	12	11	2234	26470	19725	25605	17829	11	.5	2581		7232	8	11167	780	759
21		2313	2236	26477	19738	25625	17829	53.1	0.48	2583	6493	7237	11141 7	11175	7.74	7.35
22		2313	2239	26495	19741	25626	17849	53.1	0.46	2586	6493	7241	11141 8	11182	7.73	7.41
23	12	11	2241	11	19762	25640	17854	11	.46	2588		7246	11141 7	11190	789	749
24	12	11	2243	26514	19764	25651	17864	53.2	.91	2591		7250	8	11197	787	756
25	12	11	2245	26520	19777	25655	17879	11	.87	2593		7255	7	11205	784	759
26	12	11	2247	26530	19789	25675	11	11	.8	2596		7259	8	11212	785	747
27	12	11	2249	26546	19793	25676	17898	53.5	.75	2597		7264	7	11220	787	754
28	12	2313	2252	26546	19814	25689	17905	53.5	0.54	2599	6493	7268	11141 8	11227	7.81	7.38
29	12	2316	2252	26566	19814	25701	17913	53.5	0.59	2602	6493	7273	11141 8	11235	7.78	7.41
30	12	2318	2252	26571	19830	25705	17930	53.7	0.52	2605	6493	7277	11141 7	11243	7.78	7.35
31		2320	2252	26582	19839	25723	17930	53.7		2607	6493	7282	11141 8	11250	788	743

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LEACHATE DAILY LOG #2

Month: JUNE 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P.	BLW A/B	E-PH	DAILY EFFLUENT
1	12	2732013	3183038	57421	68	0	1726	2849	127954	711356	260579	1563	31325	794	32584
2	12	2766231	3215622	57445	68	0	1733	2856	"	"	"	1569	31350	801	32584
3	12	2799336	3248206	57469	68	.0	1740	2857	"	"	"	1546	21376	800	32588
4	12:00	2833765	3280792	57493	66.8	.0	1750	2858	127954	711356	261009	1567	31401	8.11	32584
5	12:00	2866148	3313379	57517	67.0	.0	1755	2864	127954	711356	241115	1585	31426	8.05	28620
6	12:00	2896585	3342023	57541	67.2	.3	1763	2866	127954	711356	261115	1583	31452	8.05	32586
7	12	2930222	3374586	57565	68	.5	1770	2872	"	"	"	1572	31477	816	32590
8	12	2964300	3407171	57589	68	.05	1783	2873	"	"	"	1549	31502	811	32584
9	12	2997683	3439759	57613	68	0	1795	2875	"	"	"	1563	31528	804	32584
10	12	3032268	3472343	57637	68	.0	1800	2881	"	"	"	1572	31553	805	32584
11	12:00	3066790	3504925	57661	67.8	.0	1808	2882	127954	711356	261115	1577	31578	7.95	32588
12		3097816	3537512	57685	OFF	0	18.30	7394	127954	711356	261115	18.85	21578	7.88	32580
13	12	3133453	3570095	57709	68	0	1824	2890	"	"	"	1554	29544	752	32584
14	12	3167466	3602679	57733	68	0	1837	2891	"	"	261600	1547	29570	786	32584
15	12	3201529	3635263	57757	68	0	1840	2892	"	"	"	1574	29595	783	32584
16	12	3235434	3667846	57781	68	0	1848	2899	"	"	"	1577	29620	770	32584
17	12	3269418	3700430	57805	68	.0	1826	2901	"	"	"	1561	29645	769	32588
18		3302933	3733014	57829	OFF	.0	1851	2908	127954	711356	261600	15.58	29671	7.87	32584
19		3336019	3765603	57851	66.7	0	18.49	2969	127954	711356	261600	15.64	30619	7.94	32584
20	12	3370093	3798186	57875	67	0	1855	2915	"	"	"	1595	29721	802	32584
21	12	3403800	3830770	57899	67	0	1853	2917	"	"	261930	1564	29747	8	32584
22	12	3438822	3863355	57925	67	0	1857	2924	"	"	"	1559	29772	789	32584
23	12	3472996	3895939	57949	67	0	1862	2926	"	"	"	1574	29797	790	32584
24	12	3507035	3928523	57973	67	0	1870	2928	"	"	"	1589	29822	793	32584
25	12	3540534	3961108	57997	67	0	1877	2929	"	"	"	1578	29848	785	32584
26	12	3574788	3993691	58021	67	.1	1885	2936	"	"	262342	1570	29873	788	32584
27	12	3610469	4026277	58045	67	0	1891	2938	"	"	"	1564	29898	787	32584
28	12	3644643	4058864	58069	67	0	1904	2939	"	"	"	1571	29924	793	32584
29	12	3677451	4091447	58093	off	0	1730	2944	"	719271	"	1567	29949	791	32584
30	12	3711439	4124032	58117	67	0	1685	2946	127954	721154	262342	1565	29974	777	32
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LEACHATE DAILY LOG #1

Month: JUNE 2019

Year: _____

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	CO2 PH	MTU PH
1	12	2323	2252	26596	19846	25726	17947	53.7	1.1	2610	6493	7287	11141	11258	783	751
2	12	2325	11	26598	19865	25737	17955	53.9	.8	2612	|	7291	|	11265	785	744
3	12	2328	11	26618	11	25751	17960	11	.78	2615	|	7296	|	11273	788	747
4	12:00	2330	2252	26621	19882	25752	17980	53.9	0.57	2617	6493	7300	11141	11280	7.803	7.40
5	12:00	2332	2252	26633	19890	25770	17980	54.0	0.64	2619	6493	7304	11141	11288	7.76	7.31
6	12:00	2335	2252	26647	19894	25776	17991	54.0	0.68	2622	6493	7308	11141	11294	7.80	7.38
7	12	2336	2253	11	19914	25783	18005	54	.53	2624	|	7313	|	11302	787	753
8	12	11	2255	26666	19915	25801	18006	54.3	.69	2627	|	7317	|	11310	788	753
9	12	11	2257	26672	19930	11	18025	11	.58	2629	|	7322	|	11317	787	750
10	12	11	2259	26682	19940	25816	18030	11	.62	2631	|	7327	|	11325	787	751
11	12:00	2336	2261	26697	19946	25826	18039	54.7	0.52	2634	6493	7331	11141	11332	7.81	7.43
12		2336	2263	26697	19965	25828	18055	54.7	0.55	2634	6493	7335	11141	11340	7.82	7.42
13	12	2336	2265	26718	19966	25849	18055	55	.48	2637	6498	11	11146	11342	782	738
14	12	11	2268	26723	19981	25851	18072	55.3	.51	2640	6506	|	11153	|	782	747
15	12	11	2270	26734	19991	25864	18080	11	.62	2642	6515	|	11161	|	785	755
16	12	11	2272	26748	19997	25876	18087	11	.69	2645	6523	|	11168	|	784	752
17	12	11	2275	26749	20016	25879	18105	11		2647	6531	|	11176	|	783	751
18		2339	2275	26770	20016	25899	18105	55.5	1.39	2648	6540	7335	11184	11342	7.80	7.41
19		2341	2275	26773	20032	25902	18122	55.5	0.55	2649	6548	7335	11191	11342	7.82	7.39
20	12	2343	11	26785	20041	25913	18130	11	.66	2652	6556	|	11199	|	783	751
21	12	2346	11	26799	20048	25927	18136	11	.61	2654	6565	|	11206	|	786	752
22	12	2347	11	26801	20067	25928	18156	11	.58	2657	6573	|	11214	|	785	757
23	12	2350	11	26822	20067	25948	11	11	.63	2659	6582	|	11221	|	788	741
24	12	2352	11	26824	20085	25952	18171	11	.55	2662	6590	|	11229	|	787	749
25	12	2355	11	26837	20092	25962	18181	11	.77	2664	6598	|	11237	|	783	741
26	12	2357	11	26849	20101	25977	18185	55.9	.81	2667	6607	|	11244	|	785	752
27	12	2360	11	26854	20117	25978	18206	11	.77	2669	6616	|	11252	|	784	737
28	12	11	2277	26874	20118	25997	11	11	.88	2672	6624	|	11259	|	789	752
29	12	11	2279	11	20138	26002	18218	11	1.02	2674	6633	|	11267	|	784	746
30	12	2360	2284	26890	20143	26016	18231	55.9		2676	6641	7335	11274	11342	783	740
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LEACHATE DAILY LOG #2

Month: JULY 2019
Year:

721154 on 6/30/19

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P.	BLW A/B	E-PH	DAILY EFFLUENT
1	12	3745494	4156614	58141	67	.0	1580	2947	127954	725879	262342	1569	30000	769	32594
2	12:00	3779043	4189199	58165	OFF	0.8	1645	2953	127954	72879	262342	1575	30951	7.81	32584
3	12:00	3813306	4221763	58189	OFF	0.2	1659	2954	127954	725879	262342	1570	30964	7.82	32584
4	12:00	3847605	4254368	58213	67.5	0	1606	2960	127954	725879	262342	1571	31008	7.77	32584
5	12	3881619	4286952	58237	68	0	1682	2961	"	"	"	1571	30101	776	32588
6	12	3915020	4319538	58261	68	0	1458	2963	"	733819	"	1568	30126	790	32584
7	12	3949252	4352124	58285	68	0	1478	2965	"	"	"	1575	30151	770	32584
8	12	3982861	4384708	58309	67	.0	1513	2972	"	"	"	1576	30177	770	32584
9	12:00	4015165	4417293	58333	67.3	.08	1519	2973	127954	733819	262342	1581	30202	778	32584
10		4048228	4449971	58357	OFF	.2	1529	2981	127954	733819	262342	1569	31160	765	32584
11	12	4081565	4482460	58381	67	0	1532	2984	"	"	"	1563	30283	764	32584
12	12	4115512	4515044	58405	68	0	1566	2986	"	"	"	1583	30278	764	32584
13	12	4149521	4547627	58429	68	0	1575	2991	"	"	"	1566	30303	755	32584
14	12	4184229	4580213	58453	67	0	1600	2993	"	"	"	1566	30328	784	32584
15	12	4216641	4612796	58477	67	0.0	1594	2995	"	"	"	1576	30354	747	32584
16	12:00	4252248	4645381	58501	66.8	0.2	16.46	2996	127954	733819	262342	15.77	31312	7.57	32584
17		4284938	4677965	58525	67.0	.1	16.53	3003	127954	733819	262342	15.75	31337	7.54	32584
18	12	4317170	4710549	58549	67	.45	1685	3009	"	"	"	1545	30430	762	32584
19	12	4351306	4743132	58573	67	0	1659	3010	"	"	"	1560	30455	764	32584
20	12	4386017	4775717	58597	68	0	1639	3019	"	"	"	1572	30480	763	32588
21	12	4420717	4808302	58621	68	0	1657	3020	"	"	"	1574	30506	750	32584
22	12	4453947	4840890	58645	68	.0	1636	3022	"	"	262858	1556	30531	732	32584
23	12:00	4488924	4873472	58669	67.6	.0	16.38	3030	127954	733819	262858	1565	30556	7.54	32588
24	2:00	4521912	4906058	58693	67.5	.0	16.58	3032	127954	733819	262858	15.43	30581	7.72	32584
25	12:00	4555658	4938645	58717	67.5	0	16.38	3039	127954	733819	262858	15.75	30607	7.81	32584
26	12	4591468	4971229	58741	68	.0	16.45	3040	"	"	263093	15.75	30632	741	32584
27	12	4623348	5003812	58765	68	0	1644	3047	"	"	263282	1557	30657	739	32584
28	12	4658550	5036398	58789	67	0	1687	3052	"	"	263450	1572	30683	733	32588
29	12	4691492	5068983	58813	68	.0	1691	3054	"	"	"	1570	30708	732	32588
30		4727444	5101570	58837	67.5	.0	17.01	3060	127954	733819	263657	15.68	30733	7.54	32586
31		4761134	5134155	58860	67.5	.9	16.95	3062	127954	733819	263657	15.77	30741	7.35	32584
		Totals For month				2.93		3069	0	12665					

LEACHATE DAILY LOG #1

Month: JULY 2019

Year: _____

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	GD2 PH	GD1 PH
1	12	2360	2287	26900	20153	26027	18232	55.9	.66	2678	6650	7335	112828	11342	785	752
2	12:00	2360	2291	26906	20168	26027	18252	55.9	0.53	2680	6658	7335	112907	11342	7.77	7.40
3	12:00	2360	2292	26925	20169	26043	18256	55.9	0.54	21,82	6666	7335	112978	11342	7.75	7.40
4	12:00	2360	2294	26905	20190	26052	18267	56	0.48	2684	6675	7335	113057	11342	7.75	7.42
5	12	11	2299	26942	20193	26058	18281	11	.61	2687	6684		11312	8	773	749
6	12	2364	11	26950	20205	26075	18281	11	.76	2689	6692		11320	7	785	754
7	12	2368	11	26955	20218	26077	18298	56.3	.62	2691	6700		11327	8	783	747
8	12	2370	11	26976	20221	26089	18306	11	.57	2693	6709		11335	7	781	742
9	12:00	2373	2299	26976	20240	26102	18312	56.3	0.56	2696	6717	7335	11342	81342	7.66	7.38
10		2375	2299	26992	20244	26102	18331	56.3	0.58	2698	6725	7335	11350	81342	7.75	7.41
11	12	2378	11	27001	20255	26122	11	11	.61	2700	6734		11358	7	784	745
12	12	2382	11	27008	20269	26127	18346	11	.77	2702	6742		11365	8	786	731
13	12	2383	2300	27026	20271	26136	18356	56.6	.63	2704	6750		11373	7	785	743
14	12	11	2302	11	20292	26152	18360	57	.58	2707	6759		11380	8	787	750
15	12	11	2303	27043	20294	11	18378	11	.56	2709	6767		11388	7	784	740
16	12:00	2383	2306	27051	20308	26119	18381	57.0	.45	2711	6776	7335	113958	11342	7.72	7.45
17		2383	2308	27057	20319	26127	18392	57.1	.61	2714	6784	7335	11403	11342	7.82	7.24
18	12	11	2310	27077	20322	26183	18407	11	.41	2717	6792		11410	8	788	755
19	12	11	2312	11	20342	26202	11	11	.55	2719	6801		11418	8	787	739
20	12	11	2314	27095	20345	11	18426	57.3	.51	2722	6810		11426	7	783	745
21	12	11	2316	27102	20359	26216	18432	11	.62	2724	6818		11433	8	786	750
22	12	11	2318	27111	20370	26227	18439	11	.56	2726	6827		11441	7	786	751
23	12:00	2383	2321	27127	20375	26230	18457	57.3	0.48	2729	6836	7335	114488	11342	7.81	7.411
24	12:00	2384	2322	27127	20395	26250	18457	57.3	0.59	2731	6844	7335	114568	11342	7.80	7.42
25	12:00	2387	2322	27148	20395	26253	18474	57.3	0.54	2734	6853	7335	11464	11342	7.81	7.412
26	12	2391	11	27153	20411	26264	18482	57.6	.51	2736	6861		11471	8	781	746
27	12	2396	11	27163	20421	26277	18486	11	.60	2739	6869		11479	7	791	725
28	12	2400	11	27178	20427	11	18507	11	.52	2741	6883		11486	8	782	741
29	12	2402	11	27179	20446	26296	18507	57.7	.59	2744	6891		11494	7	788	766
30	12	2405	2322	27200	20446	26303	18521	57.7	0.46	2746	6900	7335	11501	11342	7.82	7.29
31	12	2406	2322	27203	20463	26311	18532	57.7	0.53	2749	6909	7335	11504	11342	7.79	7.41

LEACHATE DAILY LOG #2

Month: August 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12:00	4794338	5166742	58884	67.4	.0	17.02	3069	127954	733819	263750	15.68	31650	7.34	32584
2	12:00	4829090	5199327	58908	67.7	.2	17.16	3073	127954	733819	263849	15.49	31682	7.32	32584
3	12:00	4862456	5231911	58932	67.3	.0	17.19	3080	127954	733819	263934	15.74	31741	7.35	32584
4	12:00	4897442	5264494	58955	67.4	.0	17.20	3082	127954	733819	264034	15.77	31732	7.41	32584
5	12:00	4931635	5297076	58979	67.2	.0	17.24	3083	127954	733819	264169	15.62	31757	7.27	32584
6	12:00	4965874	5329661	59003	67.4	.0	17.48	3090	127954	733819	264724	15.69	31783	7.20	32584
7	12:00	4998540	5362247	59027	67.0	.0	17.54	3093	127954	733819	264724	15.74	31808	7.39	32584
8	12:00	5032469	5394831	59051	67.5	.0	17.70	3099	127954	733819	265226	15.75	31827	7.28	28524
9	12:00	5062843	5422647	59074	67.3	.0	17.61	3100	127954	733819	265226	15.74	31859	7.27	32584
10	12:00	5096674	5455940	59098	67.5	.2	17.81	3106	127954	733819	265226	15.56	31884	7.27	32584
11	12:00	5130464	5488524	59122	67.5	.0	17.81	3107	127954	733819	265226	15.56	31903	7.34	32584
12	12:00	5166681	5521109	59146	67.5	.0	17.88	3109	127954	733819	265226	15.71	31955	7.31	32584
13	12:0	5198293	5553692	59170	67.4	.0	18.20	3115	127954	733819	265226	15.82	31960	7.31	32584
14		5233250	5586278	59193	67.5	0	18.22	3119	127954	733819	265226	15.68	31985	7.31	32584
15	12	5266817	5618859	59217	68	0	1830	3125	11	11	11	1556	32011	705	32584
16	12	5301101	5651446	59241	67	0	1825	3126	11	11	11	1569	32036	708	32584
17	12	5335520	5684029	59265	67	0	1834	3132	11	11	11	1583	32061	721	32584
18	12	5369801	5716614	59289	67	0	1839	3133	11	11	11	1586	32086	709	32588
19	12	5404276	5749198	59313	67	.0	1857	3139	11	11	11	1558	32112	721	32584
20	12:00	5438272	5781784	59336	66.7	.0	1858	3145	127954	733819	265226	1560	32137	7.24	32584
21	12:00	5472543	5814369	59360	67.0	.4	18.53	3141	127954	733814	265226	1595	32163	7.25	32584
22	12:00	5509162	5846954	59384	67.0	.0	18.35	3154	127954	733819	265226	15.61	32187	7.20	32584
23	12:00	5541849	5879536	59408	67.0	.0	18.42	3155	127954	733819	265226	15.78	32197	7.32	32584
24	12:00	5575470	5912122	59432	OFF	.0	18.50	3156	127954	733819	265226	15.80	32238	7.25	32584
25	12:00	5610432	5944706	59455	67.2	.0	17.99	3161	127954	737153	265226	15.47	32263	7.24	32584
26	12:00	5643666	5977289	59479	67.0	.0	18.05	3162	127954	737153	265226	15.55	32289	727	32584
27	12:00	5677646	6009875	59503	67.2	.0	18.07	3163	127954	737153	265226	15.75	32314	7.52	32584
28	12:00	5710863	6042450	59527	67.2	.0	17.98	3169	127954	737153	265226	15.83	32339	7.28	32584
29		5745311	6075043	59551	67.1	.05	18.01	3171	127954	737153	265226	15.58	32365	7.16	32584
30	12	5779534	6107630	59575	67	0	1804	3177	11	11	11	1572	32390	711	32588
31	12	5813352	6140215	59599	67	0	1813	3178	127954	737153	265226	1590	32415	697	32586
		Totals for Month				0.85		3179	0	3334					

LEACHATE DAILY LOG #1

Month: August 2019
Year: _____

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/S/P	D/O2	D/S/P	P-4A	P-4B	P-5A	P-5B	[illegible]	[illegible]
1	12	2406	2333	27216	20471	26328	18534	57.9	0.66	2751	6917	7335	11504	11355	7.81	7.33
2	12	2406	2325	27228	20479	26328	18552	57.9	0.62	2753	6925	7335	11504	11362	7.84	7.40
3	12	2406	2327	27232	20496	26343	18557	57.9	0.71	2755	6934	7335	11504	11370	7.77	7.36
4	12	2406	2329	27253	20496	26353	18566	58.1	0.73	2758	6942	7335	11504	11377	7.78	7.38
5	12:00	2406	2331	27254	20516	26357	18582	58.1	0.61	2760	6951	7335	11504	11385	7.75	7.22
6	12:00	2406	2333	27269	20522	26377	18582	58.1	0.57	2763	6959	7335	11504	11392	7.81	7.42
7	12:00	2406	2335	27279	20531	26378	18600	58.3	0.53	2765	6967	7335	11504	11400	7.77	7.28
8	12:00	2406	2337	27284	20547	26390	18607	58.3	0.54	2768	6975	7335	11504	11406	7.72	7.44
9	12:00	2406	2339	27302	20547	26403	18612	58.3	0.78	2770	6983	7335	11504	11414	7.73	7.23
10	12:00	2406	2341	27304	20555	26403	18631	59.9	0.60	2773	6991	7335	11504	11422	7.75	7.25
11	12:00	2406	2343	27318	20572	26421	18632	59.9	0.59	2775	7000	7335	11504	11429	7.82	7.39
12	12:00	2407	2345	27330	20582	26428	18616	59.9	0.51	2777	7009	7335	11504	11437	7.78	7.45
13	12:00	2409	2345	27333	20597	26433	18657	59.9	0.62	2779	7017	7335	11504	11444	8.09	7.24
14	12:00	2411	2345	27354	20597	26451	18657	59.9	0.56	2782	7025	7335	11504	11452	8.10	7.47
15	12	2413	2345	27355	20617	26452	18674	"	.61	2784	7034	"	"	11459	803	758
16	12	2415	"	27370	20623	26462	18682	60.1	.64	2786	7042	"	"	11467	8	754
17	12	2417	"	27380	20633	26477	18685	"	.66	2788	7051	"	"	11475	801	746
18	12	2419	"	27385	20648	"	18704	"	.61	2791	7059	"	"	11482	808	760
19	12	2422	"	27405	20649	26493	18707	60.4	.71	2793	7068	"	"	11490	785	754
20	12:00	2424	2345	27405	20670	26502	18716	60.4	0.58	2795	7076	7335	11504	11497	7.82	7.28
21	12:00	2426	2345	27423	20673	26505	18734	60.4	0.55	2797	7084	7335	11504	11505	7.83	7.40
22	12:00	2429	2345	27431	20687	26524	18731	60.8	0.51	2799	7093	7335	11504	11513	7.82	7.34
23	12:00	2430	2345	27438	20699	26527	18746	60.8	0.69	2802	7101	7335	11504	11520	7.84	7.38
24	12:00	2430	2347	27456	20701	26535	18756	60.8	0.59	2804	7110	7335	11504	11528	7.81	7.32
25		2430	2350	27456	20722	26552	18758	60.9	0.47	2805	7118	7335	11504	11535	7.86	7.29
26		2430	2354	27474	20724	26552	18777	60.9	0.36	2808	7127	7335	11504	11543	7.82	7.35
27		2430	2357	27481	20738	26566	18781	60.9	0.46	2810	7135	7335	11504	11550	7.79	7.44
28		2430	2359	27490	20749	26576	18790	61.2	0.59	2812	7144	7335	11504	11558	8.02	7.41
29		2430	2361	27506	20753	26580	18806	61.2	0.61	2814	7152	7335	11504	11566	7.80	7.44
30	12	2430	2364	27506	20774	26598	18806	"	.91	2817	7161	"	"	11573	804	760
31	12	2430	2366	27526	20775	26601	18822	61.4	.88	2819	7169	7335	11504	11581	8	752

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LEACHATE DAILY LOG #2

Month: SEPTEMBER 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC-HRS	D-AP	RAIN	L81VL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	5847628	6172802	59622	67	0	1818	3179	127954	737153	265226	1580	32441	694	32590
2	12	5882263	6205388	59646	67	.0	1821	3180	"	"	"	1569	32466	699	32584
3	12	5915938	6237975	59669	67.2	.0	1837	3186	127954	737153	265226	15.77	22491	7.29	32584
4	12	5950059	6270559	59693	67.2	0	1840	3188	127954	737153	265226	15.75	32516	7.07	32584
5	12	5982729	6303142	59717	67	0	1845	3194	"	"	"	1581	32542	706	32584
6	12	6017181	6335727	59743	67	0	1854	3195	"	"	"	1564	32567	694	32588
7	12	6051599	6368312	59767	67	.2	1861	3197	"	"	"	1570	32592	7	32584
8	12	6085981	6400899	59791	67	0	1875	3198	"	"	"	1582	32618	709	32584
9	12	6119565	6433483	59815	67	.2	1878	3205	"	"	"	1587	32643	715	32583
10	12	6152702	6466060	59836	67.0	.0	1880	3206	127954	737153	265226	1588	32668	714	32584
11	12	6186567	6498656	59860	67.1	0	1883	3212	127954	737153	265226	1561	32694	7.23	32584
12	12	6220512	6531239	59884	67	.4	1894	3213	"	"	"	1571	32719	720	32584
13	12	6254134	6563824	59908	67	.0	1896	3219	"	"	"	1565	32744	714	32584
14	12	6289310	6596407	59932	67.0	.4	1895	3220	127954	737153	265226	1587	32763	7.16	30930
15	12	6321102	6627369	59956	67.5	1.0	1894	3221	127954	737153	265226	1595	32792	7.17	32584
16	12	6353705	6659965	59980	66.7	0.6	1897	3229	127954	737153	265226	16.05	32814	7.16	32589
17	12	6388855	6692549	60004	66.7	0.4	19.00	3230	127954	737153	265226	1619	32837	7.31	32584
18	12	6421895	6725132	60028	67.2	1.2	1905	3236	127954	737153	265226	1625	32853	7.21	32584
19	12	6455416	6757718	60052	67.2	.0	19.07	3237	127954	737153	265226	1569	32882	7.26	32583
20	12	6489549	6790302	60076	66.8	.2	19.51	3244	127954	737153	265226	15.79	32904	7.23	32594
21	12	6522610	6822888	60100	70.9	.0	1958	3245	127954	737153	265226	15.90	32927	7.21	32584
22	12	6556489	6855474	60124	70.6	.0	1960	3251	127954	737153	265226	1595	32943	7.07	32584
23	12	6591734	6888057	60148	61.2	.2	1967	3253	127954	737153	265226	1592	32971	7.21	32584
24	12	6623170	6920640	60172	OFF	.2	2024	3254	127954	737153	265226	15.74	32994	7.09	32584
25	12	6656968	6953226	60195	OFF	.0	2038	3259	127954	737153	265226	15.79	33016	7.14	32584
26	12	6689775	6985810	60220	64.1	.3	2037	3261	127954	737153	265226	1600	33039	6.97	32584
27	12	6723980	7018394	60244	64	.2	2095	3269	"	"	265226	1576	33062	691	32584
28	12	6757720	7050976	60268	64	.1	2028	3270	"	"	"	1598	33084	712	32584
29	12	6791880	7083561	60292	64	.0	2068	3278	"	"	"	1588	33107	710	32584
30	12	6824593	7111101	60316	64.8	.0	2026	3280	127954	737153	265226	1567	33129	7.06	32584
31	12							3280							
			Totals For Month			7.2			0	0					

LEACHATE DAILY LOG #1

Month: SEPTEMBER 2019
Year:

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/O2	O/SL/P	P-4A	P-4B	P-5A	P-5B	[illegible]	[illegible]
1	12	2430	2368	27532	20790	26611	18831	61.4	.91	2822	7177	7335	11504	11588	8794	754
2	12	2431	11	27543	20800	26626	18835	11	.77	2824	7186	7335	11504	11596	7801	760
3		2433	2368	27557	20806	26626	18854	61.6	0.57	2826	7194	7335	11504	11603	7.98	7.39
4		2435	2368	27558	20825	26643	18856	61.6	0.59	2829	7203	7335	11504	11611	7.82	7.45
5	12	2438	11	27578	11	26651	18866	11	.78	2831	7211	|	|	11618	8789	758
6	12	2439	11	27582	20842	26656	18881	61.8	.71	2834	7219	|	|	11626	8786	726
7	12	2441	11	27594	20851	26675	11	11	.82	2836	7228	|	|	11634	7783	748
8	12	2443	11	27608	20858	26676	18899	11	.67	2838	7236	|	|	11641	8783	747
9	12	2445	11	27610	20876	26688	18906	62	.98	2841	7245	|	|	11649	7787	750
10	12	2447	2368	27630	20886	26701	18911	62	0.84	2843	7253	7335	11504	11656	7.70	7.33
11	12	2449	2368	27633	20894	26701	18930	62.0	0.94	2846	7261	7335	11504	11664	7.82	7.42
12	12	2452	11	27646	20901	26719	18931	62.1	.79	2852	7270	11	11	11671	787	755
13	12	2453	2369	27658	20909	26726	18942	11	.82	2854	7278	11	11	11679	790	755
14	12:00	2452	2371	27662	20926	26731	18956	62.1	0.90	2856	7287	7335	11504	11687	7.83	7.44
15	12:00	2453	2373	27681	20926	26748	18956	62.2	0.95	2869	7295	7335	11504	11694	7.74	7.44
16	12:00	2453	2375	27683	20944	26751	18965	62.2	0.94	2870	7303	7335	11504	11781	7.73	7.43
17	12:00	2453	2377	27687	20952	26751	18976	62.2	0.73	2872	7311	8335	11504	11709	7.65	7.34
18	12:00	2453	2380	27709	20959	26765	18978	62.4	1.15	2874	7319	7335	11504	11716	7.65	7.41
19	12:00	2453	2382	27709	20977	26776	18983	62.6	1.30	2276	7327	7335	11504	11724	7.92	7.47
20	12:00	2453	2384	27732	20977	26776	18994	62.6	1.20	2877	7336	7335	11504	11732	7.80	7.42
21	12:00	2453	2387	27734	20995	26793	19000	62.9	1.18	2879	7344	7335	11504	11739	7.73	7.39
22	12	2453	2389	27747	21002	26801	19001	62.9	1.08	2881	7352	7335	11504	11747	7.79	7.43
23	12	2454	2391	27759	21011	26801	19012	62.9	0.66	2883	7361	7335	11504	11754	7.72	7.42
24	12	2456	2391	27762	21028	26801	19022	63.3	1.40	2884	7369	7335	11504	11762	7.73	7.25
25	12	2459	2391	27782	21028	26819	19022	63.3	0.85	2884	7377	7335	11504	11769	7.74	7.43
26	12	2461	2391	27785	21046	26826	19034	63.3	1.01	2885	7386	7335	11504	11277	7.73	7.29
27	12	2464	11	27799	21053	26832	19047	11	1.00	2888	7395	|	|	11784	8768	743
28	12	2466	11	27810	21063	26851	19048	11	1.03	2890	7404	|	|	11792	8782	723
29	12	2468	11	27816	21078	11	19068	63.3	.97	2893	7412	|	|	11800	7779	739
30	1	2470	2291	27835	21079	26865	19072	63.3	0.1.5	2895	7421	7335	11504	11807	7.73	7.25
31	12:00													11815		

LEACHATE DAILY LOG #2

Month: OCTOBER
Year: 2019

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	6858904	7148730	60340	63.9	.Ø	2062	3280	127954	737153	265226	1571	32152	7.09	32584
2	12	6892141	7181315	60363	64.4	.Ø	2086	3287	127954	737153	265226	1595	33165	7.15	32584
3	12	6925391	7213998	60388	63.4	.Ø	2090	3290	127954	737153	265226	1572	33190	7.02	32584
4	12	6954180	7246400	60402	63.9	.2	2113	3296	127954	737153	265226	15.66	33218	7.04	32584
5	12	6993620	7279067	60425	64.6	.Ø	2117	3298	127954	737153	265226	15.70	33241	7.05	32584
6	12	7026894	7311650	60459	63.7	.Ø	20.92	3304	127954	737153	265226	16.02	33264	7.07	32584
7	12	7060380	7344233	60484	OFF	.Ø	20.96	3306	127954	737153	265226	16.03	33286	7.15	32584
8	12	7093366	7376817	60507	63.7	.2	21.21	3310	127954	737153	265226	15.77	33308	7.06	32584
9	12	7127037	7409401	60532	65.3	.6	2147	3317	127954	737153	265226	15.42	33331	7.09	32584
10	12	7160686	7441987	60556	66	0	2094	3318	11	11	11	1573	33354	709	32584
11	12	7195038	7474571	60580	66	0	2142	3324	11	11	11	1604	33376	729	32588
12	12	7228937	7507154	60604	65	0	2130	3324	11	11	265277	1589	33399	728	32584
13	12	7263432	7539738	60628	65	.05	2169	3328	11	11	11	1587	33421	707	32584
14	12	7295227	7572322	60652	65	.Ø	2136	3330	11	11	11	1590	33444	705	32584
15	12	7330850	7604905	60675	65.2	.Ø	21.03	3336	127954	737153	265227	16.07	33466	7.12	32584
16	12	7363030	7637490	60699	64.9	1.Ø	2153	3340	127954	737153	265227	16.23	33482	7.18	32584
17	12	7396656	7670073	60723	64.3	.55	21.91	3342	127954	737153	265227	15.89	33511	7.15	32584
18	12	7431372	7702659	60747	65	.65	2184	3348	11	11	11	1544	33534	708	32584
19	12	7465380	7735243	60771	65	0	2185	3352	11	738353	11	1625	33556	707	32584
20	12	7498473	7767825	60796	66	.05	2194	3360	11	11	11	1562	33579	707	32584
21	12	7533204	7800411	60820	65	1.0	2208	3362	11	11	11	1541	33601	718	32584
22	12	7566197	7832994	60843	65.6	0.4	2243	3363	127954	738353	265277	1539	33623	7.22	32588
23	12	7599781	7865580	60867	65.4	0.0	2263	3369	127954	738353	265277	15.72	33640	7.16	32584
24	12	7634492	7898161	60891	65.2	0	22.60	3377	127954	738353	265277	15.82	33668	7.31	32584
25	12	7668722	7930752	60915	65	0	22.88	3379	11	11	11	1598	33691	709	32588
26	12	7703520	7963337	60939	65	0	2272	3381	11	11	11	1563	33714	710	32588
27	12	7736719	7995925	60964	65	0	2261	3388	11	11	11	1567	33736	707	32584
28	12	7770541	8028512	60988	65	.Ø	2252	3389	11	11	11	1571	33759	712	32584
29	12	7805242	8061097	61012	65.0	.Ø	2267	3393	127954	738353	265277	1556	33781	7.35	32588
30	12	7839114	8093681	61036	64.1	0	2294	3399	127954	738353	265277	1594	33804	7.37	32584
31	12	7873049	8126267	61060	65	0	2297	3401	11	11	265341	1577	33826	737	32584
			Monthly Totals			4.7		3402	0	1200					

LEACHATE DAILY LOG #1

Month: OCTOBER
Year: 2019

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SU/P	D/O2	D/SU/P	P-4A	P-4B	P-5A	P-5B	[illegible]	[illegible]
1	12	2474	2391	27835	21101	26876	19081	63.3	0.84	2899	7429	7335	11504	11815	7.65	7.17
2	12	2474	2392	27853	21103	26879	19097	63.5	0.56	2902	7436	7335	11504	11822	7.86	7.32
3	12	2476	2395	27860	21117	26898	19097	63.5	0.55	2905	7444	7335	11504	11830	7.70	7.30
4	12	2476	2397	27870	21129	26901	19114	63.5	0.51	2907	7453	7335	11504	11838	7.79	7.32
5	12	2476	2399	27886	21133	26911	19122	63.9	0.59	2910	7461	7335	11504	11845	7.76	7.37
6	12	2476	2402	27886	21154	26925	19127	63.9	0.59	2912	7470	7335	11504	11853	7.61	7.44
7	12	2476	2405	27907	21154	26925	19146	63.9	0.50	2914	7478	7335	11504	11860	7.81	7.42
8	12	2476	2409	27911	21170	26944	19147	64.0	0.50	2916	7486	7335	11504	11868	7.70	7.25
9	12	2476	2411	27920	21179	26950	19160	64.0	0.60	2919	7495	7335	11504	11876	7.79	7.35
10	12	11	2413	27936	21187	26959	19172	11	.71	2921	7503			11883	790	748
11	12	11	2414	27940	21205	26976	19175	64.3	.88	2924	7511			11891	781	727
12	12	2478	2415	27960	21205	11	19195	11	.77	2926	7520			11898	785	719
13	12	2481	11	27962	21224	26993	19197	11	.91	2929	7529			11907	781	749
14	12	2483	11	27975	21230	27001	19208	64.4	.96	2931	7537			11913	782	712
15	12	2485	2415	27987	21240	27007	19222	64.4	0.79	2930	7546	7335	11504	11921	7.75	7.43
16	12	2487	2415	27989	21255	27026	19222	64.4	0.81	2936	7554	7335	11504	11929	7.82	7.23
17	12	2487	2415	28011	21255	27026	19242	64.6	0.67	2938	7562	7335	11504	11936	7.77	7.43
18	12	2491	11	28012	21275	27040	19248	11	.63	2941	7571			11944	784	741
19	12	2493	11	28027	21280	27051	19256	11	.70	2943	7579			11951	783	749
20	12	2495	11	28037	21290	27064	19273	64.9	966	2946	7587			11959	784	721
21	12	2498		28043	21306	27074	11	11	.63	2948	7596			11966	780	736
22	12	2500	2415	28063	21306	27078	19289	64.9	0.67	2950	7604	7335	11504	11974	7.78	7.41
23	12	2500	2417	28063	21326	27086	19289	65.1	0.67	2953	7613	7335	11504	11982	7.80	7.41
24	12	2500	2419	28079	21331	27101	19303	65.1	067	2955	7621	7335	11504	11989	7.83	7.43
25	12	11	2422	28088	21342	11	19322	65.3	.69	2958	7630			11997	780	743
26	12	11	2424	28095	21356	27120	19323	11	.68	2960	7638			12004	784	745
27	12	11	2426	28113	21358	27126	19335	11	.71	2962	7646			12012	784	750
28	12	11	2429	11	21379	27133	19348	11	.61	2965	7655			12019	785	752
29	12	2500	2433	28131	21381	27151	19350	65.4	0.54	2966	7663	7335	11504	12027	7.741	7.55
30	12	2500	2433	28139	21395	27151	19370	65.6	0.58	2969	7671	7335	11504	12035	7.72	7.57
31	12	2500	2435	28147	21407	27168	19373	65.6	.63	2971	7680	7335	11504	12042	777	743
														12050		

LEACHATE DAILY LOG #2

LEAK DET. 1,462 GAL 11/28

Month: NOVEMBER 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM S11	AC-HRS	D-AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	7907185	8158881	61084	65	0	2291	3407	127954	738353	265365	1578	33848	732	32584
2	12	7941309	8191436	61108	65	0	2090	3408	11	744422	265863	1590	33871	730	32584
3	12	7974573	8224020	61132	64	0	2104	3412	11	749930	11	1590	33894	731	32584
4	12	8007536	8256605	61156	65	.0	2118	3417	11	11	11	1573	33917	712	32584
5	12	8042091	8289189	61181	63.6	.0	2131	3419	127954	749930	265365	1584	33924	7.24	32584
6	12	8076240	8321771	61204	63.9	0	2067	3423	127954	749930	265863	1568	33962	7.32	32584
7	12	8110108	8354356	61228	63	0	2131	3430	11	11	11	1592	33984	734	32584
8	12	8143439	8386941	61252	63	0	2150	3436	11	11	11	1588	34007	729	32584
9	12	8178133	8419524	61276	64	.2	2196	3436	11	11	11	1557	34030	734	32588
10	12	8211854	8452110	61300	64	.1	2241	3441	11	11	11	1568	34052	736	32588
11	12	8245527	8484700	61324	64	.0	2272	3446	11	11	11	1581	34074	719	32588
12	12	8279611	8517288	61347	63.4	.6	2255	3447	127954	749930	265365	1590	34097	7.22	32588
13	12	8314445	8549674	61371	63.1	.8	2229	3449	127954	749930	265363	1594	30763	7.24	32588
14	12	8349270	8582464	61395	63.4	0	2361	3455	127954	749930	265863	1575	30782	7.19	32584
15	12	8382839	8615050	61419	off	.35	2366	3456	11	11	11	1559	30808	710	32584
16	12	8417094	8647632	61443	64	0	2397	3462	11	11	11	1556	30833	706	32584
17	12	8449050	8680218	61467	64	.4	2418	3464	11	11	11	1614	30858	712	32588
18	12	8484580	8712804	61491	64	1.0	2434	3465	11	11	11	1588	30884	727	32584
19	12	8519170	8745388	61515	63.5	.0	2454	3472	127954	749930	265363	1574	30909	7.18	32584
20	12	8553510	8777974	61539	64.0	.0	2480	3475	127954	749930	265863	1576	30934	7.25	32588
21	12	8586754	8810560	61563	OFF	.2	2483	3478	127954	749930	265863	1577	30959	7.32	32588
22	12	8619246	8843148	61587	64	0	2414	3484	11	754453	11	1545	30985	725	32584
23	12	8654122	8875732	61611	64	0	2358	3491	11	759478	11	1580	31010	737	32584
24	12	8687024	8908314	61635	64	.1	2288	3492	11	764281	11	1615	31035	723	32584
25	12	8720820	8940900	61659	64	.2	2235	3493	11	769237	11	1611	31061	725	32588
26	12	8754708	8973484	61683	63.6	.0	2165	3494	127954	769237	265863	1612	31080	7.40	32584
27	12	8787980	9006070	61706	64.3	0	2111	3501	127954	769237	265863	1575	31092	7.29	32584
28	12	8820306	9038656	61730	64	0	2124	3502	11	774686	11	1564	31136	717	32584
29	12	8855278	9071238	61754	63	0	2115	11	131339	11	11	1568	31162	733	32584
30	12	8887430	9103822	61778	64	0	2115	3508	11	11	265863	1558	31187	727	32584
31	12							3514							

Monthly Totals 3.15 3385 | 36,333

- 1,462 (Leak detect)

1,923

LEACHATE DAILY LOG #1

Month: NOVEMBER 2019

Year: _____

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3R	P-4R	M/SUMP	D/02	D/SUMP	P-4A	P-4B	P-5A	P-5B	P-6A	P-6B
1	12	2500	2438	28164	21411	27176	19385	65.8	.62	2974	7688	7335	11504	12050	7772	735
2	12	2503	11	11	21431	27182	19398	11	.55	2976	7696	|	|	12057	8776	745
3	12	2507	11	28183	21432	27201	11	11	.54	2979	7704	|	|	12065	8787	752
4	12	2512	11	28189	21446	27201	19418	66.1	.55	2981	7713	|	|	12073	7787	756
5	12	2512	2438	28199	21457	27217	19423	66.1	0.48	2984	7721	7335	11504	12080	7.74	7.37
6	12	2519	2438	28204	21462	27226	19433	66.1	0.51	2986	7729	7335	11504	12088	7.78	7.41
7	12	2521	11	28214	21482	27231	19449	66.2	.52	2989	7738	|	|	12095	782	747
8	12	2523	11	28234	11	27251	11	11	.53	2991	7746	|	|	12103	784	752
9	12	11	2440	28240	21498	27252	19468	11	.50	2994	7755	|	|	12110	783	747
10	12	11	2442	28250	21508	27265	19474	66.4	.53	2996	7763	|	|	12118	781	747
11	12	11	2443	28265	21534	27277	19482	11	.55	2999	7771	|	|	12125	778	749
12	12	2523	2443	28265	21533	27290	19499	66.4	0.53	3001	7780	7335	11504	12133	7.80	7.42
13	12	2523	2445	28275	21533	27299	19499	66.8	0.58	3003	7783	7359	11509	12136	7.83	7.41
14	12	2523	2448	28920	21550	27302	19517	66.9	0.58	3006	7783	7344	11517	12136	7.80	7.42
15	12	11	2450	28303	21558	27315	19524	66.9	.64	3008	|	7349	11524	8 |	786	741
16	12	11	2451	28316	21566	27327	19531	67.2	.70	3010	|	7355	11532	7 |	785	761
17	12	11	2455	28317	21584	27327	19549	11	.73	3012	|	7360	11539	8 |	786	756
18	12	11	2458	28339	11	27348	11	11	.71	3015	|	7365	11547	8 |	779	744
19	12	2523	2459	28344	21602	27352	19555	67.5	0.65	3017	7783	7371	11555	8 12136	7.80	7.42
20	12	2523	2461	28355	21609	27362	19574	67.5	0.65	3020	7783	7376	11562	8 12136	7.79	7.39
21	12	2525	2461	28366	21618	27377	19579	67.5	0.74	3022	7783	7381	11570	7 12136	7.81	7.38
22	12	2527	11	28370	21634	11	19597	67.7	1.44	3024	|	7386	11577	8 |	783	751
23	12	2529	11	28391	11	27394	19599	11	1.39	3026	|	7391	11585	7 |	786	743
24	12	2531	11	28392	21653	27402	19610	11	1.27	3029	|	7397	11592	8 |	784	747
25	12	2533	11	28406	21659	27407	19624	67.9	131	3031	|	7402	11600	8 |	785	757
26	12	2535	2461	28417	21669	27427	19624	67.9	0.97	3034	7783	7407	11608	7 12136	7.79	7.42
27	12	2535	2461	28421	21685	27427	19644	67.9	0.80	3036	7783	7413	11615	8 12136	7.81	7.39
28	12	2538	2463	28424	21701	27430	19660	68.1	.90	3038	|	7418	11623	7 |	780	751
29	12	11	2465	28442	21703	27438	19672	11	.89	3041	|	7422	11630	8 |	782	752
30	12	2538	2466	28449	21715	27455	19674	68.1	.88	3043	|	7427	11638	7 |	784	755
31	12										|		11645	|		

LEACHATE DAILY LOG #2

Month: December 2019
Year:

Date	Time	INFLUENT FM 212	EFFLUENT FM 511	AC HRS	D AP	RAIN	L8 LVL	GP HRS	S-SL	CELL1	TS/GL	TRAN P	BLW A/B	E-PH	DAILY EFFLUENT
1	12	8921376	9136406	618 02	64	.0	2122	3514	131339	774686	265863	1606	31212	729	32584
2	12	8953192	9168990	618 26	64	.0	2124	3526	"	"	"	1573	31238	719	32584
3	12	8988346	9160682	61855	64.0	.4	2126	3533	131339	779047	265863	1578	31263	7.44	32584
4	12	9021000	9234160	61874	65.0	.3	1973	3534	131229	779047	265863	1604	31288	7.39	32584
5	12	9054946	9266744	61898	65	0	1970	3536	"	784173	266001	1563	31306	724	32584
6	12	9086814	9299328	61822	off	.1	1848	3542	"	790243	266132	1601	31339	723	32584
7	12	9120910	9331912	61846	65	.5	1860	3543	"	"	"	1591	31364	707	32584
8	12	9153548	9364494	61870	65	.05	1872	3544	"	"	266271	1558	31389	713	32584
9	12	9186452	9397080	61894	65	.02	1886	3559	"	"	"	1575	31415	704	32584
10	12	9220624	94,308264	61915	64.7	.04	1882	3564	131329	790243	266271	15.69	31440	7.30	32584
11	12	9254050	9462800	61955	65.0	1.4	1886	3572	131329	790243	266271	15.85	31465	7.51	32584
12	12	9286634	9495384	62065	64.8	.4	1890	3575	131339	790243	266271	15.20	31494	7.24	32584
13	12	9321028	9527414	62091	65	.05	1920	3582	"	"	"	1585	31516	727	32584
14	12	9352658	9560000	62115	65	.2	1916	3583	"	"	"	1589	31541	714	32584
15	12	9384488	9592580	62138	65	0	1933	3590	"	"	"	1571	31566	718	32584
16	12	9416200	9625168	62162	65	.0	1928	3596	"	"	"	1573	31592	718	32584
17	12	9449724	9457752	62186	66.3	.0	19.37	3597	131339	790243	266271	16.15	32550	7.25	32584
18	12	9480330	9490332	62216	64.7	.6	19.46	3599	131339	790263	266271	16.22	32576	7.43	32584
19	12	9512898	9722916	62239	65.1	1.0	19.43	3605	131329	790263	266271	15.54	31668	7.42	32584
20	12	9545590	9755504	62258	65	1.4	1957	3606	"	"	"	1549	31693	716	32584
21	12	9575736	9788088	62282	65	1.3	1962	3607	"	"	"	1588	31718	706	32584
22	12	9609488	9820672	62306	65	.4	1975	3615	"	"	"	1582	31744	711	32584
23	12	9640420	9853256	62330	65	.0	1987	3629	"	"	"	1553	31769	714	32584
24	12	9672192	9885840	62354	65.2	.0	1989	3645	131339	790243	266271	1552	31794	7.42	32584
25	12	9705132	9918424	62378	65.4	.0	2015	3646	131339	790243	266272	1576	31819	7.43	32584
26	12	9735270	9951008	624 02	65	.1	2025	3646	"	"	"	1576	31845	716	32584
27	12	9767624	9983592	624 26	65	0	2038	3647	"	"	"	1587	31870	719	32584
28	12	9798866	16174	62450	65	0	2046	3654	"	"	"	1570	31895	731	32584
29	12	9833012	48759	62474	64	.2	2055	3673	"	"	"	1601	31920	756	32584
30	12	9864118	81343	62498	65	.4	2056	3703	"	"	"	1545	31946	701	32584
31	12	9895946	113426	62522	64.5	.4	2061	3711	131339	790243	266272	1649	31971	7.24	32584
			Monthly Totals			9.26		3729	0	15,557					

LEACHATE DAILY LOG #1

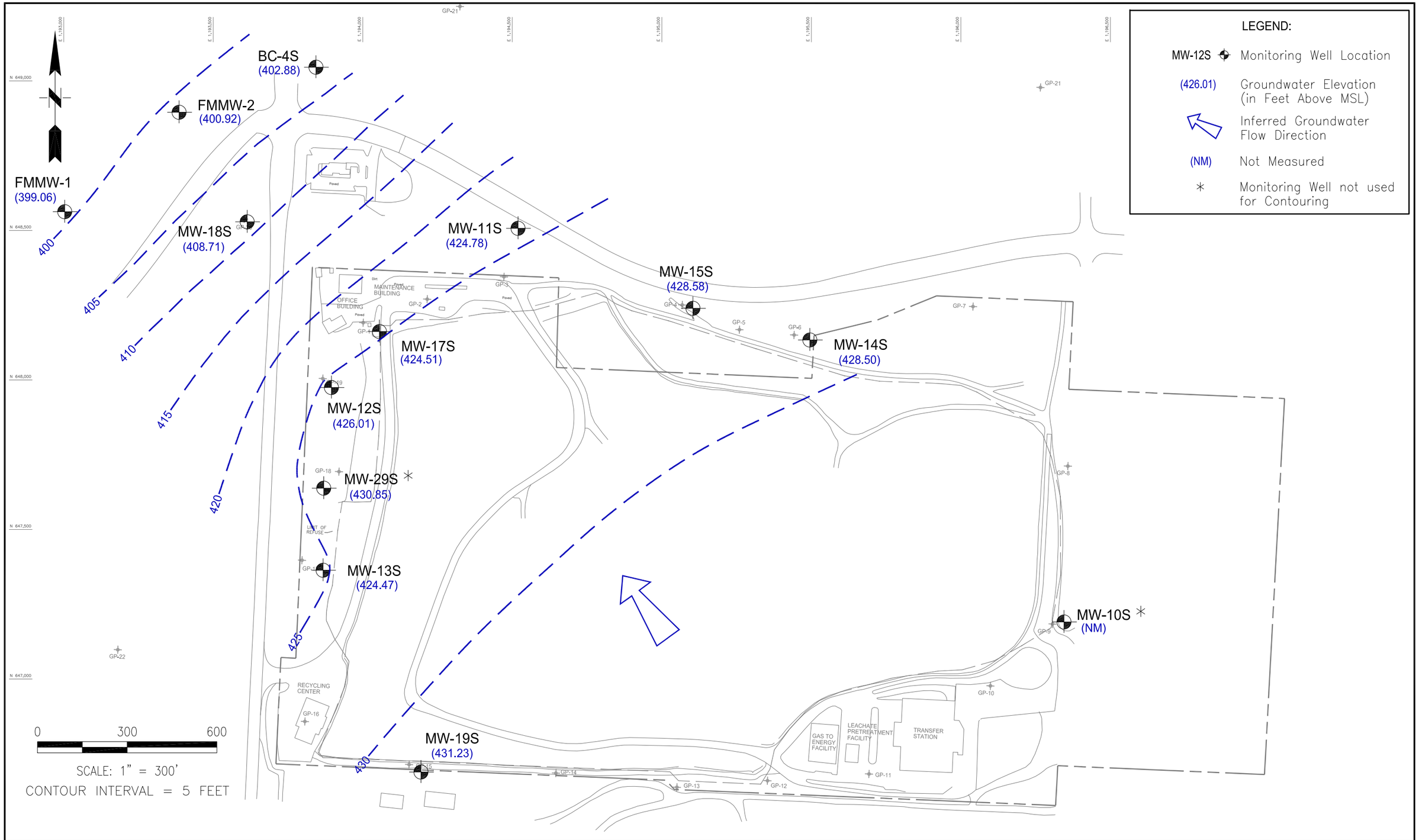
Month: December
Year: 2019

Date	Time	P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	M/SL/P	D/02	D/SL/P	P-4A	P-4B	P-5A	P-5B	P-6B	P-6A
1	12	2538	2469	28457	21728	27455	19695	68.2	.70	3046	7783	7432	11645	12136	786	751
2	12	11	2470	28475	21729	27471	19697	11	.68	3048	11	7437	11653	11	787	758
3	12	2540	2476	28475	21750	27480	19708	69.2	.72	3051	7783	7443	11661	12136	7.76	7.37
4	12	2541	2470	28491	21753	27485	19722	69.4	0.62	3053	7783	7448	11660	12136	7.82	7.31
5	12	2548	11	28500	21765	27505	11	68.4	.66	3056		7453	11676		787	753
6	12	2553	11	28506	21708	11	19739	69.1	.59	3058		7457	11683		781	751
7	12	2558	11	28525	21780	27517	19747	69.1	.51	3059		7462	11691		789	768
8	12	2561	2471	11	21800	27530	19752	11	.52	3062		7466	11698		781	756
9	12	11	2473	28541	21804	11	19770	11	.52	3064		7470	11706		784	757
10	12	2561	2475	28550	21815	27548	19772	69.3	0.56	3066	7783	7475	11716	12136	7.80	7.42
11	12	2561	2477	28557	21829	27555	19784	69.3	.056	3069	7783	7480	11726	12136	7.81	7.45
12	12	2561	2479	28576	21829	27561	19797	69.3	0.54	3071	7783	7484	11736	12136	7.82	7.44
13	12	11	2480	11	21850	27580	19797	69.4	.54	3073		7489	11746		773	747
14	12	11	2482	28591	21854	11	19815	11	.55	3076		7494	11757		781	756
15	12	11	2484	28601	21863	27591	19822	11	.53	3078		7499	11767		781	758
16	12	11	2486	28604	21879	27605	19826	69.7	.60	3080		7505	11777		782	752
17	12	2561	2488	28621	21879	27605	19846	69.7	0.65	3082	7783	7510	11787	12136	7.78	7.40
18	12	2561	2490	28626	21896	27623	19847	69.7	0.62	3085	7783	7516	11797	12136	7.82	7.44
19	12	2561	2492	28637	21905	27635	19858	69.8	0.59	3087	7783	7521	11807	12136	7.78	7.36
20	12	2562	2493	28651	21910	27636	19872	11	.58	3090		7527	11817		780	752
21	12	2564	11	11	21928	27653	11	11	.58	3092		7532	11826		776	759
22	12	2567	11	28670	21930	27656	19889	70.2	.57	3095		7538	11836		779	746
23	12	2569	11	28677	21942	27665	19898	11	.56	3097		7544	11845		767	753
24	12	2571	2493	28680	21955	27691	19898	70.2	1.06	3099	7783	7548	11854	12136	7.67	7.42
25	12	2573	2493	28697	21955	27681	19913	70.5	1.49	3101	7783	7552	11864	12136	764	753
26	12	2576	11	28702	21967	27686	19923	11	155	3102		7556	11873		763	754
27	12	2578	11	28707	21981	27703	11	11	150	3105		7561	11882		755	751
28	12	2580	11	28726	11	27705	19937	70.6	149	3107		7567	11891		758	749
29	12	2583	11	28727	21999	27713	19947	11	1.71	3109		7572	11901		760	744
30	12	2584	2494	28740	22006	27730	11	11	1.81	3111		7577	11910		762	755
31	12	2584	2496	28752	22012	27739	19965	70.8	1.67	3113	7783	7583	11920	12136	7.59	7.39

11929

Appendix C

WATER LEVEL DATABASE



SCS ENGINEERS
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2405 140th Avenue NE, Suite 107
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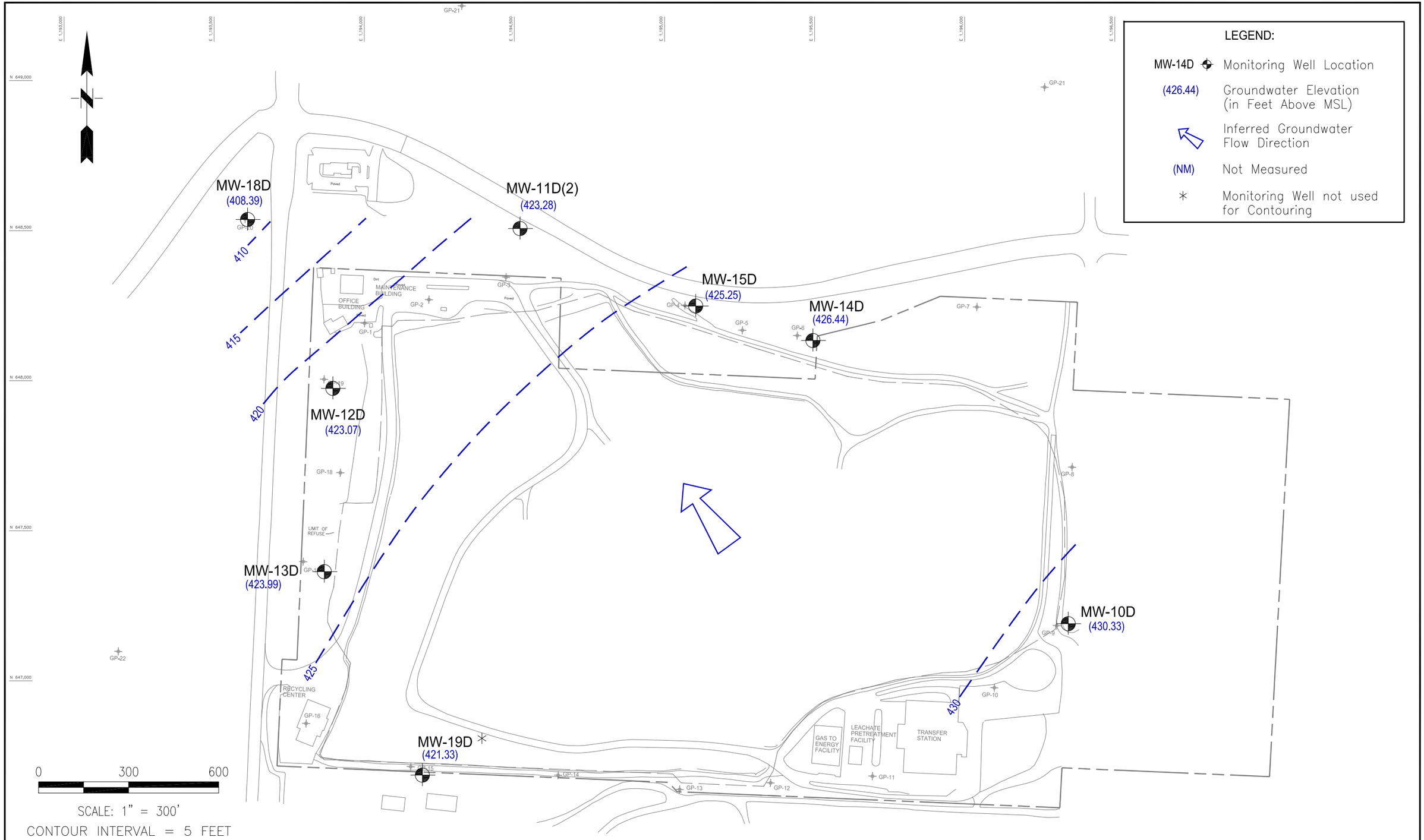
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO. 04219002.03	DES BY SG	SHALLOW PERCHED AQUIFER WATER LEVEL MAP JANUARY 16, 2019	DATE MAY 2019
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 1
CAD FILE FIGURE 1	APP BY KGL		



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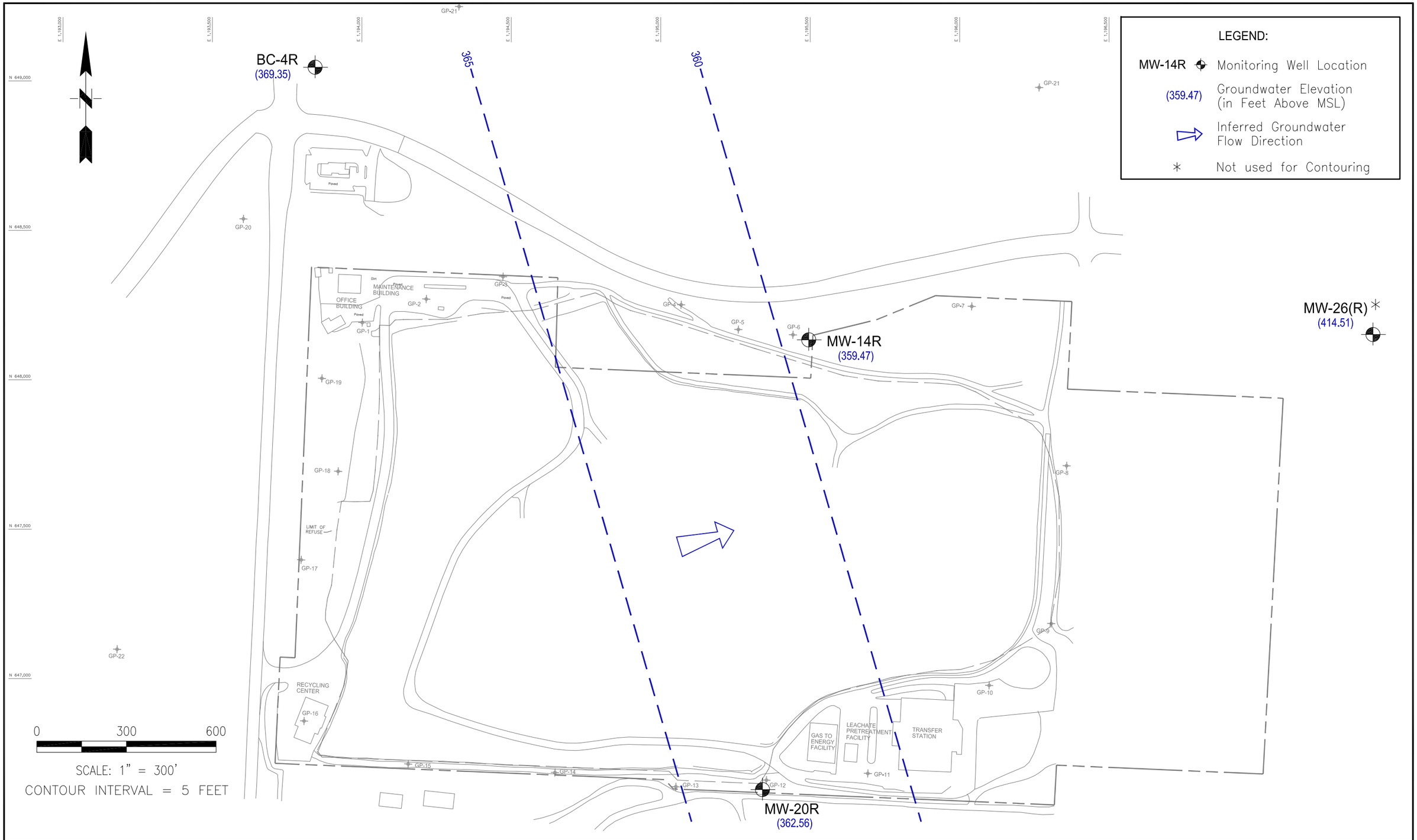
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO. 04219002.03	DES BY SG	UPPER REGIONAL AQUIFER WATER LEVEL MAP JANUARY 16, 2019	DATE MAY 2019
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 2
CAD FILE FIGURE 2	APP BY KGL		



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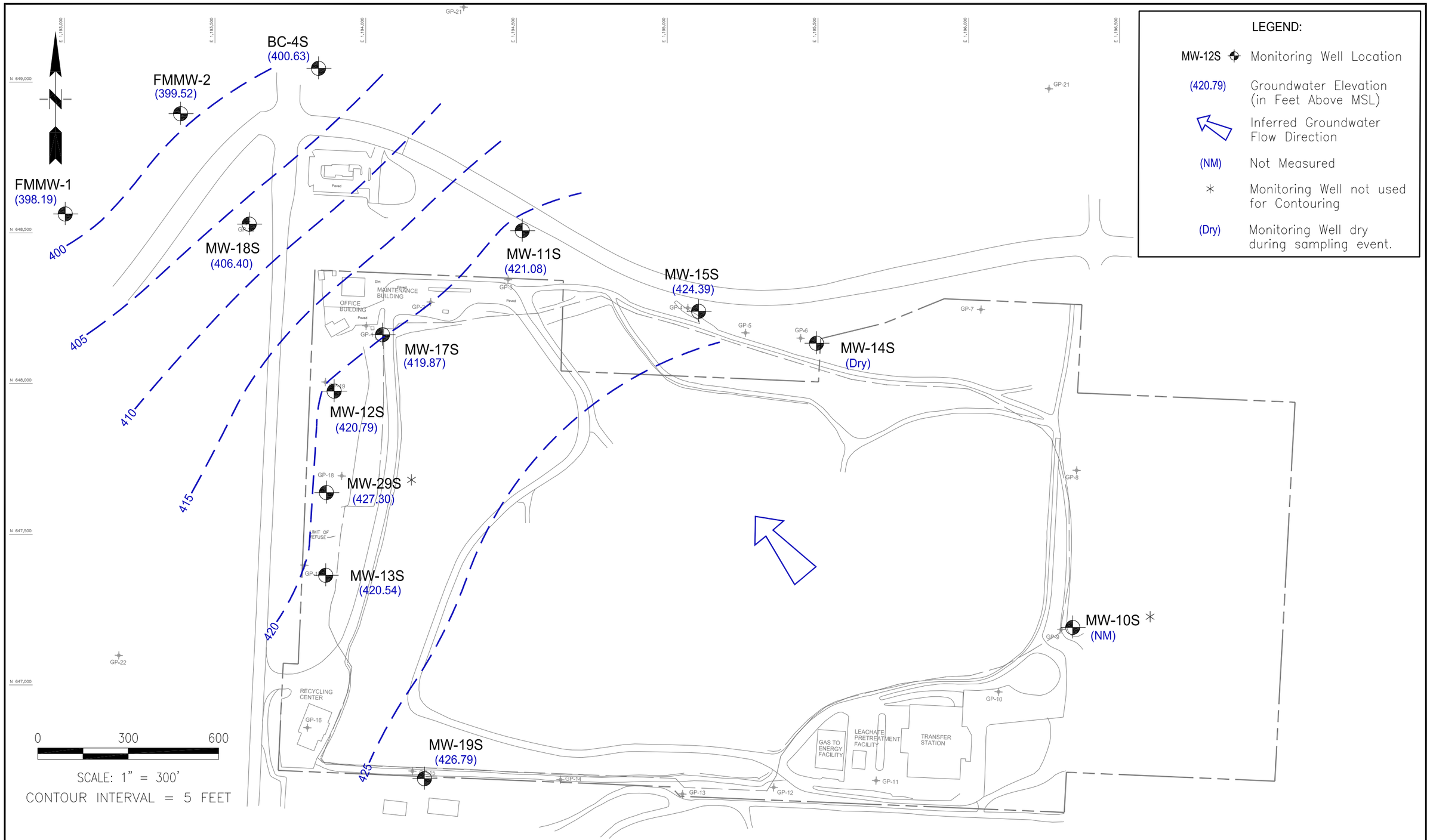
PROJECT NO. 04219002.03	DES BY SG	LOWER REGIONAL AQUIFER WATER LEVEL MAP JANUARY 16, 2019	DATE MAY 2019
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 3
CAD FILE FIGURE 3	APP BY KGL		



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PROJECT NO. 04219002.03	DES BY SG	SHALLOW PERCHED AQUIFER WATER LEVEL MAP AUGUST 22, 2019	DATE FEBRUARY 2020
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 1
CAD FILE FIGURE 1	APP BY KGL		

LEGEND:

MW-14D — Monitoring Well Location

(422.27) — Groundwater Elevation (in Feet Above MSL)

Inferred Groundwater Flow Direction

MW-18D (405.77)

MW-11D(2) (419.56)

MW-15D (421.06)

MW-14D (422.27)

MW-12D (418.90)

MW-13D (417.99)

MW-19D (421.43)

MW-10D (425.65)

410

415

420

425

MAINTENANCE BUILDING

OFFICE BUILDING

LIMIT OF REFUSE

RECYCLING CENTER

GAS TO ENERGY FACILITY

LEACHATE PRETREATMENT FACILITY

TRANSFER STATION

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11 GP-12 GP-13 GP-14 GP-15 GP-16 GP-18 GP-21 GP-22

E 1,193,000 E 1,193,500 E 1,194,000 E 1,194,500 E 1,195,000 E 1,195,500 E 1,196,000 E 1,196,500

N 649,000 N 648,500 N 648,000 N 647,500 N 647,000

0 300 600

SCALE: 1" = 300'

CONTOUR INTERVAL = 5 FEET

SCS ENGINEERS

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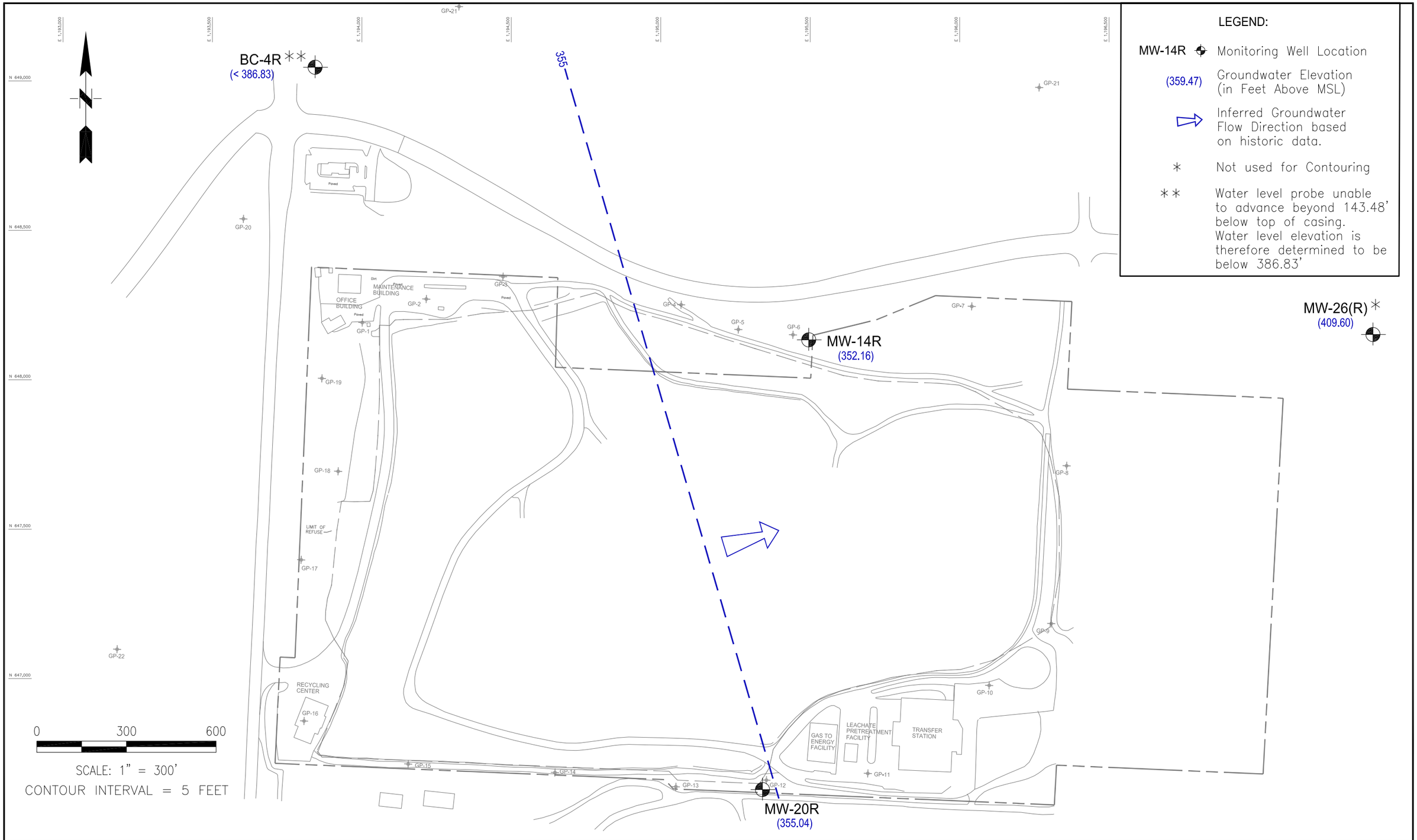
PROJECT NO. 04219002.03	DES BY SG	UPPER REGIONAL AQUIFER WATER LEVEL MAP AUGUST 22, 2019	DATE FEBRUARY 2020
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 2
CAD FILE FIGURE 2	APP BY KGL		



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PROJECT NO. 04219002.03	DES BY SG	LOWER REGIONAL AQUIFER WATER LEVEL MAP AUGUST 22, 2019	DATE FEBRUARY 2020
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 3
CAD FILE FIGURE 3	APP BY KGL		

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	TOC ELEV	01/15/88	02/23/88	02/24/88	04/26/88	05/24/88	06/24/88	07/18/88	07/19/88	07/20/88	07/21/88	08/30/88	08/31/88	09/15/88	09/16/88	10/25/88	12/01/88	12/02/88
MW-10S	463.65	427.99	427.49		435.51	436.45	436.11		435.06			432.25		430.78		428.08	433.69	
MW-10D	464.09		425.36		431.46	431.95	392.59		367.17			376.81		426.94		402.14	355.13	
MW-11S	520.03			DRY	425.79	426.18	425.77				424.54					DRY		424.29
MW-11D	520.10			421.19	425.61	425.97					424.33		421.72	420.74		419.81		
MW-11D(2)	519.53																	
MW-12S	493.41		DRY		430.70	DRY				426.74						DRY		
MW-12D	493.49	419.44	420.09		423.68	424.91	425.17			423.32			421.11	420.34		419.18		422.21
MW-13S	452.26			425.74	428.20	428.68	428.16			426.35			424.31		423.78	422.97	425.86	
MW-13D	450.19	420.14		419.37	423.79	424.16				422.53						418.84		
MW-14S	481.30		DRY		430.41	430.68	430.30	428.90					426.40	425.74		DRY	428.70	
MW-14D	481.39	421.74	422.74		427.75	427.06	427.31	426.19					423.86	423.24		421.71	424.80	
MW-14R	480.26				366.46	366.73		365.84								363.73		
MW-15S	506.78				434.88			433.45								429.85		
MW-15D	509.09				433.89			432.30								427.97		
MW-16S	480.27				427.52				425.92							421.67		
MW-16D	480.73				425.67				423.45							419.52		
MW-17S	555.97				425.63					424.67						419.84		
MW-18S	541.43				408.30						407.39	405.64			405.06	404.71		406.31
MW-18D	541.79				409.22						408.40					405.70		
MW-19S	489.23				433.87				432.93							430.71		
MW-19D	489.35				426.18				423.41							419.75		
MW-20R	472.90				364.52				375.01							372.19		
MW-22U	549.17																	
MW-22L	548.95																	
MW-23S	448.34																	
MW-23D	448.25																	
MW-25S	527.80																	
MW-25D	527.52																	
MW-26R	485.40																	
MW-27S	531.81																	
MW-27D	531.92																	
MW-28S	466.87																	
MW-29S	450.65																	
BC-4S	530.25			402.57	404.81								402.65			401.39		
BC-4R	530.31			369.76	372.49							370.56				369.53		
FMMW-1	546.03																	
FMMW-2	539.96																	

Notes: Water level elevations have been recalculated based on the most recent TOC survey data from 5/23/2018
Before June 1996 well elevations were: MW-11s 501.48; MW-11d 501.45; MW-15s 490.53; MW-15d 490.61
Between June 1996 and March 2001 well elevations were: MW-11s 512.13; MW-11d 512.06
Before October 30, 1999 well elevations were: MW-27s 531.81; MW-27d 531.92
Before January 21, 2000 well elevations were: MW-10s 455.45; MW-10d 456.19
Before May 18, 2001 well elevations were: MW-23s 449.92; MW-23d 449.96
Before September 2000, well elevations were: BC-4S 524.35; BC-4D 524.46
Before November 19, 2004 well elevations were: MW-25S 526.54; MW-25D 526.66
Before August 2005 well elevations were: MW-18S 546.88; MW-18D 546.01, new elevations are field measurements, not survey results
MW-23S, MW-23D, MW-25S, MW-25D, MW-27S, MW-27D and MW-28S were abandoned in 2017
The well casing is blocked at MW-10S and SCS is unable to measure DTW at this location

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	12/22/88	01/24/89	03/02/89	03/04/89	03/15/89	03/16/89	04/25/89	05/25/89	06/29/89	06/30/89	07/17/89	07/18/89	07/19/89	09/05/89	10/04/89	10/25/89	10/26/89	10/27/89
MW-10S	433.08	436.08	437.65			439.78	444.69	442.91	439.43		437.98			434.41	431.97	430.18		
MW-10D	402.27	411.63	433.30			435.47	439.85	437.76	378.37		433.58			429.64	427.73	426.55		
MW-11S		426.22		427.72	429.47		433.99	432.61	429.97			428.69		424.26	DRY		DRY	
MW-11D	423.94	426.01					432.89					428.44			422.09		420.66	
MW-11D(2)																		
MW-12S		429.12			432.40		435.70			426.49			430.70	DRY	DRY		DRY	
MW-12D	422.64	424.81	426.19		428.15		432.31	430.73					426.59	422.79	421.18		420.19	
MW-13S	425.31	426.79	427.60		429.80		433.86	432.25		429.86		428.93		425.85	424.80		423.97	
MW-13D		424.01					431.35					425.74						419.47
MW-14S	428.52	430.77		432.55		435.12	440.67	438.50	427.68		433.31			428.31	426.46	DRY		
MW-14D	425.37	427.88		428.99		431.50	435.81	434.01			429.72					422.88		
MW-14R		366.28					372.16					364.64				364.72		
MW-15S		435.45			439.55		444.45			438.70	433.20			432.70	430.99		429.87	
MW-15D		434.02					442.04				440.28						429.04	
MW-16S		427.90					439.37					431.22				422.35		
MW-16D		425.63					433.43					427.26				420.66		
MW-17S		426.57			430.41		434.25			430.41		428.32		424.52	422.55		421.10	
MW-18S	407.54	409.61	410.66		411.67		415.44	414.91		412.76			411.65	409.71	407.44			406.72
MW-18D		409.45					415.40						411.27					406.52
MW-19S		436.49					440.89					435.90						430.30
MW-19D		425.40					432.12					427.43						421.47
MW-20R		374.97					381.08						368.86				372.97	
MW-22U																		
MW-22L																		
MW-23S																		
MW-23D																		
MW-25S																		
MW-25D																		
MW-26R																		
MW-27S																		
MW-27D																		
MW-28S																		
MW-29S																		
BC-4S		405.40					410.52						406.99					402.69
BC-4R		372.43					378.09						373.42					370.77
FMMW-1																		
FMMW-2																		

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	11/15/89	12/18/89	01/03/90	01/15/90	01/24/90	01/29/90	02/12/90	02/27/90	03/12/90	03/26/90	04/09/90	04/25/90	05/07/90	05/21/90	06/04/90	06/18/90	07/02/90	07/24/90
MW-10S	431.26	433.16	432.26	438.75		441.97	445.00	446.08	446.31	445.70	444.75	443.92	443.16	441.82	441.60	428.93	440.13	438.59
MW-10D						437.98				440.70		438.94		437.09		436.54		434.42
MW-11S	DRY	424.47	423.74	429.85		431.41	434.50	435.19	434.84	434.48	433.69	432.93	432.37	431.41	430.86	431.12	430.41	429.03
MW-11D						431.12						432.74						428.71
MW-11D(2)																		
MW-12S	DRY	DRY	DRY	432.03	432.47	434.06	436.63	436.56	436.49	436.21	435.43	434.69	434.37	433.42	433.16	433.26	432.36	429.79
MW-12D						430.27						431.76						427.49
MW-13S	424.84	425.82	425.20	431.30	431.35	432.74	435.61	436.05	435.88	435.26	434.52	433.96	433.13	432.79	432.66	432.52	431.72	430.31
MW-13D						429.55						431.67						426.69
MW-14S	426.60	428.64	428.30	435.36	437.46	438.16	441.65	442.87	442.85	442.05	440.82	439.77	438.86	437.36	436.35	436.89	435.77	434.06
MW-14D						434.36						435.09						430.58
MW-14R						369.69						370.84						359.37
MW-15S	430.87	433.52	432.92	439.33		441.55	444.99	446.09	445.75	445.29	444.27	443.34	440.67	441.40	440.78	441.07	440.06	438.31
MW-15D						439.68						441.13						436.56
MW-16S						436.38						433.05						427.06
MW-16D						431.37						432.43						428.09
MW-17S	420.88	423.72	424.11	435.97	430.63	431.91	434.87	435.24	435.00	434.62	433.92	433.20	432.87	431.99	431.43	431.68	430.95	429.57
MW-18S	406.20	408.28	408.21	410.13	411.08	413.05	415.35		417.08	415.99	415.40	414.93	414.76	415.23	413.51	DRY	412.89	411.58
MW-18D	406.58	408.06	407.80	411.82		413.51	415.87	417.18	416.45	416.64	416.10	415.27	414.92	414.15	413.38	413.49	413.00	411.60
MW-19S						440.26						440.23						436.63
MW-19D						431.91						432.10						428.23
MW-20R						378.07						378.69						363.88
MW-22U	DRY	DRY	DRY	DRY		DRY	412.95	413.80	413.48	413.64	413.29	412.72	412.22	412.00	411.97	DRY	411.97	411.72
MW-22L	403.71	405.26	415.09	408.07	408.95	410.00	412.41	413.72	413.53	413.48	412.86	412.13	411.63	410.89	410.09		409.83	408.31
MW-23S						432.63						432.47						429.61
MW-23D						427.92						428.61						424.96
MW-25S						404.32						407.69						402.12
MW-25D						407.37						410.27						405.81
MW-26R																		
MW-27S																		
MW-27D																		
MW-28S																		
MW-29S																		
BC-4S						408.09						410.27						407.19
BC-4R						375.40						378.36						372.06
FMMW-1																		
FMMW-2																		

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	09/04/90	10/01/90	10/22/90	11/26/90	12/17/90	01/29/91	02/25/91	03/26/91	04/29/91	06/28/91	07/29/91	01/20/92	04/14/92	07/14/92	10/19/92	03/22/93	06/02/93	09/07/93
MW-10S	436.17	428.80	433.53		439.17	440.15	444.80	436.70	447.78	446.84	438.68	432.83	436.97	433.79	DRY	430.85	436.53	433.09
MW-10D	431.39	435.02				437.29			442.81	437.36	434.56	427.69	432.27	428.65	424.38	427.04	432.03	429.14
MW-11S	426.00	424.17	422.26	431.14	430.37	430.17	433.68	434.81	435.71	431.78	429.42	422.87	426.32	423.19	DRY	423.72	420.86	416.65
MW-11D		423.92				431.15			435.59		429.14	422.51	426.17	423.14	418.40	423.64	420.67	416.54
MW-11D(2)																		
MW-12S				429.56	432.71	432.50	434.23	436.28	433.82	433.55	431.51	DRY	428.20	DRY	420.20	DRY	428.81	
MW-12D	424.53		421.83			430.54			435.37		427.75	420.98	424.69	421.69	417.89	420.99	424.36	421.85
MW-13S	428.13	427.11	426.90	432.48	431.58	433.78	435.88	427.04	437.99	434.28	432.08	422.68	425.92	422.65	419.36	421.21	425.53	423.10
MW-13D		422.38				427.89			434.54		427.32	420.04	423.65	420.40	417.03	418.81	423.27	420.83
MW-14S	430.42	428.38	427.82		435.80	423.70	450.65	442.30	443.74	437.77	434.36	427.40	431.92	427.62	DRY	426.78	431.72	427.51
MW-14D		425.55				436.69			439.25	433.66	430.74	423.86	428.14	424.30	420.96	423.18	427.96	425.05
MW-14R		363.08				370.91			373.66		361.62	364.60	364.86	358.84	360.16	362.71	362.30	358.60
MW-15S	434.98					441.09			446.38		438.90	431.90	435.92	432.28	428.17	431.18	435.83	
MW-15D						439.86			445.39		436.94	429.68	434.16	430.27	427.00	429.23	433.97	431.16
MW-16S						434.89												
MW-16D				405.49		431.36												
MW-17S	426.39	424.45				431.78			435.41		430.09	422.87	426.60	414.25	418.39	422.29	426.97	423.71
MW-18S	409.74	408.54	407.49		412.41		414.91	406.79	416.45	414.35	412.49	DRY	DRY	DRY	405.65	407.73	410.17	407.86
MW-18D	409.50	408.20							418.17	414.57	412.38	407.40	409.40		405.10	406.55	409.25	407.36
MW-19S									441.19		439.72	430.81	433.21	429.48	426.94	430.33	433.11	429.57
MW-19D									435.06		427.93	419.81	424.24	420.27	417.06	419.08	422.80	424.91
MW-20R		369.09				379.40			380.21		365.60	375.48	370.85	362.62	366.69	368.84	369.37	365.39
MW-22U	406.57								405.03		412.08	411.93	411.91	411.93	411.88	411.84	411.83	412.14
MW-22L	406.35					DRY			414.00		409.21	404.77	406.38	404.59	402.60	403.90	406.22	404.37
MW-23S		426.73				431.73			429.94		430.28	426.11	427.38	425.59	422.09	426.54	427.46	425.22
MW-23D						428.00			431.86		425.43	419.36	422.39	419.50	416.24	419.16	422.21	419.55
MW-25S		399.24				404.54			412.34		403.25	399.17	399.99	398.66	397.72	398.29	400.04	398.53
MW-25D						406.91			414.08		406.76	401.69	403.37	401.33	399.65	400.76	403.36	401.38
MW-26R												422.00	425.83	422.23	418.86	420.86	422.78	421.87
MW-27S												418.61	423.23	418.89	416.24	417.80	423.19	418.84
MW-27D												419.12	423.47	419.53	416.07	418.44	423.34	419.84
MW-28S																		
MW-29S																		
BC-4S									412.92			404.26	405.62		401.42	403.22	405.48	403.55
BC-4R									369.92			371.19	372.58		367.63	369.43	370.85	367.88
FMMW-1																		
FMMW-2																		

Water Level Measurements
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WELL	12/07/93	03/14/94	06/07/94	09/19/94	12/05/94	03/18/95	06/19/95	09/19/95	12/13/95	03/19/96	06/12/96	09/03/96	12/10/96	12/11/96	03/25/97	06/09/97	09/08/97	12/15/97
MW-10S	428.36	431.34	431.20	DRY	429.46	441.64	438.30	431.80	436.63	447.59	444.28	437.45		439.64	449.09	442.97	436.79	435.67
MW-10D	425.87	428.13	427.47	423.19	425.96	439.10	434.93	427.99	434.00	443.71	440.91	433.94		437.40	445.78	439.58	433.06	430.81
MW-11S	413.86	418.23	415.97	410.81	418.15	425.46	422.10	416.95	423.30	425.09	433.07	418.00	421.34		426.98	422.22	415.98	416.46
MW-11D	413.73	418.04	415.82	410.72	417.88	425.31	421.97	416.80	423.04	424.99	432.96	417.86	420.13		426.88	422.05	416.82	416.32
MW-11D(2)																		
MW-12S						433.68					434.71	429.84			437.34			
MW-12D	419.07	421.66	420.32	416.75	420.01	431.55					433.34	426.50			437.39			
MW-13S		422.94	421.57	417.93	421.36	432.58	428.50	422.16	428.51	436.95	434.49	427.68	431.04		438.43	432.99	427.01	425.97
MW-13D	418.06	420.63	419.29	415.67	419.11	430.31	426.23	419.83	426.15	434.60	432.21	425.37	428.74		436.15	430.68	424.67	423.64
MW-14S	426.08	428.35	427.13	DRY	427.58	438.29	434.01	427.21	433.13	443.69	440.55	432.84	436.27		444.90	439.06	431.67	430.40
MW-14D	422.15	424.83	423.61	419.92	422.81	435.55	431.09	424.20	430.69	440.23	437.81	430.29	433.90		442.24	436.05	429.20	427.72
MW-14R	361.51	362.38	361.06	357.66	360.04	369.03				373.23					375.79	372.77		
MW-15S	429.53	432.99	431.53	427.68	431.88	441.83					435.80	437.13			443.20			
MW-15D	428.24	430.93	429.70	425.96	429.06	441.57					435.82	436.07			437.95			
MW-16S																		
MW-16D																		
MW-17S	419.98	424.98	422.77	417.32	423.64	432.07	429.51	424.07	429.79	435.17	433.27	428.57	431.06		435.77	432.27	427.54	443.32
MW-18S	406.42	409.63	408.23	406.13	408.77	414.75					DRY	411.34			417.05		Dry	Dry
MW-18D	405.61	407.57	406.75	404.65	406.57	414.93	411.50	407.06	411.03	418.79	416.81	411.26		413.20	420.04	415.78	410.33	419.67
MW-19S	427.31	430.70	429.14	425.62	430.65	438.17					439.08	433.57			442.25			
MW-19D	421.33	421.95	427.06	415.64	419.40	433.82					434.31	425.87			438.09			
MW-20R	368.45	368.69	367.69	362.64	367.32	377.03				380.52					378.13			
MW-22U	411.88	411.89	411.88	411.82	411.79	412.33					413.54	408.28			414.90			
MW-22L	402.97	404.85	404.08	402.33	403.97	411.50					412.76	411.66			416.49		407.10	
MW-23S	423.01	426.11	424.79	420.91	426.02	430.94	427.78	424.75	429.37	433.76	431.80	427.50		427.10	434.60	431.35	427.15	427.01
MW-23D	417.14	419.74	418.50	414.73	418.86	427.76					429.71	423.78			433.41		423.11	422.29
MW-25S	397.87	399.47	397.06	397.58	399.71	407.39			401.96		410.74	402.43			415.13		401.39	
MW-25D	399.88	401.89	400.91	399.23	401.32	409.70	405.91	401.29	405.30		412.72	404.96			416.69	411.61	404.92	403.70
MW-26R	419.26	422.32	420.88	417.12	420.20	432.36				437.94					440.28			
MW-27S	416.44	419.39	417.93	415.62	417.69	430.84					433.34	426.05			436.35			
MW-27D	416.84	419.92	418.69	415.20	417.89	430.78					433.07	425.86			437.98			
MW-28S																		
MW-29S																		
BC-4S	401.78	404.02	403.19	401.20	403.03	409.91					411.41	406.50			414.11			
BC-4R	363.21	369.45	368.53	366.36	367.47	376.58					379.59	371.70			383.77			
FMMW-1																		
FMMW-2																		

Water Level Measurements
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WELL	03/16/98	06/24/98	09/16/98	12/21/98	04/09/99	06/07/99	09/13/99	12/13/99	03/15/00	06/09/00	09/12/00	01/18/01	03/22/01	04/19/01	07/12/01	10/23/01	01/18/02	04/25/02
MW-10S	440.78	437.25	431.48	437.27	445.95	440.31	435.19	434.31		440.42	435.67	432.45	431.01	425.45	431.63	423.52	439.17	442.23
MW-10D	437.93	433.36	427.15	435.30	442.33	437.10	430.29	434.84	440.17	436.95	430.43	427.59	427.74	428.48	427.12	423.01	436.72	439.20
MW-11S	421.38	417.61	412.58	419.42	424.49	420.04	415.65	419.32	426.93	430.10	425.18	423.31	422.18	423.76	421.93	417.39	430.10	432.17
MW-11D	421.15	417.45	412.44	419.28	424.37	419.89	414.90	418.47	426.93	429.89	425.04		422.04	423.61	421.81	417.27	430.09	431.83
MW-11D(2)										429.56	423.62	420.78	420.74	421.20	419.95	416.88	429.34	431.79
MW-12S		429.29			435.33	431.44		430.79	434.01	431.25	426.60	425.03	422.96	425.45	423.41	420.29	431.59	433.23
MW-12D		425.59			434.42	429.79	422.90	427.02	431.88	429.10	422.96	421.40	420.59	420.86	419.64	416.44	429.00	431.22
MW-13S	431.71	427.02	421.48	429.57	435.58	430.64	424.91	428.75	433.31	430.57	424.79	424.61	422.47	422.62	421.31	418.10	430.75	433.31
MW-13D	429.34	424.95	419.15	427.22	433.26	428.29	422.33	426.31	431.85	428.27	422.28	420.49	419.90	420.14	418.87	415.61	428.24	430.53
MW-14S	437.04	432.10	426.30	433.69	441.91	435.91	429.07	434.18	439.91	435.75	429.25	427.50	426.42	427.71	426.08	421.59	434.95	438.12
MW-14D	434.40	429.59	423.29	432.17	438.94	434.07	425.40	431.11	436.38	433.32	426.41	423.89	423.79	424.29	422.99	419.77	432.94	435.47
MW-14R	372.26	369.06		367.76	377.41	370.78	360.18	366.72	373.26	369.79	363.33	363.66	355.02	354.67	347.91	349.36	356.05	360.45
MW-15S		432.05			440.66		429.24		438.60	435.06	429.30	427.51	426.67	427.73	426.51	422.67	434.67	437.38
MW-15D		525.26			434.75		422.30		432.11									
MW-16S																		
MW-16D																		
MW-17S	431.32	428.09	422.98	429.24	433.80	430.05	425.35	429.33	431.15	429.69	425.37	423.40	422.04	423.42	422.02	416.65	430.07	431.67
MW-18S	413.60	410.54		411.66	415.75	Dry	Dry	411.57	414.46	412.01	408.68	407.31	406.81	407.32	406.76	405.96	412.66	415.75
MW-18D	413.87	410.23	406.46	411.19	417.79	413.48	408.16	410.66	414.97	412.70	402.50	406.50	406.15	406.54	405.88	404.23	412.10	413.09
MW-19S		433.09			439.81		430.75		438.94	435.83	430.90	430.18	428.56	430.05	429.11	425.58	436.50	437.98
MW-19D		424.16			434.11		422.40		432.29	429.88	422.20		422.66	420.01	421.57	415.96	431.30	430.96
MW-20R	378.75	372.68			381.44				381.10	375.78	370.29	369.65	362.53	361.24	352.45	356.57	364.32	366.91
MW-22U		411.85		411.80	413.46	411.87	411.99	411.77	412.12	411.74	411.90		418.36		411.77	411.76	411.83	411.96
MW-22L		407.00		407.54	414.42	410.03	405.15	407.23	411.50	409.30	405.12		403.23	405.73	403.00	401.82	408.55	411.22
MW-23S	430.92	427.28	424.07	428.77	432.50	427.83	426.17	429.15	431.62	428.74	426.10	425.11	424.28	424.38	424.02	420.01	429.36	430.66
MW-23D	427.46	423.22		425.09		425.35			428.71	426.04	420.98		418.31	418.24	417.24	414.80	425.84	428.05
MW-25S		401.46		403.13	412.72	406.26	399.65	402.07	408.62	405.62	399.66	399.04	398.49	399.12	398.45	397.69	403.93	408.25
MW-25D	408.83	404.80	401.02	405.80	414.14	408.78	402.74	405.09	410.31	408.06	402.82		399.04	401.61	400.66	399.30	406.84	410.29
MW-26R	432.28			429.90	437.08				434.06	431.10	424.12	421.55	421.99	422.69	420.95	417.75	429.98	432.67
MW-27S		425.22			435.18				431.83	429.31	421.77		417.86	418.95	417.81	415.59	427.92	431.41
MW-27D		425.02			434.74				431.95	428.99	422.76		418.61	419.53	418.49	415.18	428.07	431.16
MW-28S										427.07	423.74						427.42	428.56
MW-29S																		
BC-4S		405.49		406.29							403.69		401.45	401.93	401.47	400.20	407.13	409.31
BC-4R		374.77		373.33							371.04		367.95	368.07	364.84	363.38	370.31	374.56
FMMW-1									407.92	405.10	400.56	398.73	398.55	398.58	398.47	397.64	403.73	407.47
FMMW-2									408.76	406.32	402.23	400.31	399.91	400.06	401.36	398.86	404.44	408.36

Water Level Measurements
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Hidden Valley Landfill, Pierce County, Washington

WELL	07/25/02	10/24/02	01/30/03	04/24/03	07/24/03	10/30/03	01/22/04	04/15/04	06/29/04	10/21/04	01/27/05	02/23/05	04/21/05	07/22/05	10/17/05	01/18/06	04/14/06	08/08/06
MW-10S	436.36	428.62	434.14	437.02	432.12	430.00	436.15	436.45	427.28	429.79	435.10		436.46	434.32	429.41	444.27	441.85	435.00
MW-10D	432.24	426.28	430.90	434.22	427.80	426.68	432.72	433.60	425.35	426.94	431.09		432.97	429.89	426.03	440.71	439.08	430.14
MW-11S	426.78	420.53	428.84	428.03	422.55	421.79	427.33	427.08	420.71	421.04	425.46		426.52	424.67	420.06	433.68	436.78	424.48
MW-11D	426.64	420.42	428.52	427.87	422.42	421.65	427.21	426.96			425.30		426.39	424.52	419.94	433.49	431.63	424.31
MW-11D(2)	425.18	418.99	424.21	426.49	420.52	419.89	425.73	426.53	418.92	419.64	423.73		425.50	423.03	418.94	432.78	431.98	423.00
MW-12S	428.31	421.60	427.04	429.03	423.70	422.20	428.57	430.59	421.86	422.26				426.10			432.97	425.79
MW-12D	424.74	419.39	423.79	426.11	420.21	419.65	425.21	426.18	418.64	419.23	423.64		425.18	422.61	418.71	432.21	431.33	422.49
MW-13S	427.32	421.47	425.91	427.95	422.13	421.67	427.09	427.90	420.05	421.03	425.31		426.81	424.09	420.26	433.60	432.49	423.56
MW-13D	424.31	418.43	424.83	426.44	419.37	419.06	424.52	425.45	417.54	418.56	422.89		424.45	421.74	417.90	431.29	430.22	421.17
MW-14S	430.93	424.61	430.26	432.49	426.20	426.05	431.21	431.37	424.80	426.11	429.13		430.61	428.35	424.54	440.16	438.40	428.34
MW-14D	428.36	422.06	426.69	429.99	423.64	423.07	429.00	426.58	421.87	423.18	427.02		428.78	426.05	422.06	436.34	435.52	426.06
MW-14R	351.96	353.91	355.58	359.54	350.75	355.08	358.99	361.73	351.70	356.38	359.06		363.06	357.84	357.48	363.43	368.93	354.35
MW-15S	431.04	424.71	429.65	432.01	426.45	426.06	431.16	431.42	424.61	425.36	429.20		430.68	428.55	424.52	438.93	437.03	428.45
MW-15D						421.96	427.82	435.91	427.84	429.30	425.98		427.70	424.99	428.06	435.20	434.37	424.99
MW-16S																		
MW-16D																		
MW-17S	426.99	420.72	425.82	427.66	422.66	421.41	427.12	427.16	420.54	420.09	425.40		426.31	424.73	419.85	433.02	431.26	424.50
MW-18S	409.91	406.09	408.46	410.59	406.96	406.48	410.32	410.37	406.55	406.30		408.71	409.30	408.77		406.65	413.69	408.66
MW-18D	409.59	405.40	407.86	410.22	406.37	405.75	409.47	410.12	405.59	405.65		407.66	408.89	407.74		408.59	415.38	408.36
MW-19S	432.27	426.67	432.01	433.63	428.20	428.66	433.43	433.46	426.37	427.51			433.20	430.65	426.66	440.41	437.51	430.22
MW-19D	424.14	421.14	426.65	426.35	420.05	419.38	425.40	429.24	420.90	420.51	427.08		428.40	423.04	419.84	434.97	432.75	421.86
MW-20R	356.37	359.61	360.63	365.21	354.47	360.08	365.13	367.55	355.13	362.77	364.70		370.57	368.57	363.35	368.45	375.02	356.82
MW-22U	411.88	411.85	411.83	411.83	411.83	411.79	411.80	411.80	411.76	411.78			411.73	411.70	411.67	412.56	411.93	411.91
MW-22L	406.28	402.64	404.48	406.85	403.30	402.91	406.07	401.68	402.77	402.72			405.32	404.56	402.55	411.24	411.55	404.83
MW-23S	426.72	421.88	426.86	427.36	423.52	423.38	427.33	426.98	421.90	423.12	426.42		427.22	426.81		434.54	431.58	426.99
MW-23D	422.13	417.02	421.05	423.50	418.02	417.75	422.92	423.21	416.77	417.47	420.82		422.38	421.50		431.53	429.77	421.75
MW-25S	401.21	397.96	400.43	401.87	398.56	398.62	401.25	401.40			400.23		400.86	398.32	396.69	407.84	407.33	398.24
MW-25D	404.55	400.28	402.89	405.11	401.15	400.71	404.54	404.80			401.62		402.57	400.62	398.08	408.45	408.77	400.76
MW-26R	425.45	419.58	424.06	427.10	420.61	419.98	425.63	426.18	418.09	419.08	423.19		424.52	421.75	417.85	431.23	430.74	421.10
MW-27S	424.01	416.90	421.45	425.44	418.43	417.81	424.31	424.72	416.86	417.50	421.54		423.09	421.01	416.89	431.74	431.41	421.17
MW-27D	424.05	417.41	421.92	425.55	419.02	418.27	424.47	425.08	417.15	418.02	422.11		423.70	421.51	417.15	431.58	431.22	421.57
MW-28S	424.95	422.18		425.82	422.21		424.25	425.50			421.63		423.30			430.34	428.30	423.12
MW-29S																		
BC-4S	404.61	400.65	402.68	405.28	401.47	401.10	404.44	403.99	400.77	400.63	402.62		403.22	403.20	400.60	409.55	409.78	403.19
BC-4R	368.66	366.63	367.72	371.20	365.66	366.17	369.82	372.04	365.20	365.88	368.95		370.99	369.51	366.70	373.71	377.99	368.21
FMMW-1	401.78	398.13	398.73	402.24	398.64	397.93	400.72	402.36	398.28	398.71	402.32		399.21	399.73	397.98	406.40	408.16	399.81
FMMW-2	403.02	399.45	400.31	403.76	400.21	399.26	402.38	403.85	399.63	399.17	400.25		401.03	401.85	399.35	407.58	408.85	401.85

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	10/26/06	01/18/07	04/26/07	07/19/07	10/11/07	01/24/08	04/17/08	07/10/08	10/23/08	01/12/09	04/16/09	07/09/09	10/29/09	01/28/10	04/08/10	07/15/10	10/14/10	01/06/11
MW-10S	430.65	445.84	441.84	436.42	434.09	438.52	439.06	435.30	427.47	439.23	439.29	436.11	431.99	439.51	440.01	438.29		
MW-10D	426.93	442.71	440.22	432.35	429.07	435.33	436.09	430.75	425.34	435.82	436.77	432.37	427.71	436.80	438.48	435.20	435.20	436.53
MW-11S	420.35	434.55	432.19	426.15	422.82	428.96	429.15	424.76	419.60	430.66	429.49	426.04	422.29	425.43	429.99	428.23	423.92	429.58
MW-11D	420.26	434.82	432.17	426.01	422.69	429.12	428.99	424.64	419.47	430.50	429.37	425.91	422.17	429.43	429.83	428.52	423.78	429.11
MW-11D(2)	419.75	435.30	433.01	425.14	421.51	428.15	428.91	423.73	418.67	428.94	429.62	425.34	420.91	429.12	429.91	427.95	422.26	429.12
MW-12S	420.98	435.58	433.23	427.50		429.92	430.25	425.31		431.79	430.56			429.59	431.04	451.41		430.30
MW-12D	419.45	434.39	432.19	424.62	420.97	427.20	428.04	422.89	418.35	428.33	428.91	424.88	420.51	428.57	429.75	427.29	421.86	428.50
MW-13S	420.94	435.56	433.30	425.89	422.45	428.39	429.25	423.95	419.79	429.85	430.20	426.04	422.13	430.37	430.58	428.51	423.45	429.52
MW-13D	418.60	433.27	431.02	423.52	420.18	426.21	426.83	421.64	417.44	427.49	427.83	423.72	419.75	427.98	428.17	426.13	420.98	427.46
MW-14S	424.75	441.87	438.87	430.27	427.83	433.49	434.33	428.61		434.77	434.64	430.10	426.97	434.69	435.61	433.28	427.99	434.64
MW-14D	422.76	438.82	436.67	428.35	424.53	431.30	432.18	426.51	421.62	431.64	432.86	428.37	423.72	432.61	433.26	431.32	425.92	432.11
MW-14R	357.85	369.11	367.45	355.73	359.17	363.20	366.05	359.64	357.00	362.03	367.99	359.40	357.76	363.32	366.15	360.15	361.90	363.18
MW-15S	424.76	440.45	437.94	430.25	426.86	433.22	433.94	428.71	423.98	434.51	434.18	430.13	426.53	434.26	434.93	432.81	428.07	434.10
MW-15D	421.67	437.59	435.47	427.28	423.34	430.20	430.59	425.36	420.50	430.68	431.77	427.37	422.64	431.48	432.07	430.04	424.85	431.28
MW-16S																		
MW-16D																		
MW-17S	418.19	433.88	431.56	425.98	421.39	428.05	428.67	424.72		430.02	428.83	425.86	421.78	428.94	429.17	427.67	423.81	428.68
MW-18S	406.66	407.83	405.69	401.26	398.83	411.62	412.01	408.80	406.19	412.64	412.16	409.66	406.78	412.45	412.56	411.17	408.03	412.11
MW-18D	406.02	410.91	409.21	402.82	400.04	411.68	412.48	408.41	405.56	412.15	412.72	409.78	406.62	412.66	413.29	411.92	407.67	412.41
MW-19S	426.73	440.99	437.84	431.44	429.21	434.92	434.86	430.35	426.01	438.07	435.64	431.65	429.13	435.98	436.05	433.72	430.19	435.62
MW-19D	419.91	435.18	434.36	424.07	422.16	429.12	426.49	422.98	420.36	430.23	431.24	427.82	423.51	434.04	435.20	428.82	417.93	429.56
MW-20R	363.82	375.66	373.17	358.22	363.32	366.81	370.42	363.76	360.73	367.37	375.67	364.27	362.02	367.50	370.52	363.31	368.98	368.50
MW-22U	411.92	414.00	412.37	406.46	411.91	411.88	411.93	411.89	411.90	411.88	411.86	411.88	411.87	411.74	411.71	411.80	411.72	411.77
MW-22L	402.81	414.01	412.41	411.72	403.58	407.72	408.72	404.94	402.54	408.27	408.85	406.15	403.30	408.76	409.44	408.07	404.21	408.59
MW-23S	423.52	434.74	432.07	428.03	426.22	428.13	427.94	425.67	421.36	432.59	430.26	427.99	424.66	430.57	427.64	429.01	426.85	428.60
MW-23D	418.56	432.41	430.17	423.10	420.33	424.12	425.12	419.94	415.95	427.22	427.34	423.39	418.20	427.19	430.65	425.72	421.05	425.28
MW-25S	396.69	410.92	408.72	399.75	397.52	402.59	404.10	399.63	397.85	403.98	402.73	399.34	398.60	402.62	403.99	402.02	398.86	403.64
MW-25D	398.27	411.43	409.96	402.42	399.38	404.63	406.01	401.67	398.85	405.31	405.16	402.10	399.77	404.93	406.04	404.43	399.05	400.66
MW-26R	419.62	435.55	432.87	423.86	423.86	426.24	427.52	421.36	416.46	425.40	427.56	422.47	417.58	426.06	426.79		420.03	424.74
MW-27S	417.03	434.62	432.82	423.82	419.02	426.60	428.13	421.57	416.64	426.62	427.87	423.46	418.19	427.68	428.89	426.90	420.24	427.77
MW-27D	417.67	434.38	432.58	424.02	419.79	426.33	427.98	422.01	416.76	426.75	428.09	423.75	418.77	427.73	428.97	426.83	420.75	427.81
MW-28S		430.59	428.57	423.37	422.21	426.60	426.59	422.20		428.75	426.91	423.73		427.12	427.21	426.05	422.12	426.83
MW-29S																		
BC-4S	400.99	412.43	409.27	404.68	401.77	406.16	407.06	403.08	400.54	406.51	406.51	404.51	401.07	407.25	407.78	406.54	402.76	406.84
BC-4R	367.40	378.61	378.85	369.47	368.79	372.50	374.21	369.50	366.23	370.58	374.48	370.17	367.12			371.53		
FMMW-1	398.21	410.93	410.47	402.08	398.60	402.94	404.47	399.89	398.07	401.39	404.20	402.00	398.45	411.88	404.93	403.71	398.97	403.89
FMMW-2	399.52	411.56	409.80	403.38	400.15	404.58	405.94	401.95	399.41	403.08	405.81	403.27	399.92	398.05	406.45	405.32	400.93	405.54

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	04/21/11	07/07/11	10/27/11	01/26/12	04/27/12	07/19/12	10/11/12	01/17/13	04/23/13	07/25/13	10/10/13	01/06/14	04/09/14	07/07/14	10/29/14	01/15/15	04/20/15	07/28/15
MW-10S																		
MW-10D	441.99	438.29	430.48	433.04	438.69	435.288	428.738	436.36	438.09	432.23	433.33	431.84	441.79	435.56	430.11	435.54	436.08	428.64
MW-11S	443.53	430.58	424.03	427.67	430.80	427.895	422.825	429.61	430.48	426.04	427.12	425.22	433.16	428.73	424.18	428.02	428.93	422.84
MW-11D		430.41	423.90	427.46	430.60	427.702	422.702	429.39	431.15	425.90	426.54	425.00	429.95	424.84	419.19	422.65	428.70	422.74
MW-11D(2)	434.73	431.83	423.03	426.03	431.27	427.771	421.641	429.38	430.58	425.10	426.28	423.92	433.89	428.78	422.93	426.58	428.94	421.78
MW-12S	434.21	431.52		428.74	431.74	429.336	427.856	430.61	431.20		433.19		434.91			428.91	430.18	423.89
MW-12D	434.49	430.32	423.03	425.72	430.71	427.566	420.876	428.54	429.68	424.40	426.15	424.48	434.52	428.31	422.59	426.02	428.22	421.19
MW-13S	434.56	431.36	424.72	427.35	431.83	429.185	422.225	429.65	430.71	425.51	427.26	426.06	434.71	428.74	424.39	429.81	429.99	422.56
MW-13D	432.17	428.90	422.32	424.94	430.04	426.69	419.84	427.23	428.44	423.15	424.94	423.59	432.40	426.59	421.99	427.09	427.46	420.19
MW-14S	440.84	436.68	428.10	432.29	436.60	432.818	426.558	434.75	436.19	430.41	431.40	429.25	440.20	434.01	428.64	433.52	434.06	426.59
MW-14D	438.44	434.77	426.13	429.13	434.84	431.59	424.39	432.76	434.39	428.22	429.09	427.49	437.99	432.14	425.94	431.39	432.57	424.64
MW-14R	366.10	366.13	359.81	360.76	366.15	358.954	354.814	362.35	365.14	353.64	359.94	364.62	369.01	358.48	357.45	363.58	367.26	353.71
MW-15S	439.58	436.01	428.26	431.88	435.90	432.59	426.79	434.35	435.67	430.51	432.28	429.28	439.47	433.68	428.35	433.24	433.73	426.76
MW-15D	437.2	434		427.69	433.74	430.59	423.13	431.65	432.69	427.17	428.09	426.83	436.69	431.09	424.84	430.74	431.22	423.52
MW-16S																	480.27	
MW-16D																	480.73	
MW-17S	432.474	429.724	423.924	426.83	429.94	427.524	422.974	428.97	429.62	425.87	426.76	424.97	432.14	428.19	423.27	428.32	428.32	422.89
MW-18S	415.396	412.986	408.116	409.86	413.18	410.896	407.716	412.46	412.44	407.58	411.58	409.12	416.43	411.60	407.83	414.83	411.79	407.61
MW-18D	417.46	414.90	407.94	410.13	414.13	411.755	407.375	412.92	413.47	407.74	411.68	409.08	417.47	413.02	407.87	411.39	412.91	407.55
MW-19S	439.15	436.16	430.48	434.77	437.11	432.652	428.832	435.92	436.36	431.90	434.01	431.93	440.32	436.91	430.03	436.81	435.88	428.73
MW-19D	437.87	427.50	428.50	429.82	436.00	432.35	416.63	430.69	435.35		421.32	426.40	439.32	437.32	417.39	434.97	424.45	417.12
MW-20R	367.73	369.97	363.65	363.94	368.94	363.629	356.649	367.05	368.59	354.75	361.65	371.65	372.63	360.95	362.79	368.15	370.70	357.13
MW-22U		411.84	411.83	411.80	411.78	411.838	413.968	411.92	410.77	405.65	418.81	407.67	414.82	410.16	403.62	411.81	411.84	411.84
MW-22L		411.18	404.57	406.30	410.28	408.076	404.056	409.10	409.45	404.32	408.86	404.73	413.40	408.95	402.35	410.29	409.16	404.13
MW-23S	433.36	430.65	427.04	428.54	429.91	427.39	424.23	448.34		426.52	427.77	426.28	427.29	427.45			428.10	424.24
MW-23D	431.53	431.51	421.34	423.14	426.84	423.84	419.35	426.05	426.45	421.45	423.18	422.05	430.98	424.81	420.99	427.52	425.60	419.15
MW-25S	410.32	406.94	397.98	401.60	406.43	403.1	398.56	404.35	405.68	400.97	401.44	399.76	408.85	405.19	399.10	403.28	404.56	398.59
MW-25D	411.06	408.46	400.34	403.42	407.77	405.22	400.45	406.21	407.27	403.32	403.66	402.27	410.54	408.36	401.15	405.15	406.34	400.50
MW-26R		426.90	417.95	419.88	425.70	422	415.4	425.20		418.82	419.09	418.39	427.32	357.75		360.40	361.98	352.63
MW-27S	434.21	430.81	420.43	424.02	430.11	426.56	418.93	428.23	429.31	423.86	422.84	424.21	433.28	429.46	421.79	429.16	428.21	419.19
MW-27D	433.82	430.84	421.07	424.15	430.02	426.79	419.64	428.23	429.02	423.92	424.08	424.12	433.00	428.92	421.85	428.93	428.07	419.91
MW-28S	429.44	427.4	422.19	424.67	427.77	NM	422.07	421.75			424.77						426.37	422.17
MW-29S																		
BC-4S	411.756	409.246	402.646	404.19	408.30	406.246	402.26	407.28	407.45	404.75	406.19	402.82	411.49	408.37	397.25	409.48	407.25	402.05
BC-4R				370.41	375.16	386.882	385.60	372.66	374.31				377.96	389.91		372.61	375.23	390.99
FMMW-1	410.683	407.633	399.073	408.23	406.28	403.673	399.033	404.37	405.73	402.38	400.13	400.41	409.73	405.28	398.81	403.45	404.67	398.88
FMMW-2	411.75	408.31	401.01	394.17	407.21	405.287	400.867	406.027	406.087	403.59	402.14	402.26	410.36	406.46	400.49	405.11	406.14	400.64

Water Level Measurements
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

WELL	10/15/15	01/14/16	04/21/16	07/07/16	10/13/16	01/19/17	07/14/17	01/12/18	08/29/18	01/16/19	08/22/19
MW-10S						438.60	438.38	439.69			
MW-10D	425.87	440.99	441.21	434.09	428.38	435.82	436.39	437.27	429.63	430.33	425.65
MW-11S		432.63	432.38	426.81	421.95	428.59	429.09	430.00	423.74	424.78	421.08
MW-11D	419.50	432.49	432.23	426.68	421.85	423.87	424.41	429.74	423.39	424.65	419.95
MW-11D(2)	419.43	434.08	434.53	426.99	421.38	428.64	429.71	430.21	422.99	423.28	419.56
MW-12S	420.36	433.47	433.09	428.11	422.61	429.88	429.69	430.80	425.06	426.01	420.79
MW-12D	419.06	433.27	433.08	426.27	421.18	428.03	429.09	429.47	422.28	423.07	418.90
MW-13S	420.69	433.86	434.01	427.72	422.19	429.61	429.87	430.92	423.72	424.47	420.54
MW-13D	418.51	431.52	431.67	425.14	419.94	427.24	427.51	428.49	421.02	423.99	417.99
MW-14S		439.78	439.07	431.41	428.95	435.92	434.23	436.78	427.61	428.50	
MW-14D	422.29	437.49	437.96	429.98	424.56	432.11	433.02	433.71	425.62	426.44	422.27
MW-14R	356.41	367.43	370.08	361.66	357.41	363.07	361.57	364.23	356.24	359.47	352.16
MW-15S	424.13	438.50	438.08	431.26	425.81	432.17	433.77	435.26	427.85	428.58	424.39
MW-15D	421.22	436.22	436.74	429.26	423.32	430.06	431.88	432.47	424.48	425.25	421.06
MW-16S											
MW-16D											
MW-17S	419.36	431.47	431.13	426.26	421.39	427.17	428.07	428.79	423.68	424.51	419.87
MW-18S	406.26	414.98	414.43	410.10	407.05	410.91	411.52	412.35	408.14	408.71	406.40
MW-18D	405.85	416.58	417.24	411.20	406.88	411.58	413.46	412.99	408.07	408.39	405.77
MW-19S	426.51	439.11	437.80	432.26	428.69	434.19	433.55	435.23	432.43	431.23	426.79
MW-19D	423.85	429.35	431.52	430.22	425.80	424.01	430.65	433.13	418.74	421.33	421.43
MW-20R	360.70	372.00	375.97	364.95	360.42	367.14	364.08	368.60	358.40	362.56	355.04
MW-22U	411.85	412.67	412.59	411.88	411.83	411.81	411.85	411.83	411.89	411.81	411.80
MW-22L	402.75	412.50	413.46	407.69	403.53	407.67	409.97	409.47	404.66	404.94	402.76
MW-23S		431.34	430.21	426.61	423.47	428.87	427.49				
MW-23D	416.35	429.00	433.87	423.03	417.92	426.80	426.79				
MW-25S	397.52	409.97	411.10	402.60	397.97	402.46	406.00				
MW-25D	398.73	410.44	411.85	404.79	399.68	404.88	407.47				
MW-26R	354.20	368.00	372.30	398.40	357.60	364.89	362.69	422.28	414.02	414.51	409.60
MW-27S	416.61	433.21	433.70	425.59	418.07	427.13	429.09				
MW-27D	416.92	433.20	433.70	425.65	419.19	427.19	428.99				
MW-28S	422.17	428.97	428.38	423.79	421.70	426.51	426.21				
MW-29S								436.75	430.03	430.85	427.30
BC-4S	400.65	410.54	416.06	405.55	401.20	405.84	407.63	407.29	402.56	402.88	400.63
BC-4R	389.65	376.57		372.19	368.11		373.76	373.86	367.83	369.35	
FMMW-1	398.01	409.03	409.90	402.92	398.38	402.88	405.85	403.93	399.19	399.06	398.19
FMMW-2	399.30	409.77	410.57	404.42	399.83	404.40	406.67	405.66	401.22	400.92	399.52

Appendix D

GROUNDWATER MONITORING DATA

Table 2. Water Level Elevations - August 22, 2019
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Well Casing Elevation	Depth to Water (FT)	Water Level Elevation
Shallow Perched Aquifer			
MW-10S	463.65	*	--
MW-11S	520.03	98.95	421.08
MW-12S	493.41	72.62	420.79
MW-13S	452.26	31.72	420.54
MW-14S	481.30	Dry	--
MW-15S	506.78	82.39	424.39
MW-17S	555.97	136.10	419.87
MW-18S	541.43	135.03	406.40
MW-19S	489.23	62.44	426.79
MW-29S	450.65	23.35	427.30
FMMW-1	546.03	147.84	398.19
FMMW-2	539.96	140.44	399.52
BC-4S	530.25	129.62	400.63
Upper Regional Aquifer			
MW-10D	464.09	38.44	425.65
MW-11D	520.10	100.15	419.95
MW-11D(2)	519.53	99.97	419.56
MW-12D	493.49	74.59	418.90
MW-13D	450.19	32.20	417.99
MW-14D	481.39	59.12	422.27
MW-15D	509.09	88.03	421.06
MW-18D	541.79	136.02	405.77
MW-19D	489.35	67.92	421.43
MW-22U	549.17	137.37	411.80
Lower Regional Aquifer			
MW-14R	480.26	128.10	352.16
MW-20R	472.90	117.86	355.04
MW-22L	548.95	146.19	402.76
MW-26R	485.40	75.80	409.60
BC-4R	530.31	*	--

Updated well casing elevation with survey data from 5/23/2018

Dry = Monitoring well was dry at the time of sampling

* = Depth to water unavailable at this time due to blockage in well

-- = No data available

Table 3. Field Parameters
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Sample Number	Date	Method	pH	Specific Conductivity	Temperature
Units				(SU)	(µS/cm)	(°C)
HVL Cleanup Level				—	700	—
WAC 173-200				6.5-8.5	700[b]	—
Shallow Perched Aquifer						
(BG) MW-10S	HVL-082019-04	8/20/19	DP	**6.19**	306	13.8
MW-11S	HVL-082119-20	8/21/19	DP	**5.76**	257	15.1
MW-11S[1]	HVL-082219-25	8/22/19	DP	**5.65**	257	14.3
MW-12S	HVL-082119-19	8/21/19	DB	6.50	326	18.1
MW-13S	HVL-082019-14	8/20/19	DP	**6.11**	257	14.5
MW-14S[2]	—	—	—	—	—	—
MW-15S	HVL-082019-01	8/20/19	DP	**6.40**	376	15.7
MW-17S	HVL-082219-22	8/22/19	DP	**6.00**	457	18.9
MW-18S	HVL-082119-15	8/21/19	DP	**6.22**	346	16.3
MW-29S	HVL-082119-16	8/21/19	DP	**6.05**	309	15.0
FMMW-1	HVL-082119-09	8/21/19	DP	**6.25**	290	16.5
FMMW-2	HVL-082119-11	8/21/19	DP	**6.19**	417	17.4
Upper Regional Aquifer						
(BG) MW-10D	HVL-082019-06	8/20/19	DP	**6.20**	193	13.2
MW-11D(2)	HVL-082119-21	8/21/19	DP	**6.24**	215	17.2
MW-12D	HVL-082119-18	8/21/19	DP	6.60	321	16.1
MW-13D	HVL-082019-12	8/20/19	DP	**6.19**	298	14.9
MW-14D	HVL-082019-02	8/20/19	DP	**6.29**	289	13.0
MW-15D	HVL-082019-03	8/20/19	DP	7.06	308	15.6
MW-18D	HVL-082119-13	8/21/19	DP	6.87	266	16.1
Lower Regional Aquifer						
MW-14R	HVL-082019-05	8/20/19	DP	7.42	113	14.6
MW-20R	HVL-082119-17	8/21/19	DP	6.98	106	10.8
MW-26R	HVL-082019-07	8/20/19	DP	7.19	200	12.2

Notes:

1 = Due to time constraints, MW-11S was sampled for the standard list of parameters on 8/21/19 and for TSS on 8/22/19

2 = MW-14S was dry during the monitoring event and therefore no sample was collected

b = Secondary Drinking Water Standard

BG = Background

°C = degrees Celsius

DP = dedicated bladder-pump

DB = disposable bailer

µS/cm = microsiemens per centimeter

— = not analyzed or not applicable

Table 4. Inorganic Parameters
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Location		Alkalinity, Total	Ammonia	Chloride	Nitrate	Sulfate	Total Dissolved Solids	Total Organic Carbon	Total Suspended Solids
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL		5.0	0.1	0.2-0.6	0.2	0.2	10	1.0	4.0
HVL Cleanup Level		—	—	250	10	250	500	—	—
WAC 173-200 Criteria		—	—	250[b]	10[a]	250[b]	500[b]	—	—
Shallow Perched Aquifer									
(BG)	MW-10S	130	*	7.7	*	17	180	1.6	*
	MW-11S	100	*	11 H	0.86	8.2	170	*	*
	MW-12S	160	1.0	10 H	1.3	8.7	220	1.7	61
	MW-13S	100	*	6.5	*	19	160	*	*
	MW-14S[1]	—	—	—	—	—	—	—	—
	MW-15S	160	4.1	15	0.29	3.9	200	1.8	*
	MW-17S	210	8.9	11	0.51	3.9	240	2.0	*
	MW-18S	140	*	12 H	3.2	7.5	220	1.2	*
	MW-29S	130	*	8.8 H	*	19	200	1.1	*
	FMMW-1	96	*	14 H	1.3	14	170	*	*
	FMMW-2	140	*	16 H	5.3	6.7	240	1.3	*
Upper Regional Aquifer									
(BG)	MW-10D	72	*	5.1	2.1	8.8	140	*	14
	MW-11D(2)	83	*	5.5 H	1.8	9.3	150	*	*
	MW-12D	140	*	9.0 H	1.1	7.2	210	*	*
	MW-13D	120	*	8.2	*	19	180	1.1	*
	MW-14D	120	3.8	12	*	7.5	170	1.8	4.8
	MW-15D	130	*	9.3	0.66	11	170	*	*
	MW-18D	110	*	7.0 H	1.6	8.0	170	*	*
Lower Regional Aquifer									
	MW-14R	49	*	1.7	*	3.4	97	*	*
	MW-20R	47	*	1.6 H	*	3.2	95	*	*
	MW-26R	91	*	4.4	*	8.5	130	*	*

Notes:

Parameter concentrations that are greater than cleanup levels are shown in **bold**

Analyses performed by TestAmerica in Denver, Colorado

1 = MW-14S was dry during the monitoring event and therefore no sample was collected

H = Parameter analyzed outside specified holding time

mg/L = milligrams per liter

* = not reported at or above the MRL (Method Reporting Limit)

— = not analyzed or not applicable

Table 5. Dissolved Metals
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Iron	Manganese	Calcium	Magnesium	Potassium	Sodium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL	0.18	0.001	0.2	0.1	2.0	1.0
HVL Cleanup Level	0.30	0.05	—	—	—	—
WAC 173-200 Criteria	0.30[b]	0.05[b]	—	—	—	—
Shallow Perched Aquifer						
(BG) MW-10S	*	*	34	11	2.1	9.3
MW-11S	*	*	20	6.2	5.8	18
MW-12S	*	**0.98**	25	7.5	11	23
MW-13S	*	0.0033	23	6.7	4.0	17
MW-14S[1]	—	—	—	—	—	—
MW-15S	*	**1.2**	29	8.9	11	19
MW-17S	*	**1.2**	29	9.9	16	25
MW-18S	*	*	27	8.4	9.6	23
MW-29S	0.19	**0.66**	26	7.6	4.3	24
FMMW-1	*	*	21	6.0	3.4	22
FMMW-2	*	0.011	30	10	11	24
Upper Regional Aquifer						
(BG) MW-10D	*	*	20	6.8	*	7.1
MW-11D(2)	*	*	19	8.5	2.1	7.7
MW-12D	*	*	28	11	3.1	19
MW-13D	*	*	27	9.1	3.8	18
MW-14D	**4.6**	**1.4**	21	6.6	7.9	13
MW-15D	*	0.026	24	10	3.0	19
MW-18D	**0.41**	*	23	9.3	3.0	12
Lower Regional Aquifer						
MW-14R	*	**0.19**	7.7	4.4	2.1	5.4
MW-20R	*	*	7.5	3.9	2.0	5.5
MW-26R	**0.67**	**0.41**	20	8.9	2.4	6.6

Notes:

Parameter concentrations that are greater than site cleanup levels or WAC 173-200 criteria are shown in **bold**

Analyses performed by TestAmerica in Denver, Colorado

1 = MW-14S was dry during the monitoring event and therefore no sample was collected

b = Secondary Drinking Water Standard (concentrations measured as total metals)

BG = Background

mg/L = milligrams per liter

* = not reported at or above the MRL (Method Reporting Limit)

— = not analyzed or not applicable

Table 6. Volatile Organic Compounds
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Location		Tetrachloroethene
Units		µg/L
MRL		0.5
HVL Cleanup Level		—
WAC 173-200 Criteria		0.80
Shallow Perched Aquifer		
(BG)	MW-10S	*
	MW-11S	*
	MW-12S	*
	MW-13S	*
	MW-14S[1]	—
	MW-15S	*
	MW-17S	*
	MW-18S	*
	MW-29S	*
	FMMW-1	*
	FMMW-2	*
Upper Regional Aquifer		
(BG)	MW-10D	*
	MW-11D(2)	**0.88**
	MW-12D	*
	MW-13D	*
	MW-14D	*
	MW-15D	0.74
	MW-18D	*
Lower Regional Aquifer		
	MW-14R	*
	MW-20R	*
	MW-26R	*
Quality Control Samples		
	Field Blank	*

Notes:

Parameter concentrations that are greater than cleanup levels are shown in **bold**

Analyses performed by TestAmerica in Denver, Colorado

Volatile organic compounds not listed were not present at concentrations exeeding the MRL

1 = MW-14S was dry during the monitoring event and therefore no sample was collected

BG = Background

µg/L = micrograms per liter

* = not reported at or above the MRL (Method Reporting Limit)

— = not analyzed or not applicable

Table 7. Duplicate Sample Evaluation
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Parameter	MRL	MW-17S	MW-17S (Duplicate)	RPD (%)
Dissolved Metals (mg/L)				
Calcium	0.2	29	29	0.0
Magnesium	0.1	9.9	9.8	1.0
Manganese	0.001	1.2	1.2	0.0
Potassium	2.0	16	16	0.0
Sodium	1.0	25	24	4.1
Inorganic Parameters (mg/L)				
Alkalinity	5.0	210	210	0.0
Ammonia	0.1	8.9	9.2	3.3
Chloride	0.3	11	11 H	0.0
Nitrate	0.2	0.51	0.52	1.9
Sulfate	0.2	3.9	3.9	0.0
Total Dissolved Solids	10	240	250	4.1
Total Organic Carbon	1.0	2.0	1.8	10.5

Notes:

Analysis performed by TestAmerica, Arvada, Colorado

Analytes not listed were not present at concentrations exceeding the MRL

RPD = relative percent difference

mg/L = milligrams per liter

Table 8. Water Supply Wells
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Parameter	Units	MRL	Corliss	Paul Bunyan
Field Parameters				
pH	SU	—	6.70	6.39
Specific Conductivity	µS/cm	—	239	309
Temperature	°C	—	19.2	18.1
Volatile Organic Compounds				
No VOCs detected	µg/L	—	*	*
Metals (total)				
Arsenic	mg/L	0.005	*	*
Iron	mg/L	0.18	*	*
Manganese	mg/L	0.001	0.0013	0.0011
Zinc	mg/L	0.01	*	0.013
Inorganic Parameters				
Chloride	mg/L	0.6	5.8 H	6.6
Nitrate	mg/L	0.2	1.3	1.9
Sulfate	mg/L	0.2	8 H	11
Other				
Color	PCU	5.0	*	*

Notes:

Analyses performed by TestAmerica in Denver, Colorado.

Analytes not listed were not present at concentrations exceeding the MRL.

Color reported in color units

°C = degrees Celsius

H = Parameter analyzed outside specified holding time

mg/L = milligrams per liter

PCU = platinum-cobalt units

SU = Standard Units

µS/cm = microsiemens per centimeter

µg/L = micrograms per liter

* = not reported at or above the MRL (Method Reporting Limit)

— = Not Applicable

Table 9. Cation-Anion Balance
Semi - Annual Monitoring Event No. 2 - August 2019
Hidden Valley Landfill, Pierce County, Washington

Cations	mg/L					meq/L					% of Total		
	Ca	Mg	K	Na	Total	Ca	Mg	K	Na	Total	Na+K	Ca	Mg
MW-10S	34	11	2.1	9.3	56.40	1.70	0.91	0.05	0.40	3.06	15	55	30
MW-11S	20	6.2	5.8	18	50.00	1.00	0.51	0.15	0.78	2.44	38	41	21
MW-12S	25	7.5	11	23	66.50	1.25	0.62	0.28	1.00	3.15	41	40	20
MW-13S	23	6.7	4.0	17	50.70	1.15	0.55	0.10	0.74	2.54	33	45	22
MW-14S[1]	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-15S	29	8.9	11	19	67.90	1.45	0.73	0.28	0.83	3.29	34	44	22
MW-17S	29	9.9	16	25	79.90	1.45	0.81	0.41	1.09	3.76	40	38	22
MW-18S	27	8.4	9.6	23	68.00	1.35	0.69	0.25	1.00	3.28	38	41	21
MW-29S	26	7.6	4.3	24	61.90	1.30	0.63	0.11	1.04	3.08	38	42	20
FMMW-1	21	6.0	3.4	22	52.40	1.05	0.49	0.09	0.96	2.59	40	41	19
FMMW-2	30	10	11	24	75.00	1.50	0.82	0.28	1.04	3.65	36	41	23
MW-10D	20	6.8	2.0	7.1	35.90	1.00	0.56	0.05	0.31	1.92	19	52	29
MW-11D(2)	19	8.5	2.1	7.7	37.30	0.95	0.70	0.05	0.33	2.04	19	47	34
MW-12D	28	11	3.1	19	61.10	1.40	0.91	0.08	0.83	3.21	28	44	28
MW-13D	27	9.1	3.8	18	57.90	1.35	0.75	0.10	0.78	2.98	30	45	25
MW-14D	21	6.6	7.9	13	48.50	1.05	0.54	0.20	0.57	2.36	33	44	23
MW-15D	24	10	3.0	19	56.00	1.20	0.82	0.08	0.83	2.92	31	41	28
MW-18D	23	9.3	3.0	12	47.30	1.15	0.77	0.08	0.52	2.51	24	46	30
MW-14R	7.7	4.4	2.1	5.4	19.60	0.38	0.36	0.05	0.23	1.04	28	37	35
MW-20R	7.5	3.9	2.0	5.5	18.90	0.37	0.32	0.05	0.24	0.99	29	38	33
MW-26R	20	8.9	2.4	6.6	37.90	1.00	0.73	0.06	0.29	2.08	17	48	35

Anions	mg/L					meq/L					% of Total			Total Ions (meq/L)	Cation - Anion Balance	Applicable Ratio (%)	Ratio Exceedance
	Alk	Cl	NO_3	SO_4	Total	Alk	Cl	NO_3	SO_4	Total	Cl	Alk	SO_4				
MW-10S	156	7.7	0.2	17	180.90	2.56	0.22	0.00	0.35	3.13	7	82	11	6.19	1.17	5	-
MW-11S	120	11	0.86	8.2	140.06	1.97	0.31	0.01	0.17	2.46	13	80	7	4.90	0.47	10	-
MW-12S	192	10	1.3	8.7	212.00	3.15	0.28	0.02	0.18	3.63	8	87	5	6.78	7.17	5	Exceeds
MW-13S	120	6.5	0.2	19	145.70	1.97	0.18	0.00	0.40	2.55	7	77	15	5.09	0.17	5	-
MW-14S[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-15S	192	15	0.29	3.9	211.19	3.15	0.42	0.00	0.08	3.66	12	86	2	6.95	5.33	5	Exceeds
MW-17S	252	11	0.51	3.9	267.41	4.13	0.31	0.01	0.08	4.53	7	91	2	8.29	9.33	5	Exceeds
MW-18S	168	12	3.2	7.5	190.70	2.76	0.34	0.05	0.16	3.30	10	83	5	6.59	0.25	5	-
MW-29S	156	8.8	0.2	19	184.00	2.56	0.25	0.00	0.40	3.20	8	80	12	6.28	2.04	5	-
FMMW-1	115.2	14	1.3	14	144.50	1.89	0.39	0.02	0.29	2.60	15	73	11	5.18	0.20	5	-
FMMW-2	168	16	5.3	6.7	196.00	2.76	0.45	0.09	0.14	3.43	13	80	4	7.08	3.03	5	-
MW-10D	86.4	5.1	2.1	8.8	102.40	1.42	0.14	0.03	0.18	1.78	8	80	10	3.70	3.79	10	-
MW-11D(2)	99.6	5.5	1.8	9.3	116.20	1.63	0.16	0.03	0.19	2.01	8	81	10	4.05	0.63	10	-
MW-12D	168	9.0	1.1	7.2	185.30	2.76	0.25	0.02	0.15	3.18	8	87	5	6.38	0.50	5	-
MW-13D	144	8.2	0.2	19	171.40	2.36	0.23	0.00	0.40	2.99	8	79	13	5.97	0.25	5	-
MW-14D	144	12	0.2	7.5	163.70	2.36	0.34	0.00	0.16	2.86	12	83	5	5.22	9.59	5	Exceeds
MW-15D	156	9.3	0.66	11	176.96	2.56	0.26	0.01	0.23	3.06	9	84	7	5.98	2.28	5	-
MW-18D	132	7.0	1.6	8.0	148.60	2.16	0.20	0.03	0.17	2.55	8	85	7	5.07	0.84	5	-
MW-14R	58.8	1.7	0.2	3.4	64.10	0.96	0.05	0.00	0.07	1.09	4	89	7	2.12	2.41	10	-
MW-20R	56.4	1.6	0.2	3.2	61.40	0.92	0.05	0.00	0.07	1.04	4	89	6	2.03	2.68	10	-
MW-26R	109.2	4.4	0.2	8.5	122.30	1.79	0.12	0.00	0.18	2.09	6	85	8	4.17	0.38	10	-

Notes:
1 = MW-14S was dry during the monitoring event and therefore no sample was collected
mg/L = milligrams per liter
meq/L = milliequivalents per liter
Total alkalinity concentration, reported as calcium carbonate (CaCO3), is converted to the bicarbonate (HCO3-) ion by multiplying by a factor of 1.2.
Cation / anion balance equation is the equivalent percent difference in cations minus anions divided by the sum of cations and anions [(cations-anions)/(anions+cations)*100].
— = not applicable or not performed
The MRL was used for analytes that were non-detect
A 10% difference threshold is used if the total cation-anion sums are < 5.0 meq/liter.
A 5% difference threshold is used if the total cation-anion sums are > or = to 5.0 meq/liter.

Table 2. Water Level Elevations - January 16, 2019
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Well Casing Elevation	Depth to Water (FT)	Water Level Elevation
Shallow Perched Aquifer			
MW-10S	463.65	*	*
MW-11S	520.03	95.25	424.78
MW-12S	493.41	67.40	426.01
MW-13S	452.26	27.79	424.47
MW-14S	481.30	52.80	428.50
MW-15S	506.78	78.20	428.58
MW-17S	555.97	131.46	424.51
MW-18S	541.43	132.72	408.71
MW-19S	489.23	58.00	431.23
MW-29S	450.65	19.80	430.85
FMMW-1	546.03	146.97	399.06
FMMW-2	539.96	139.04	400.92
BC-4S	530.25	127.37	402.88
Upper Regional Aquifer			
MW-10D	464.09	33.76	430.33
MW-11D	520.10	95.45	424.65
MW-11D(2)	519.53	96.25	423.28
MW-12D	493.49	70.42	423.07
MW-13D	450.19	26.20	423.99
MW-14D	481.39	54.95	426.44
MW-15D	509.09	83.84	425.25
MW-18D	541.79	133.40	408.39
MW-19D	489.35	68.02	421.33
MW-22U	549.17	137.36	411.81
Lower Regional Aquifer			
MW-14R	480.26	120.79	359.47
MW-20R	472.90	110.34	362.56
MW-22L	548.95	144.01	404.94
MW-26R	485.40	70.89	414.51
BC-4R	530.31	160.96	369.35

Updated well casing elevations with survey data from 5/23/2018
* = Unable to measure depth to water due to kink in well casing

Table 3. Field Parameters
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Sample Number	Date	Method	pH	Specific Conductivity	Temperature
Units				(SU)	(µS/cm)	(°C)
HVL Cleanup Level				—	700	—
WAC 173-200 Criteria				6.5-8.5	700[b]	—
Shallow Perched Aquifer						
(BG) MW-10S	HVL-011419-04	1/14/19	DP	**6.25**	254	13.0
MW-11S	HVL-011519-23	1/15/19	DP	**5.63**	211	13.9
MW-12S	HVL-011419-13	1/14/19	DB	**5.69**	518	14.1
MW-13S	HVL-011419-06	1/14/19	DP	**6.18**	204	14.2
MW-14S	HVL-011419-10	1/14/19	DP	**6.17**	127	12.6
MW-15S	HVL-011419-07	1/14/19	DP	**5.97**	316	14.3
MW-17S	HVL-011619-26	1/16/19	DP	**6.00**	364	18.5
MW-18S	HVL-011519-21	1/15/19	DP	**5.97**	337	12.8
MW-29S	HVL-011519-20	1/15/19	DP	**6.40**	278	14.7
FMMW-1	HVL-011519-15	1/15/19	DP	**6.11**	291	11.5
FMMW-2	HVL-011519-17	1/15/19	DP	**5.85**	430	15.3
Upper Regional Aquifer						
(BG) MW-10D	HVL-011419-02	1/14/19	DP	**6.37**	258	12.1
MW-11D(2)	HVL-011519-25	1/15/19	DP	**6.43**	211	12.9
MW-12D	HVL-011619-27	1/16/19	DP	6.51	291	15.9
MW-13D	HVL-011419-08	1/14/19	DP	**6.46**	270	14.7
MW-14D	HVL-011419-12	1/14/19	DP	**6.35**	230	12.4
MW-15D	HVL-011419-05	1/14/19	DP	6.66	286	13.3
MW-18D	HVL-011519-19	1/15/19	DP	6.53	251	14.9
Lower Regional Aquifer						
MW-14R	HVL-011419-01	1/14/19	DP	6.85	105	11.1
MW-20R	HVL-011419-11	1/14/19	DP	6.68	100	10.5
MW-26R	HVL-011419-03	1/14/19	DP	7.15	203	10.8

Notes:

SU = Standard Units (pH)
µS/cm = microsiemens per centimeter
°C = Degrees Celsius
BG = Background
DP = Dedicated bladder-pump
DB = Disposable bailer
b = Secondary Drinking Water Standard
— = Indicates not analyzed or not applicable

Table 4. Inorganic Parameters
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Location		Alkalinity, Total	Ammonia	Chloride	Nitrate	Sulfate	Total Dissolved Solids	Total Organic Carbon	Total Suspended Solids
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL		5.0	0.1	0.2-0.6	0.2-0.42	0.2-0.25	10	1.0	4.0
HVL Cleanup Level		—	—	250	10	250	500	—	—
WAC 173-200 Criteria		—	—	250[b]	10[a]	250[b]	500[b]	—	—
Shallow Perched Aquifer									
(BG)	MW-10S	110	0.19	6.1	0.81	9.6	160	1.1	*
	MW-11S	54	*	17	3.2	7.4	140	*	* H
	MW-12S	59	1.4	9.2	**40**	3.1	380	1.6	*
	MW-13S	70	*	8.0	1.2	15	150	1.1	*
	MW-14S	46	0.48	3.1	0.80	5.5	95	1.9	*
	MW-15S	110	3.5	13	4.1	5.9	200	1.6	*
	MW-17S	160	4.7	12	3.2	2.4	230	1.9	*
	MW-18S	130	*	14	3.1	4.7	200	1.3	*
	MW-29S	110	*	10	0.63	13	200	1.4	*
	FMMW-1	100	*	15	0.81	14	180	*	* H
	FMMW-2	95	0.13	19	**17 H**	5.2	290	1.4	*
Upper Regional Aquifer									
(BG)	MW-10D	110	*	5.7	0.85	9.2	180	1.0	*
	MW-11D(2)	82	*	5.6	1.9	9.4	140	*	*
	MW-12D	160	*	8.7	1.2	7.1	200	*	*
	MW-13D	100	*	8.9	0.99	13	180	*	*
	MW-14D	88	3.7	8.3	*	9.3	160	1.9	*
	MW-15D	120	*	9.3	0.70	9.6	190	*	*
	MW-18D	98	*	7.3	1.7	7.4	150	*	*
Lower Regional Aquifer									
	MW-14R	44	*	1.6	*	3.5	120	*	*
	MW-20R	42	*	1.6	*	2.9	110	*	*
	MW-26R	84	*	4.6	*	9.5	150	*	8.0

Notes:

The original nitrate result for FMMW-2 was over the calibration range, the sample was reanalyzed one hour outside holding time

H = Sample was prepped or analyzed beyond specified holding time

Parameter concentrations that are greater than cleanup levels are shown in **bold**

* indicates not reported at or above the MRL (Method Reporting Limit)

— indicates not analyzed or not applicable

a = Primary Drinking Water Standard

b = Secondary Drinking Water Standard

BG = Background/upgradient wells

mg/L = milligrams per liter

Table 5. Dissolved Metals
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Iron	Manganese	Calcium	Magnesium	Potassium	Sodium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL	0.18	0.001	0.2	0.1	2.0	1.0
HVL Cleanup Level	0.30	0.05	—	—	—	—
WAC 173-200 Criteria	0.30[b]	0.05[b]	—	—	—	—
Shallow Perched Aquifer						
(BG) MW-10S	*	*	31	9.5	2.1	8.6
MW-11S	*	*	16	5.0	6.3	16
MW-12S	*	**0.50**	41	12	15	25
MW-13S	**5.8**	*	18	5.2	3.7	16
MW-14S	*	**0.19**	11	3.4	3.2	6.9
MW-15S	*	**1.1**	24	7.2	10	18
MW-17S	*	**0.77**	25	8.4	14	24
MW-18S	*	*	27	8.5	10	26
MW-29S	0.24	**0.97**	24	7.1	3.5	26
FMMW-1	*	*	23	6.8	4.3	26
FMMW-2	*	**0.079**	32	10	13	28
Upper Regional Aquifer						
(BG) MW-10D	*	*	31	9.8	2.2	8.8
MW-11D(2)	*	*	20	8.8	2.5	7.9
MW-12D	*	*	28	11	3.2	20
MW-13D	*	*	26	9.5	3.6	16
MW-14D	**2.5**	**1.1**	17	5.0	7.4	12
MW-15D	*	0.026	24	10	2.9	19
MW-18D	*	*	23	9.6	3.5	12
Lower Regional Aquifer						
MW-14R	*	*	26	9.5	3.6	16
MW-20R	*	*	7.6	3.9	2.1	5.9
MW-26R	**0.58**	**0.39**	19	8.7	2.4	6.6

Notes:

Parameter concentrations that are greater than site cleanup levels or WAC 173-200 criteria are shown in **bold**

b = Secondary Drinking Water Standard (concentrations measured as total metals)

BG = Background

mg/L = milligrams per liter

* indicates not reported at or above the MRL (Method Reporting Limit)

— indicates not analyzed or not applicable

Table 6. Volatile Organic Compounds
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Location	Acetone	Methylene Chloride	Tetrachloroethene	Toluene
Units	µg/L	µg/L	µg/L	µg/L
MRL	10.0	2.0	0.5	0.5
HVL Cleanup Level	—	—	—	—
WAC 173-200	—	5.0	0.80	—
Shallow Perched Aquifer				
(BG) MW-10S	*	*	*	*
MW-11S	110	2.8	*	1.8
MW-12S	*	*	*	*
MW-13S	*	*	*	*
MW-14S	*	*	*	*
MW-15S	*	*	*	*
MW-17S	*	*	*	*
MW-18S	*	*	*	*
MW-29S	*	*	*	*
FMMW-1	*	*	*	*
FMMW-2	*	*	*	*
Upper Regional Aquifer				
(BG) MW-10D	*	*	*	*
MW-11D(2)	*	*	**0.99**	*
MW-12D	*	*	*	*
MW-13D	*	*	*	*
MW-14D	*	*	*	*
MW-15D	*	*	0.61	*
MW-18D	*	*	*	*
Lower Regional Aquifer				
MW-14R	*	*	*	*
MW-20R	*	*	*	*
MW-26R	*	*	*	*
Quality Control Samples				
Field Blank	*	*	*	1.2

Notes:

Volatile organic compounds not listed were not present at concentrations

BG = Background

µg/L = micrograms per liter

* = not reported at or above the MRL (Method Reporting Limit)

— = not analyzed or not applicable

Table 7. Duplicate Sample Evaluation
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Parameter	MRL	MW-15S	MW-15S (Duplicate)	RPD (%)
Dissolved Metals (mg/L)				
Calcium	0.2	24	23	2.8
Magnesium	0.1	7.2	6.9	2.8
Manganese	0.001	1.1	1.1	0.0
Potassium	2.0	10	9.7	2.0
Sodium	1.0	18	17	3.8
Inorganic Parameters (mg/L)				
Alkalinity, Total	5.0	110	110	0.0
Ammonia	0.1	3.5	3.6	1.9
Chloride	0.3	13	13	0.0
Nitrate as N	0.2	4.1	3.9	3.3
Sulfate	0.2-0.25	5.9	5.6	3.4
Total Dissolved Solids	10	200	210	3.3
Total Organic Carbon	1.0	1.6	1.5	4.3

Notes:

Analytes not listed were not present at concentrations exceeding the MRL

RPD = relative percent difference

mg/L = milligrams per liter

Table 8. Water Supply Wells
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Parameter	Units	MRL	Corliss	Paul Bunyan
Field Parameters				
pH	SU	—	6.78	7.06
Specific Conductivity	µS/cm	—	240	278
Temperature	°C	—	9.3	9.6
Volatile Organic Compounds				
No VOCs detected	µg/L	—	*	*
Metals (total)				
Arsenic	mg/L	0.005	*	*
Iron	mg/L	0.18	*	*
Manganese	mg/L	0.001	*	0.007
Zinc	mg/L	0.01	*	0.025
Inorganic Parameters				
Chloride	mg/L	0.3	5.7	7.0
Nitrate	mg/L	0.2	1.1	2.2
Sulfate	mg/L	0.2	11	11
Other				
Color	PCU	5.0	*	*

Notes:

Analytes not listed were not present at concentrations exceeding the MRL.

Color reported in color units

µg/L = micrograms per liter

mg/L = milligrams per liter

PCU = platinum-cobalt units

* = not reported at or above the MRL (Method Reporting Limit)

SU = Standard Units (pH)

µS/cm = microsiemens per centimeter

°C = degrees Celsius

— = Not Applicable

Table 9. Cation-Anion Balance
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Cations	mg/L					meq/L					% of Total		
	Ca	Mg	K	Na	Total	Ca	Mg	K	Na	Total	Na+K	Ca	Mg
MW-10S	31	9.5	2.1	8.6	51.20	1.55	0.78	0.05	0.37	2.76	16	56	28
MW-11S	16	5	6.3	16	43.30	0.80	0.41	0.16	0.70	2.07	41	39	20
MW-12S	41	12	15	25	93.00	2.05	0.99	0.38	1.09	4.51	33	45	22
MW-13S	18	5.2	3.7	16	42.90	0.90	0.43	0.09	0.70	2.12	37	42	20
MW-14S	11	3.4	3.2	6.9	24.50	0.55	0.28	0.08	0.30	1.21	32	45	23
MW-15S	24	7.2	10	18	59.20	1.20	0.59	0.26	0.78	2.83	37	42	21
MW-17S	25	8.4	14	24	71.40	1.25	0.69	0.36	1.04	3.34	42	37	21
MW-18S	27	8.5	10	26	71.50	1.35	0.70	0.26	1.13	3.43	40	39	20
MW-29S	24	7.1	3.5	26	60.60	1.20	0.58	0.09	1.13	3.00	41	40	19
FMMW-1	23	6.8	4.3	26	60.10	1.15	0.56	0.11	1.13	2.95	42	39	19
FMMW-2	32	10	13	28	83.00	1.60	0.82	0.33	1.22	3.97	39	40	21
MW-10D	31	9.8	2.2	8.8	51.80	1.55	0.81	0.06	0.38	2.79	16	55	29
MW-11D(2)	20	8.8	2.5	7.9	39.20	1.00	0.72	0.06	0.34	2.13	19	47	34
MW-12D	28	11	3.2	20	62.20	1.40	0.91	0.08	0.87	3.25	29	43	28
MW-13D	26	9.5	3.6	16	55.10	1.30	0.78	0.09	0.70	2.87	27	45	27
MW-14D	17	5	7.4	12	41.40	0.85	0.41	0.19	0.52	1.97	36	43	21
MW-15D	24	10	2.9	19	55.90	1.20	0.82	0.07	0.83	2.92	31	41	28
MW-18D	23	9.6	3.5	12	48.10	1.15	0.79	0.09	0.52	2.55	24	45	31
MW-14R	26	9.5	3.6	16	55.10	1.30	0.78	0.09	0.70	2.87	27	45	27
MW-20R	7.6	3.9	2.1	5.9	19.50	0.38	0.32	0.05	0.26	1.01	31	38	32
MW-26R	19	8.7	2.4	6.6	36.70	0.95	0.72	0.06	0.29	2.01	17	47	36

Anions	mg/L					meq/L					% of Total			Total Ions (meq/L)	Cation - Anion Balance	Applicable Ratio (%)	Ratio Exceedance
	Alk	Cl	NO_3	SO_4	Total	Alk	Cl	NO_3	SO_4	Total	Cl	Alk	SO_4				
MW-10S	132	6.1	0.81	9.6	148.51	2.16	0.17	0.01	0.20	2.55	7	85	8	5.31	3.90	5	-
MW-11S	64.8	17	3.2	7.4	92.40	1.06	0.48	0.05	0.15	1.75	27	61	9	3.81	8.38	10	-
MW-12S	70.8	9.2	40	3.1	123.10	1.16	0.26	0.64	0.06	2.13	12	55	3	6.63	35.81	5	Exceeds
MW-13S	84	8	1.2	15	108.20	1.38	0.23	0.02	0.31	1.93	12	71	16	4.05	4.50	10	-
MW-14S	55.2	3.1	0.8	5.5	64.60	0.91	0.09	0.01	0.11	1.12	8	81	10	2.33	3.90	10	-
MW-15S	132	13	4.1	5.9	155.00	2.16	0.37	0.07	0.12	2.72	13	80	5	5.55	1.96	5	-
MW-17S	192	12	3.2	2.4	209.60	3.15	0.34	0.05	0.05	3.59	9	88	1	6.93	3.57	5	-
MW-18S	156	14	3.1	4.7	177.80	2.56	0.39	0.05	0.10	3.10	13	83	3	6.53	5.10	5	Exceeds
MW-29S	132	10	0.6	13	155.63	2.16	0.28	0.01	0.27	2.73	10	79	10	5.73	4.80	5	-
FMMW-1	120	15	0.81	14	149.81	1.97	0.42	0.01	0.29	2.70	16	73	11	5.64	4.49	5	-
FMMW-2	114	19	17	5.2	155.20	1.87	0.54	0.27	0.11	2.79	19	67	4	6.76	17.51	5	Exceeds
MW-10D	132	5.7	0.85	9.2	147.75	2.16	0.16	0.01	0.19	2.53	6	86	8	5.32	4.92	5	-
MW-11D(2)	98.4	5.6	1.9	9.4	115.30	1.61	0.16	0.03	0.20	2.00	8	81	10	4.13	3.20	10	-
MW-12D	192	8.7	1.2	7.1	209.00	3.15	0.25	0.02	0.15	3.56	7	88	4	6.82	4.50	5	-
MW-13D	120	8.9	0.99	13	142.89	1.97	0.25	0.02	0.27	2.51	10	79	11	5.37	6.74	5	Exceeds
MW-14D	105.6	8.3	0.2	9.3	123.40	1.73	0.23	0.00	0.19	2.16	11	80	9	4.13	4.63	10	-
MW-15D	144	9.3	0.7	9.6	163.60	2.36	0.26	0.01	0.20	2.83	9	83	7	5.76	1.50	5	-
MW-18D	117.6	7.3	1.7	7.4	134.00	1.93	0.21	0.03	0.15	2.32	9	83	7	4.87	4.80	10	-
MW-14R	52.8	1.6	0.2	3.5	58.10	0.87	0.05	0.00	0.07	0.99	5	88	7	3.85	48.78	10	Exceeds
MW-20R	50.4	1.6	0.2	2.9	55.10	0.83	0.05	0.00	0.06	0.94	5	88	6	1.95	3.87	10	-
MW-26R	100.8	4.6	0.2	9.5	115.10	1.65	0.13	0.00	0.20	1.98	7	83	10	4.00	0.73	10	-

Notes:

Ca = Calcium, Mg = Magnesium, K = Potassium, Na = Sodium, Alk = Alkalinity, Cl = Chloride, NO3 = Nitrate, SO4 = Sulfate

mg/L = milligrams per liter

meq/L = milliequivalents per liter

Total alkalinity concentration, reported as calcium carbonate (CaCO3), is converted to the bicarbonate (HCO3-) ion by multiplying by a factor of 1.2.

Cation / anion balance equation is the equivalent percent difference in cations minus anions divided by the sum of cations and anions [(cations-anions)/(anions+cations)*100].

— = not applicable or not performed

The MRL was used for analytes that were non-detect

A 10% difference threshold is used if the total cation-anion sums are < 5.0 meq/liter.

A 5% difference threshold is used if the total cation-anion sums are > or = to 5.0 meq/liter.

Table 10. Leachate Monitoring Results
Semi - Annual Monitoring Event No. 1 - January 2019
Hidden Valley Landfill, Pierce County, Washington

Parameters	MRL	Leachate-East Area	Leachate-Side Slope	Leak Detection-Side Slope	Hydraulic Gradient Control System
Volatile Organics (µg/L)					
1,4-Dichlorobenzene	0.5	2.3	*	*	*
Acetone	10	34	29	*	*
Benzene	0.5	1.5	*	0.55	*
Carbon disulfide	0.5	0.57	*	0.67	*
Ethylbenzene	1.0	2.2	*	*	*
m-Xylene & p-Xylene	0.5	5.0	*	*	*
o-Xylene	0.5	3.0	*	*	*
Toluene	0.5	3.7	0.61	0.83	*
Total Metals (mg/L)					
Antimony	0.002	0.007	0.560	0.320	0.004
Arsenic	0.005	0.042	0.130	0.079	*
Barium	0.005	0.76	0.40	0.45	0.08
Calcium	0.2	90	25	93	100
Chromium	0.005	0.130	0.056	0.041	*
Cobalt	0.01	0.015	0.13	0.11	*
Copper	0.01	*	0.61	0.24	0.85
Iron	0.18	3.2	1.6	1.2	3.7
Lead	0.002	*	0.022	0.006	0.230
Magnesium	0.1	58	17	30	28
Manganese	0.005	1.6	0.18	0.28	4.2
Nickel	0.02	0.38	0.62	0.47	0.07
Potassium	2.0	350	500	410	3.5
Selenium	0.005	*	0.010	0.012	*
Sodium	1-1.1	3,700	6,400	5,900	21
Vanadium	0.01	0.120	0.067	0.035	*
Zinc	0.01	0.014	0.870	0.190	2.7
Inorganic Parameters (mg/L)					
Alkalinity	5-10	5,600	4,600	2,500	400
Ammonia	0.1-4.4	610	360	170	0.13
Chloride	0.3-300	2,900	5,500	5,500	11
Nitrate as N	0.5-8.4	*	270	590	0.98
Sulfate	0.2-5	17	770	830	8.2
Total Dissolved Solids	10-94	11,000 H	17,000 H	18,000	450 B
Total Organic Carbon	1-2.8	450	670	570	3.5
Total Suspended Solids	4.0	8.0	7.6	180	10
Field Parameters					
Dissolved Oxygen	—	0.72	2.75	1.99	8.42
Oxidation Reduction Potential	—	-185.0	-15.8	120.4	118.3
pH	—	7.48	8.43	7.87	7.20
Specific Conductivity	—	16,484	25,696	26,040	792
Temperature	—	16.5	18.6	25.21	11.8
Turbidity	—	43.8	24.3	18.1	58.2

Notes:

Analyses performed by TestAmerica, Arvada, Colorado

Volatile organic compounds not listed were not present at concentrations exceeding the MRL

µg/L = micrograms per liter

mg/L = milligrams per liter

µS = microsiemens

°C = degrees celcius

(>) = greater than

— = not applicable or not analyzed

* = not reported at or above the MRL (Method Reporting Limit)

B = Compound was found in the blank and the sample

H = Sample was prepped or analyzed beyond specified holding time

Appendix E

TIME SERIES PLOTS

Figure 1

Specific Conductivity

Shallow Perched Aquifer, Hidden Valley Landfill

Wells MW-11S, MW-12S, MW-13S, MW-14S, and MW-17S

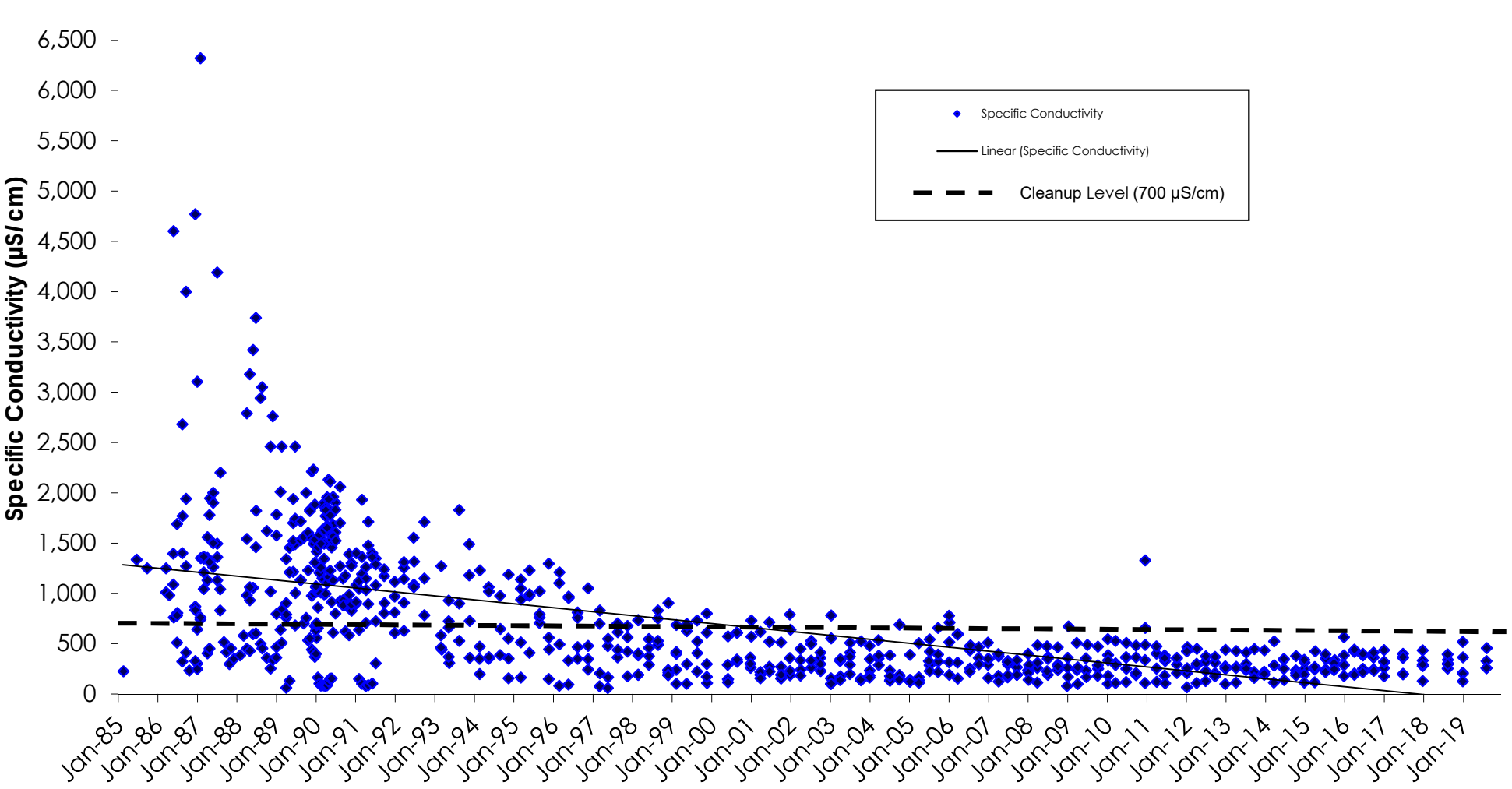


Figure 2

Ammonia

Shallow Perched Aquifer, Hidden Valley Landfill

Wells MW-11S, MW-12S, MW-13S, MW-14S, and MW-17S

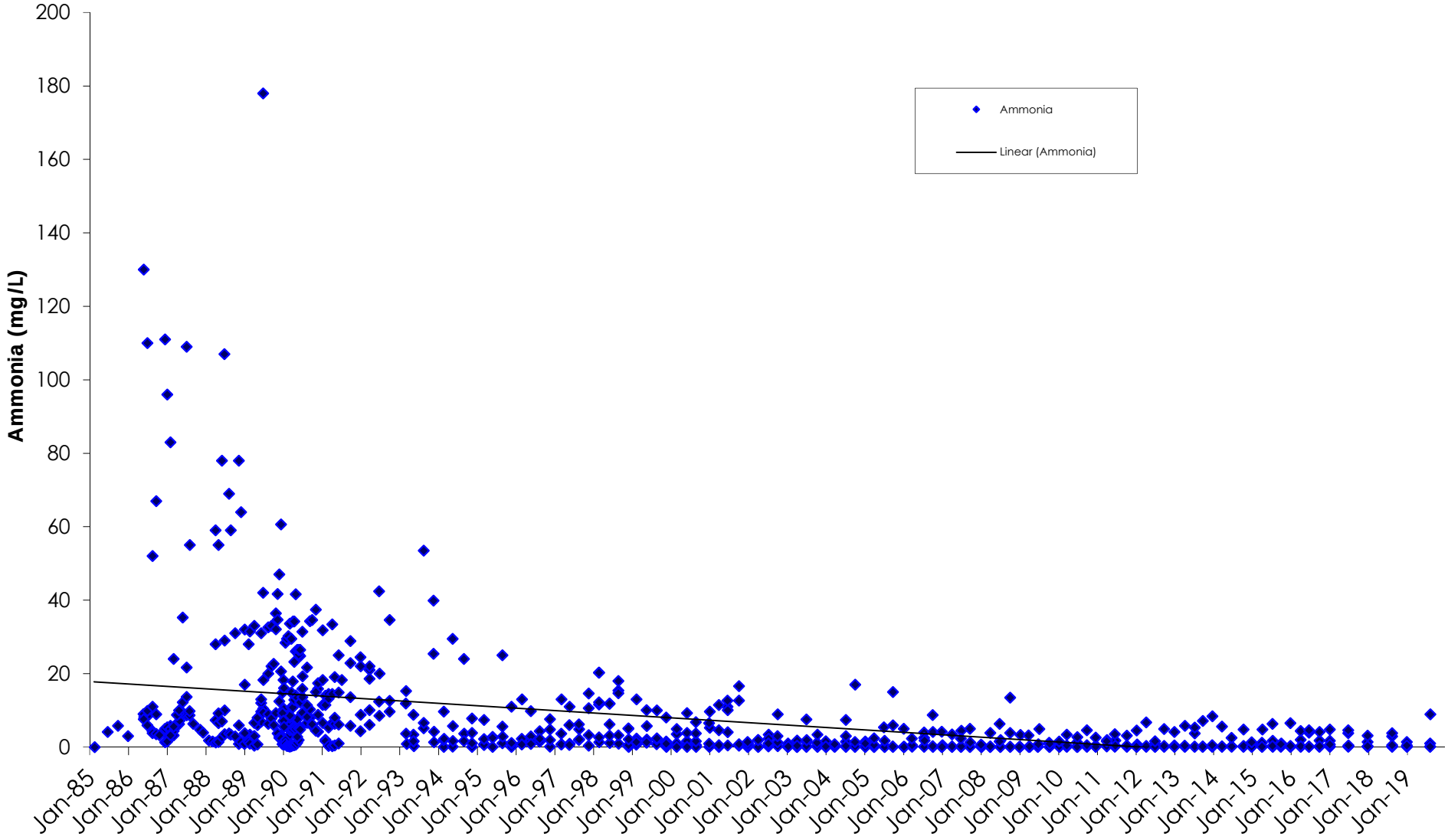


Figure 3

Nitrate

Shallow Perched Aquifer, Hidden Valley Landfill
Wells MW-11S, MW-12S, MW-13S, MW-14S, and MW-17S

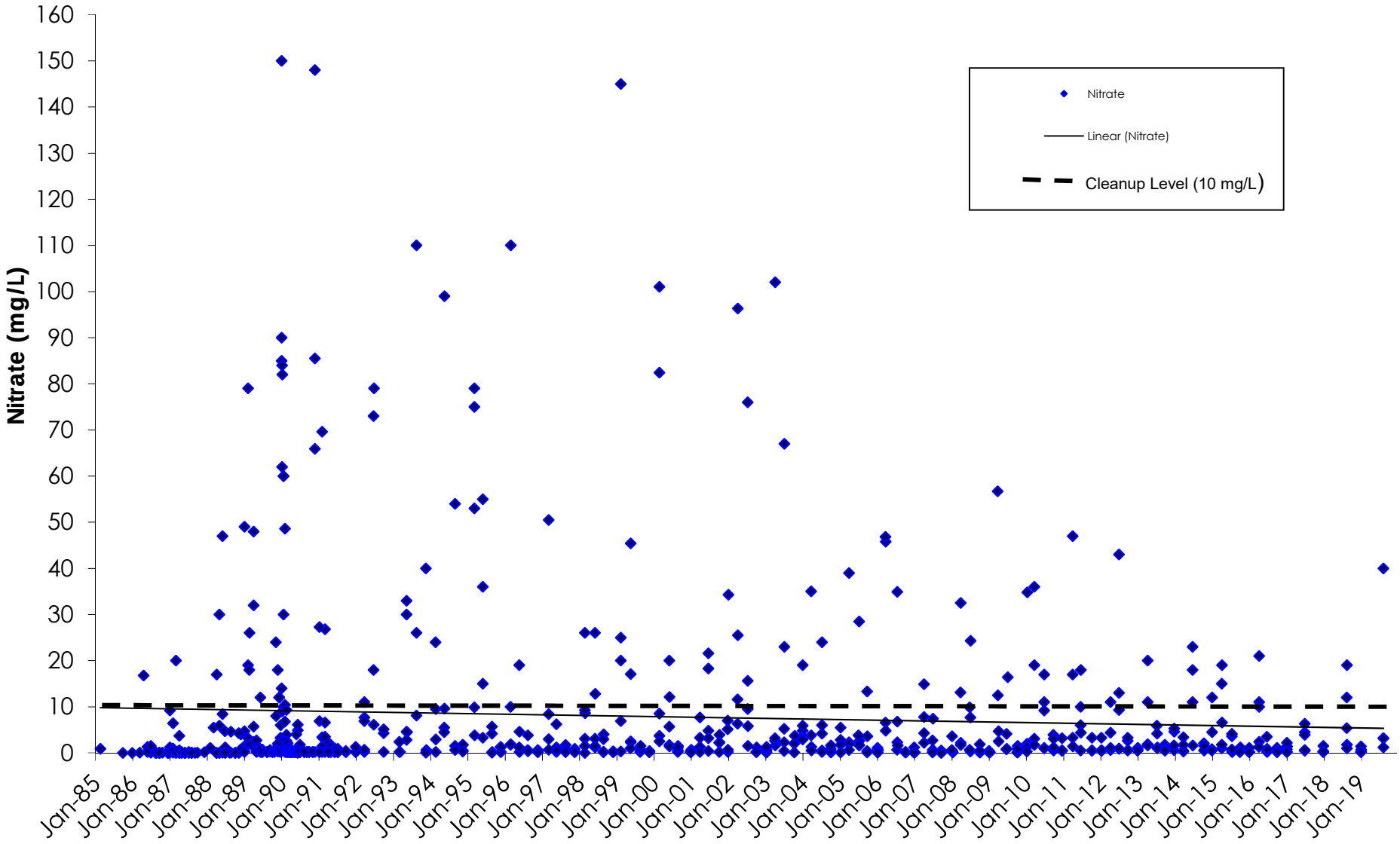


Figure 4

Dissolved Iron

Shallow Perched Aquifer, Hidden Valley Landfill
Wells MW-11S, MW-12S, MW-13S, MW-14S, and MW-17S

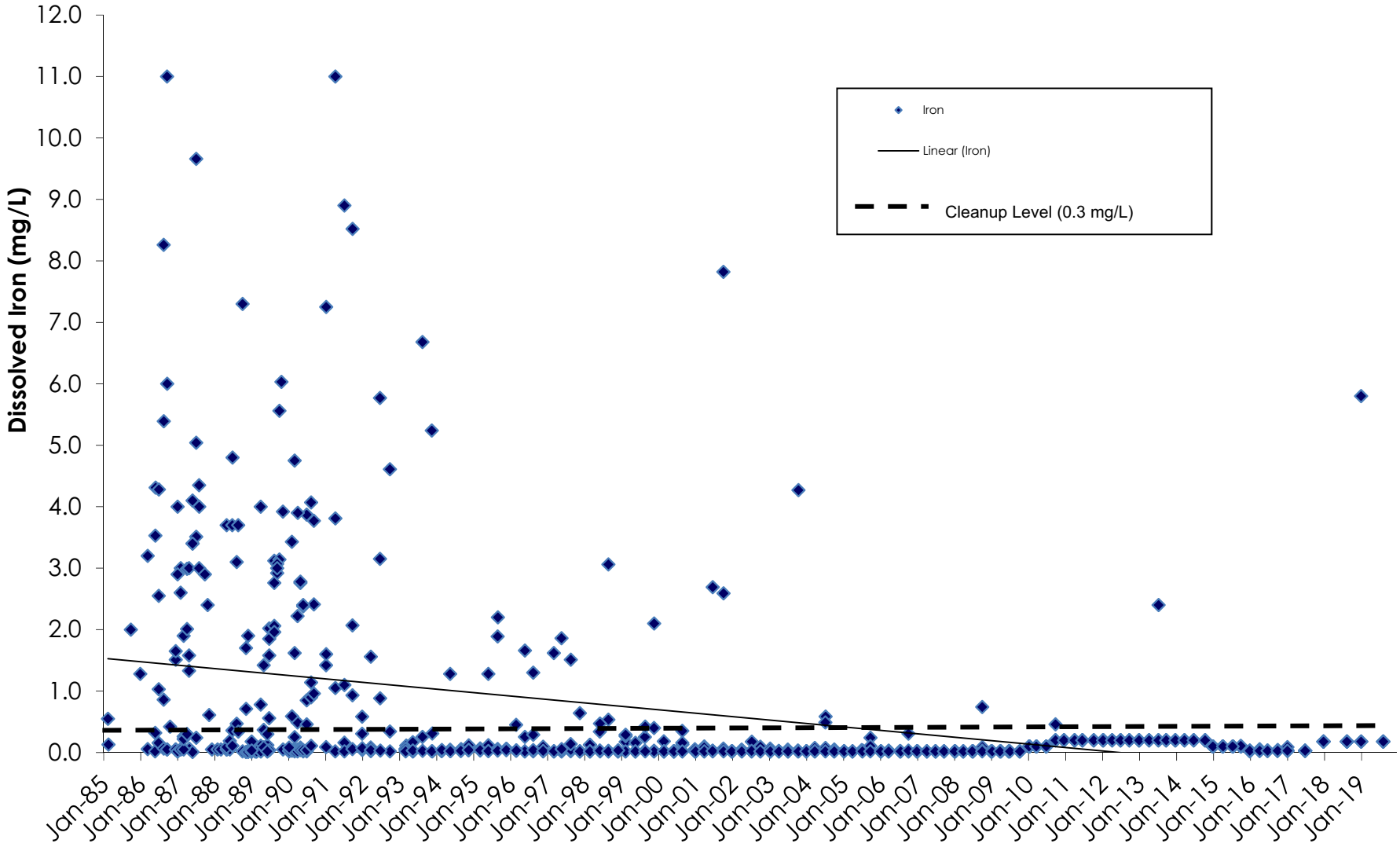


Figure 5

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill
Wells MW-11S, MW-12S, MW-13S, MW-14S, and MW-17S

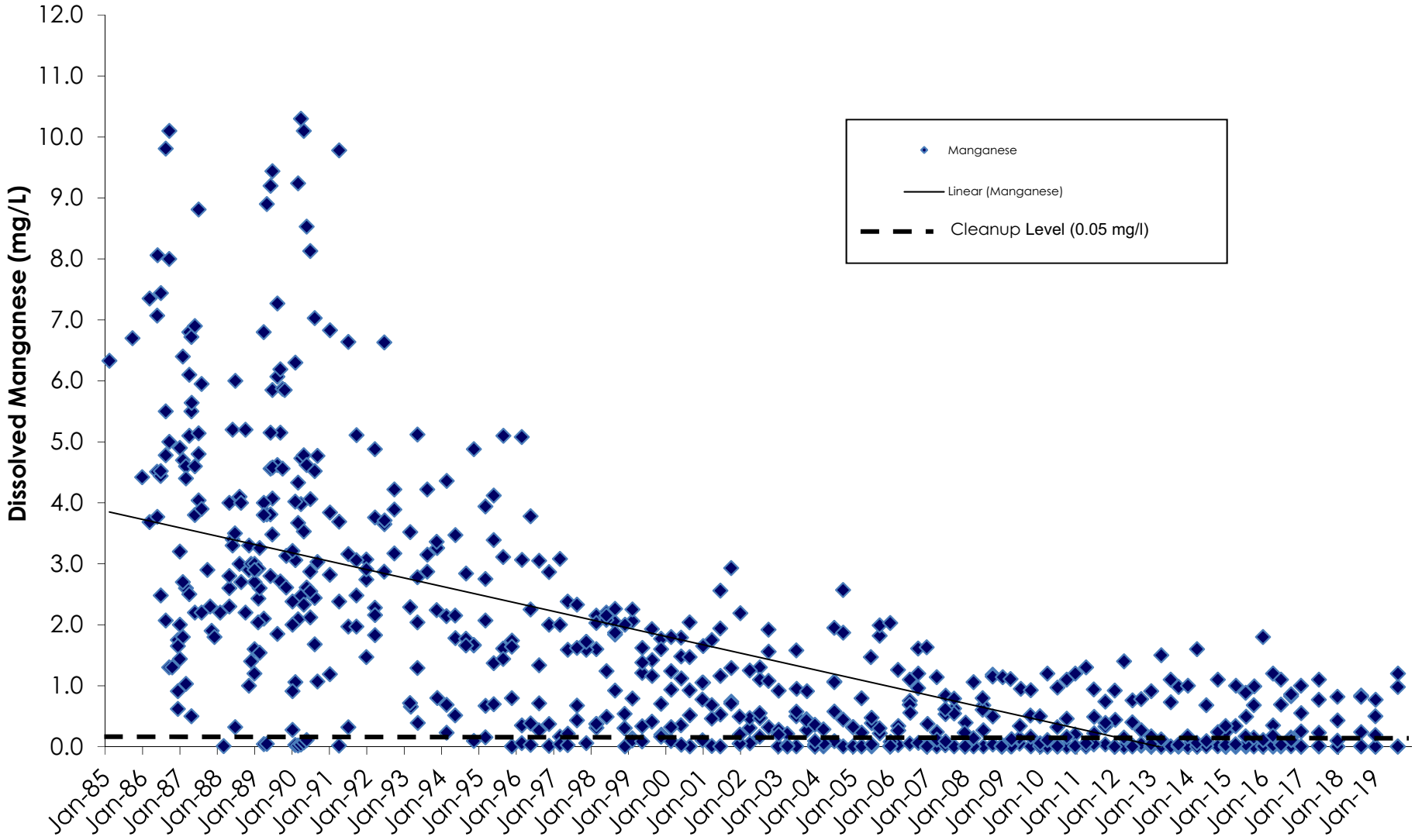


Figure 6

Specific Conductivity

Upper Regional Aquifer, Hidden Valley Landfill
Wells MW-11D(2), MW-12D, MW-13D, and MW-14D

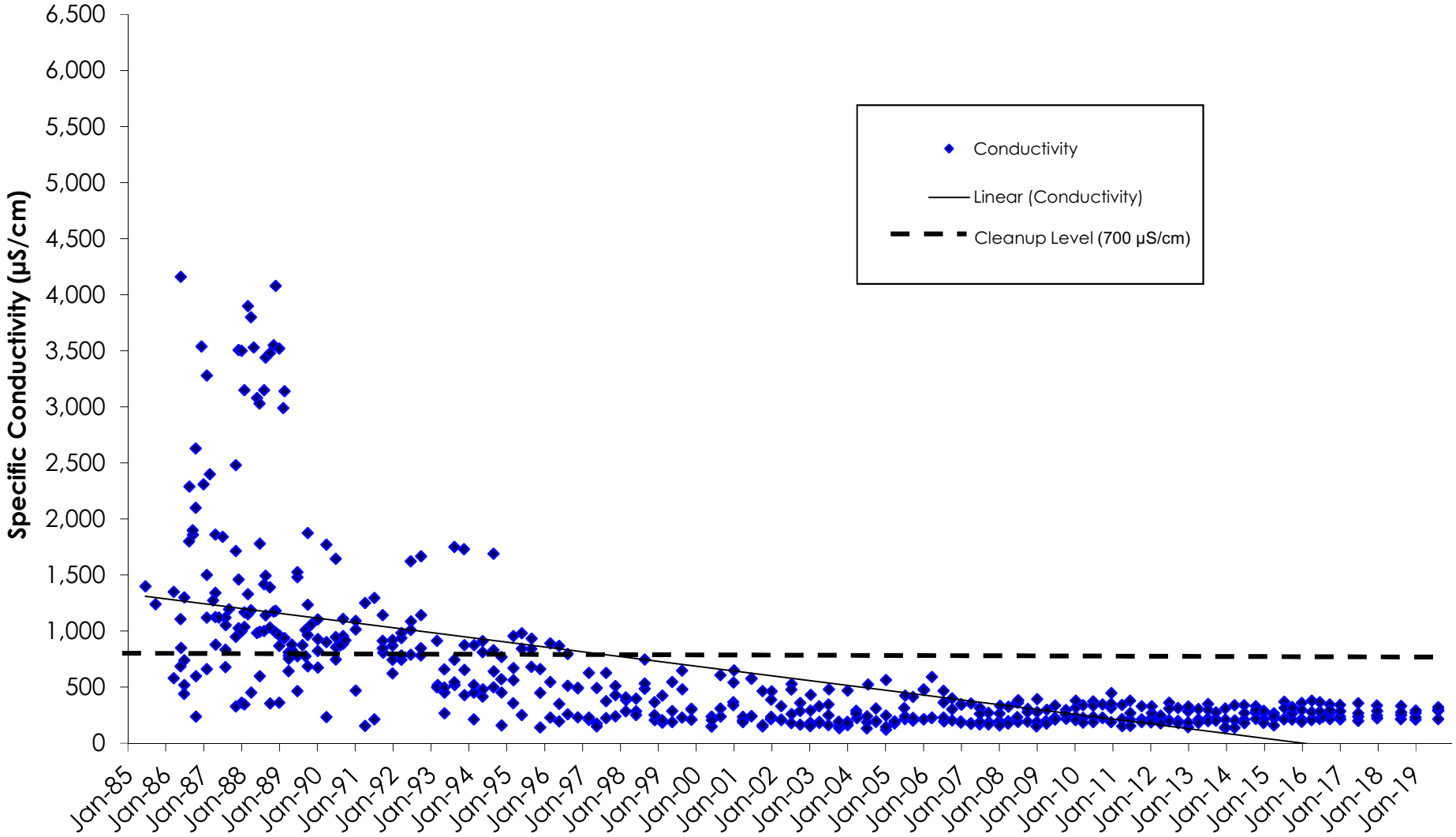


Figure 7

Ammonia

Upper Regional Aquifer, Hidden Valley Landfill
Wells MW-11D(2), MW-12D, MW-13D, and MW-14D

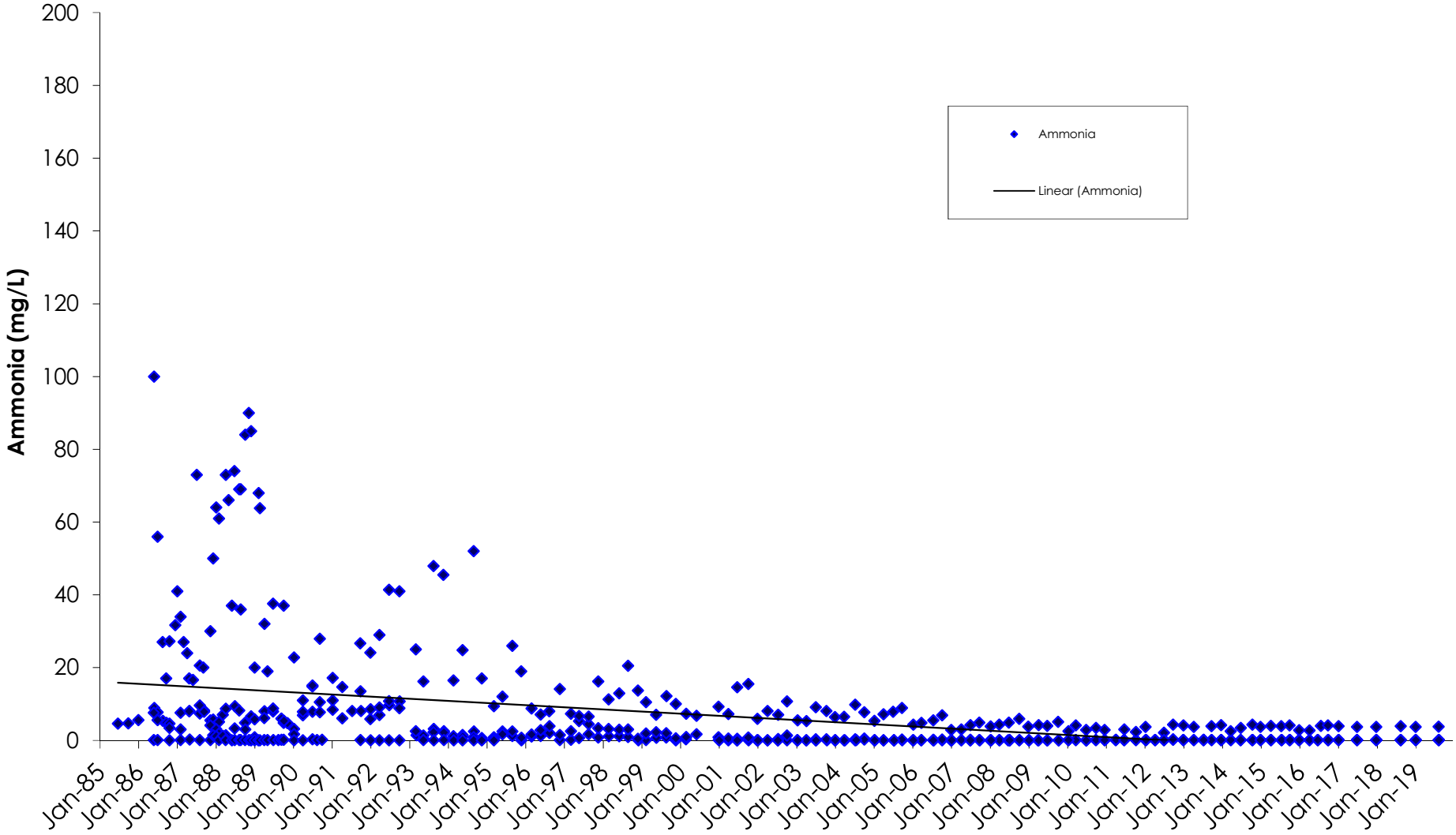


Figure 8

Nitrate

Upper Regional Aquifer, Hidden Valley Landfill
Wells MW-11D(2), MW-12D, MW-13D, and MW-14D

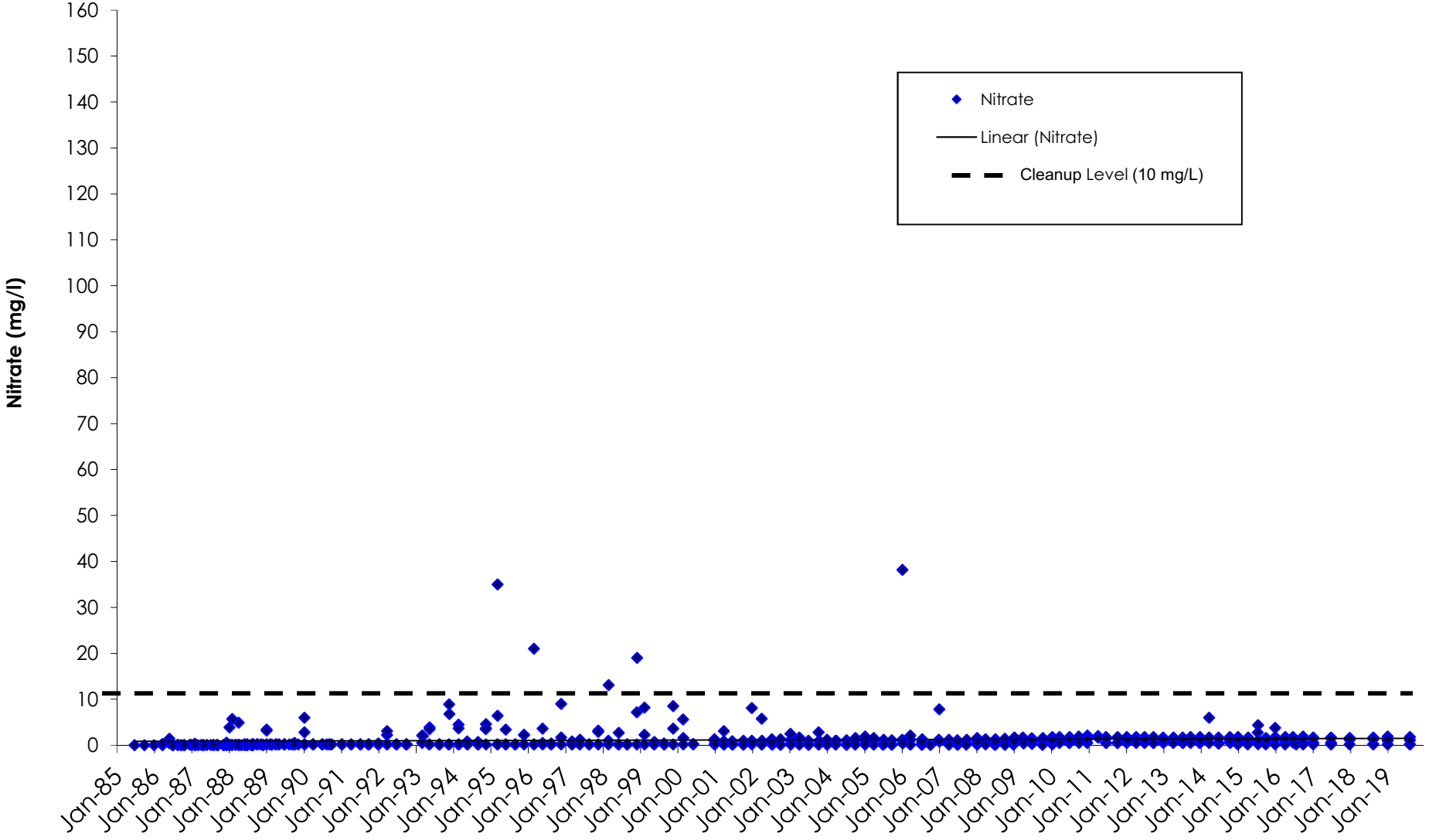


Figure 9

Dissolved Iron

Upper Regional Aquifer, Hidden Valley Landfill
Wells MW-11D(2), MW-12D, MW-13D, and MW-14D

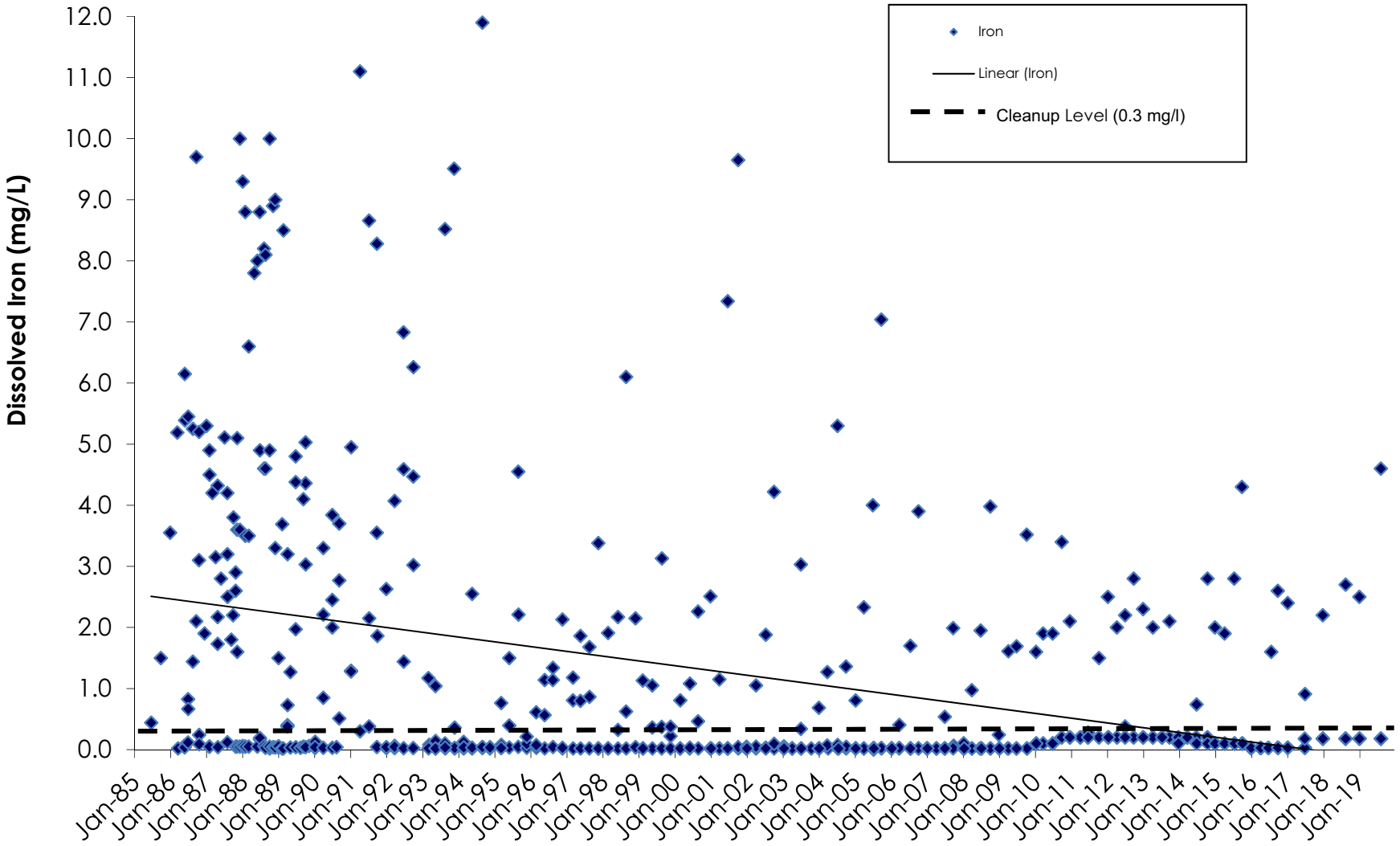


Figure 10

Dissolved Manganese

Upper Regional Aquifer, Hidden Valley Landfill
Wells MW-11D(2), MW-12D, MW-13D, and MW-14D

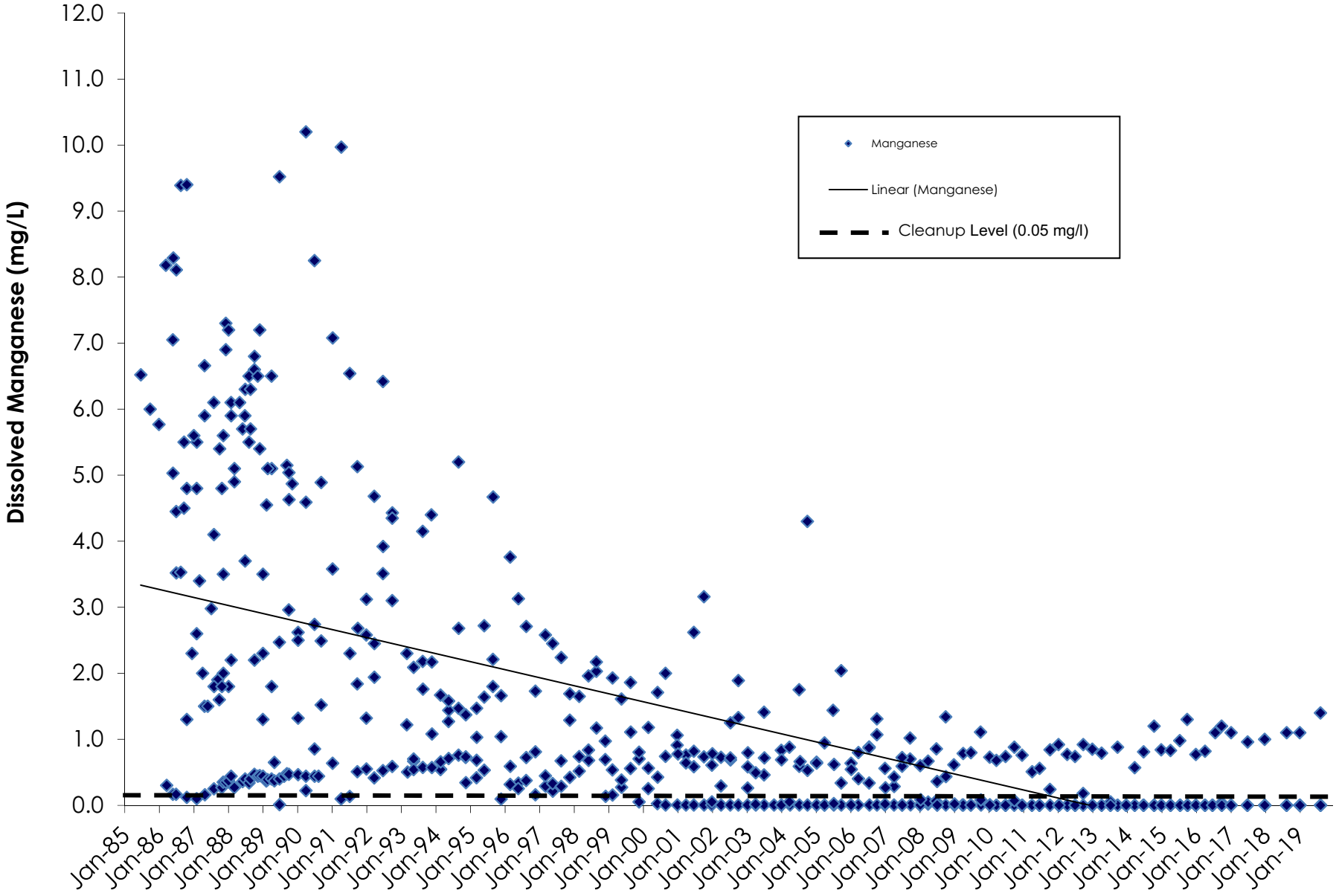


Figure 11

Nitrate

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-12S, 10 year Trend

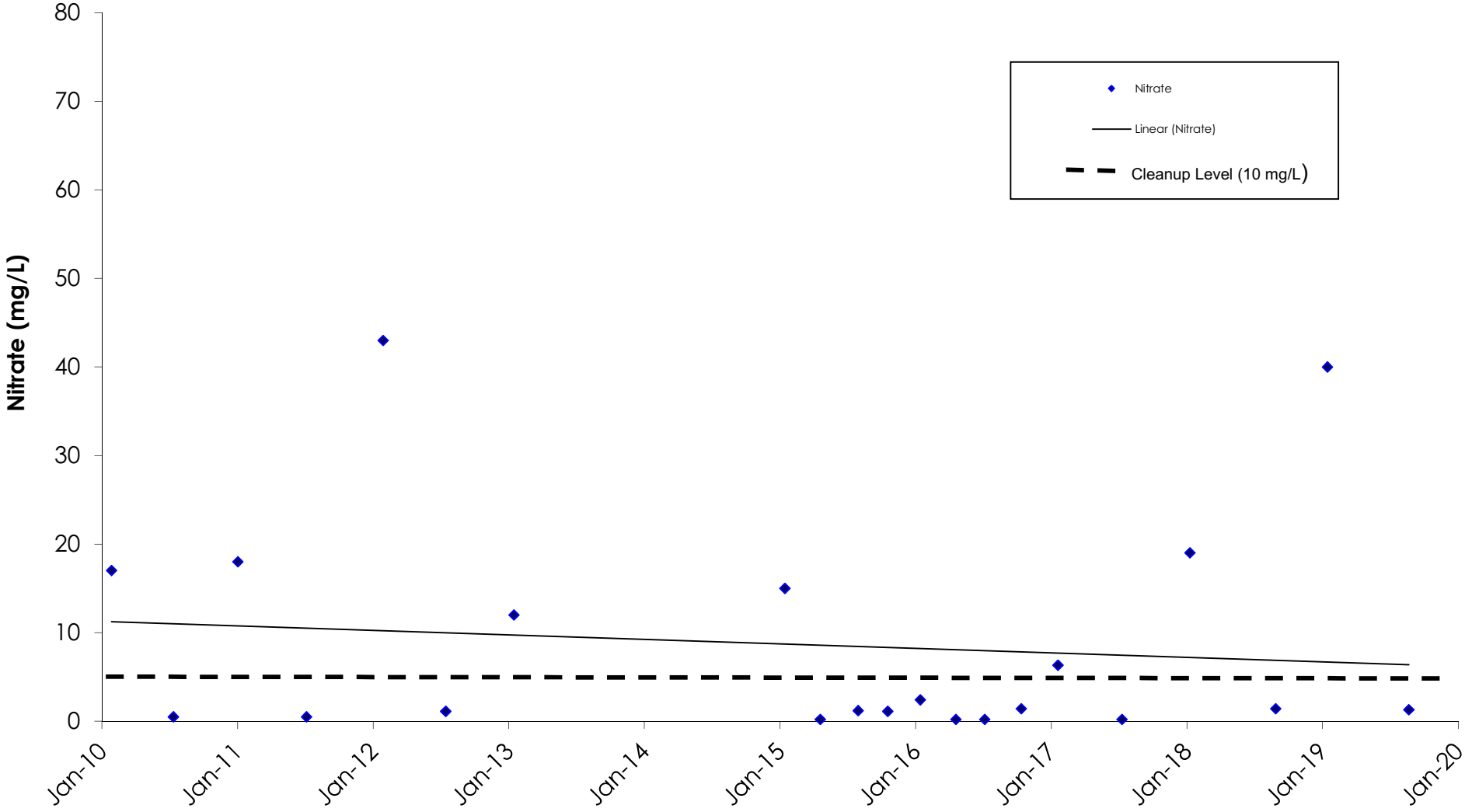


Figure 12

Dissolved Iron

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-13S, 10 year Trend

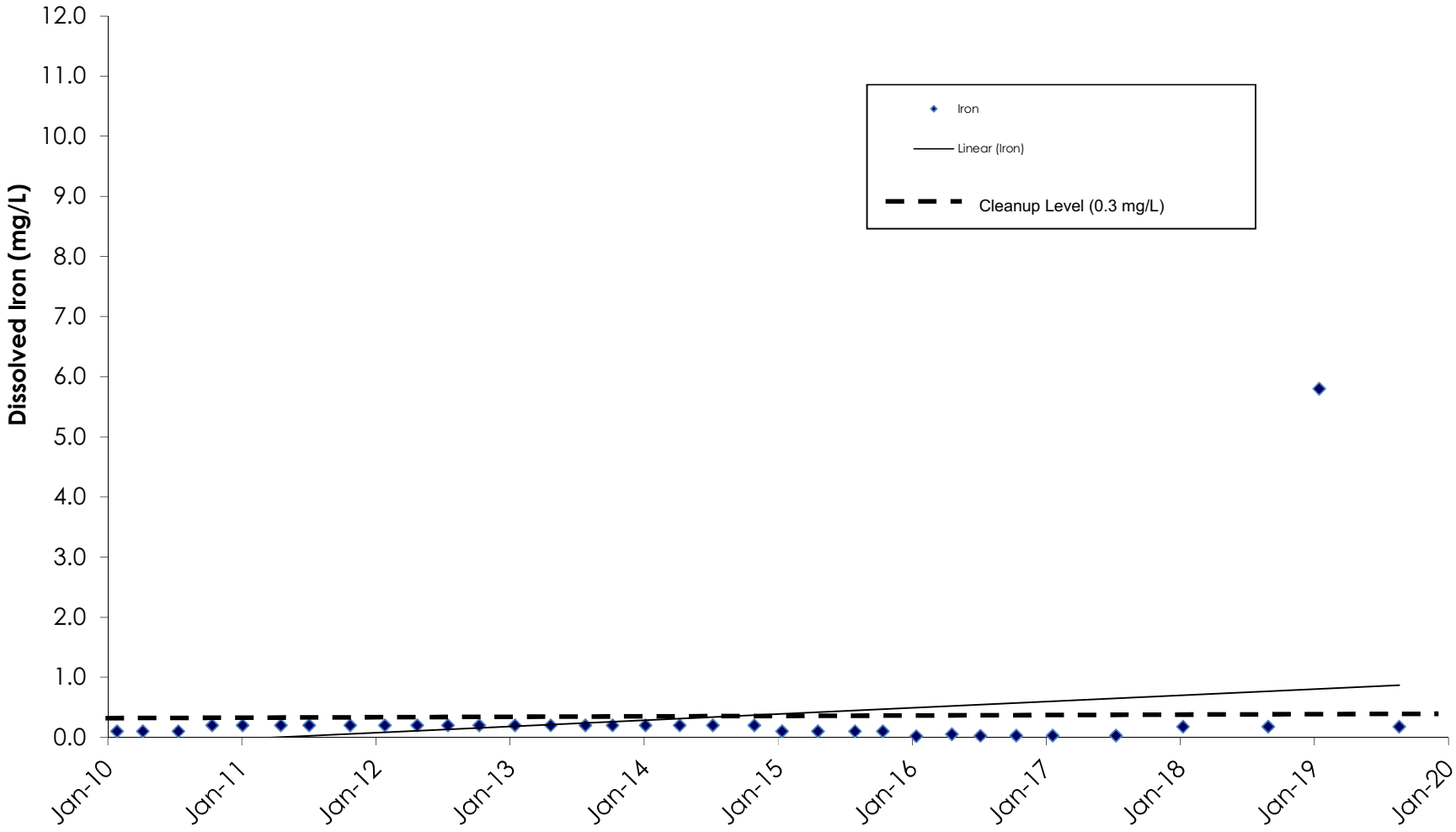


Figure 13

Dissolved Iron

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-14S, 10 year trend

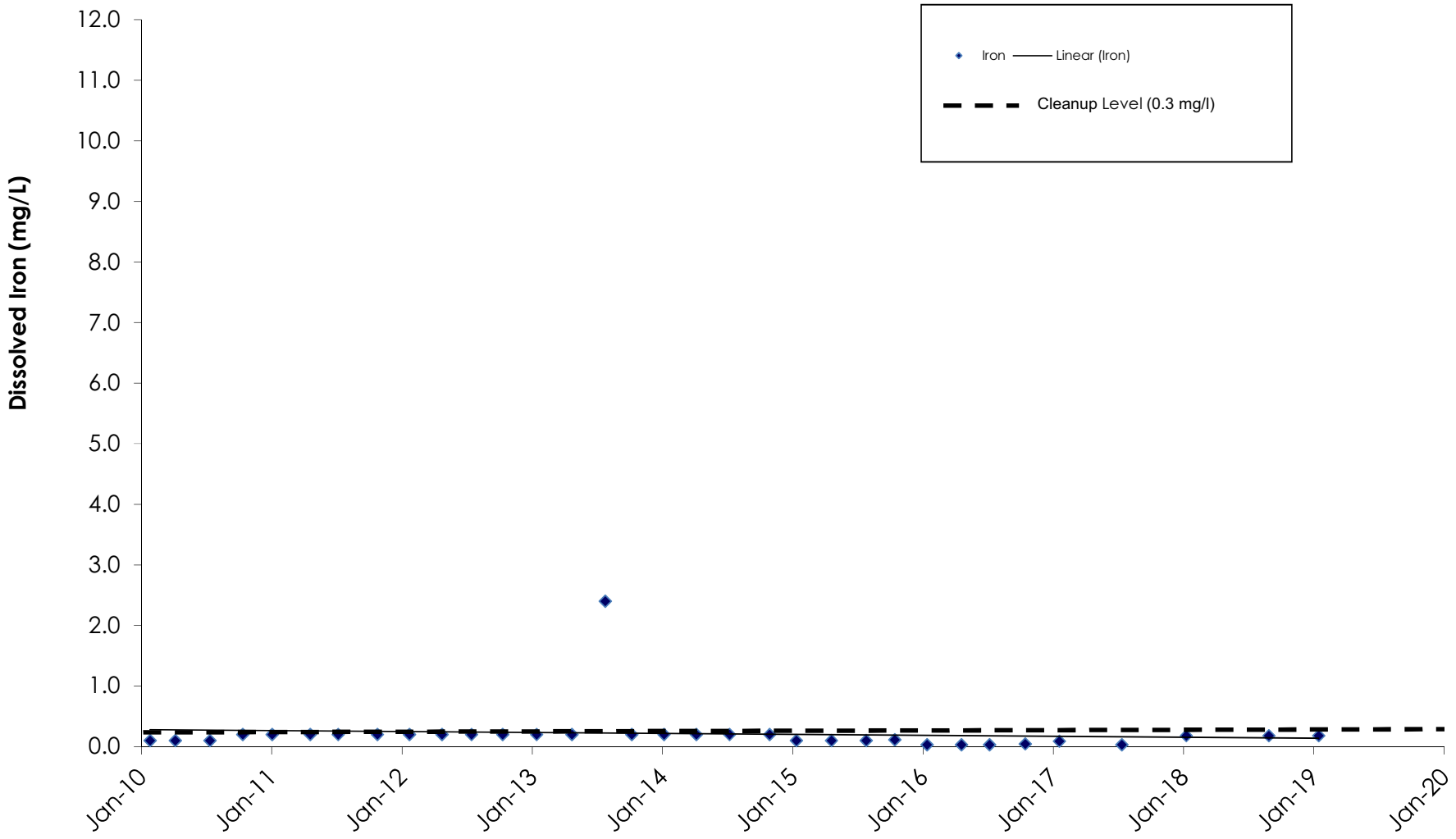


Figure 14

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-11S, 10 Year Trend

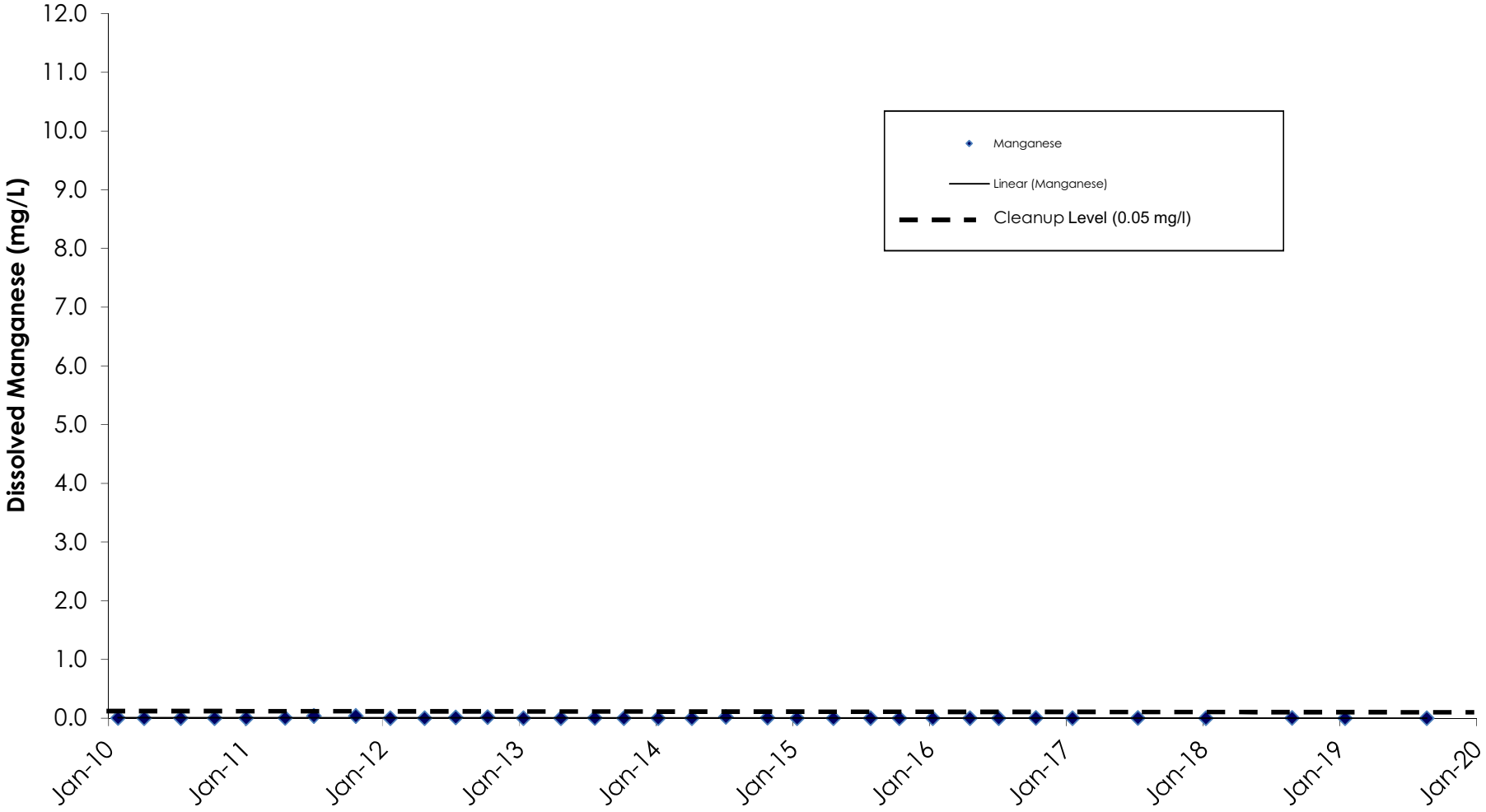


Figure 15

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-12S, 10 year trend

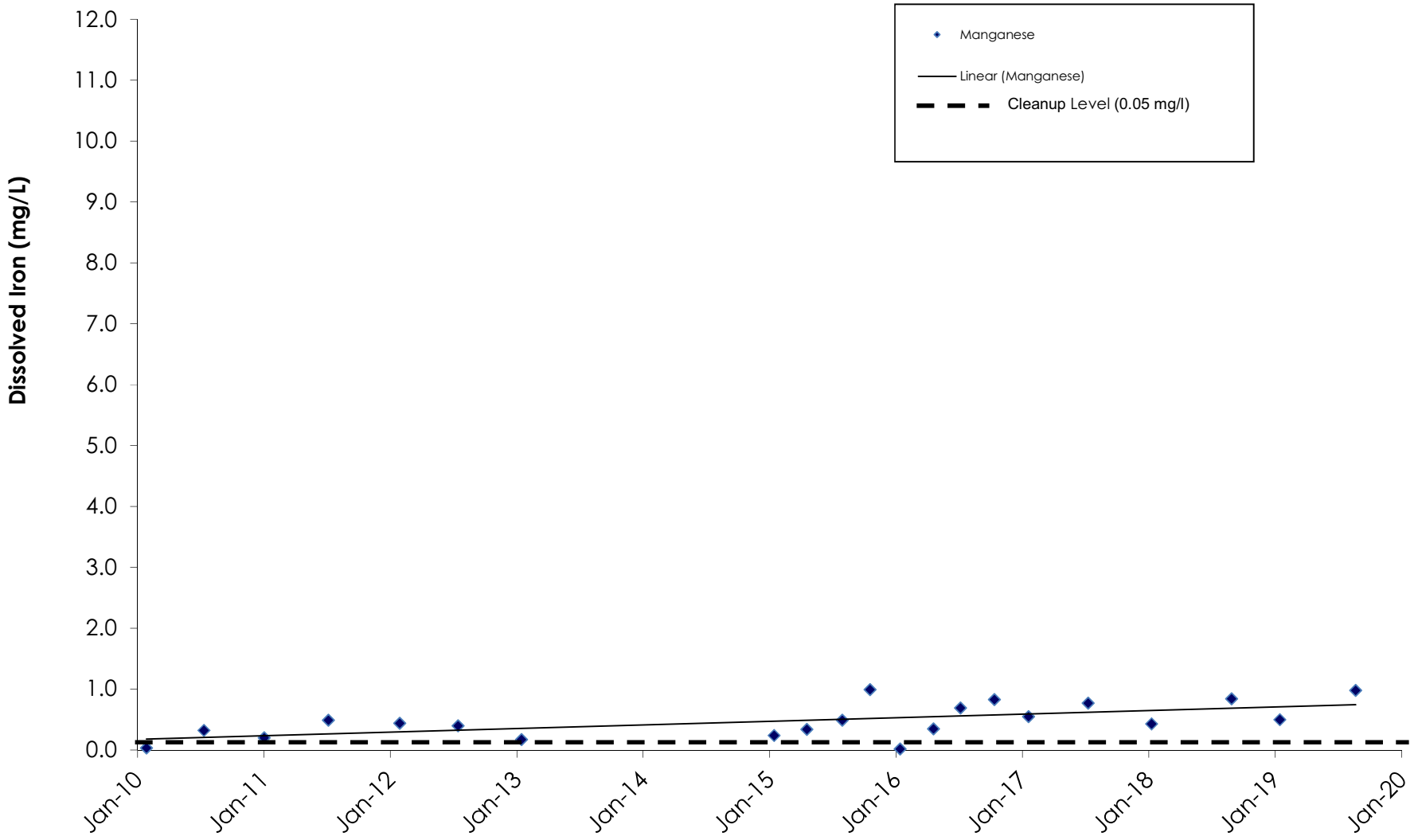


Figure 16

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill

Well MW-13S, 10 year trend

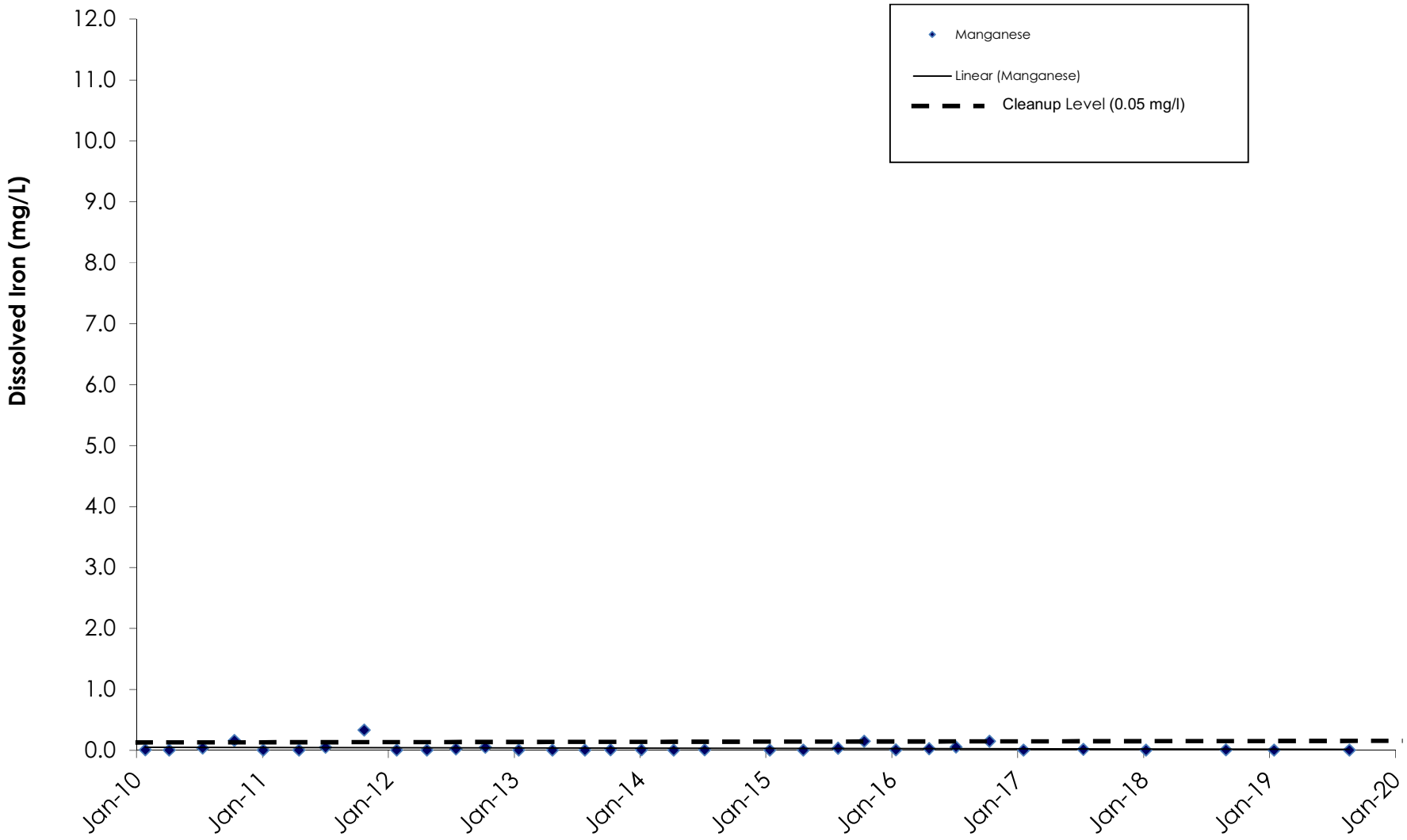


Figure 17

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill

Well MW-14S, 10 year trend

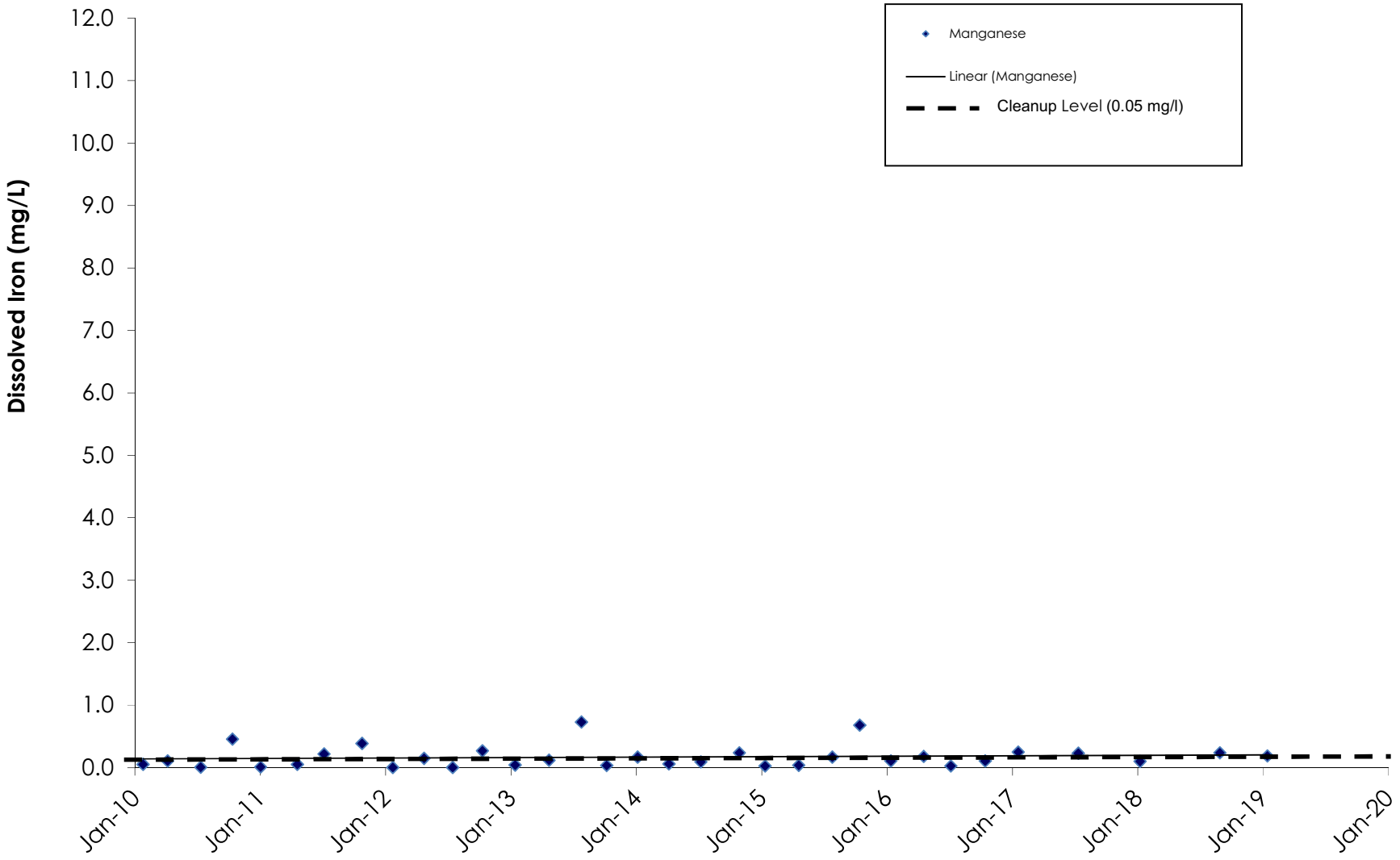


Figure 18

Dissolved Manganese

Shallow Perched Aquifer, Hidden Valley Landfill
Well MW-17S, 10 year trend

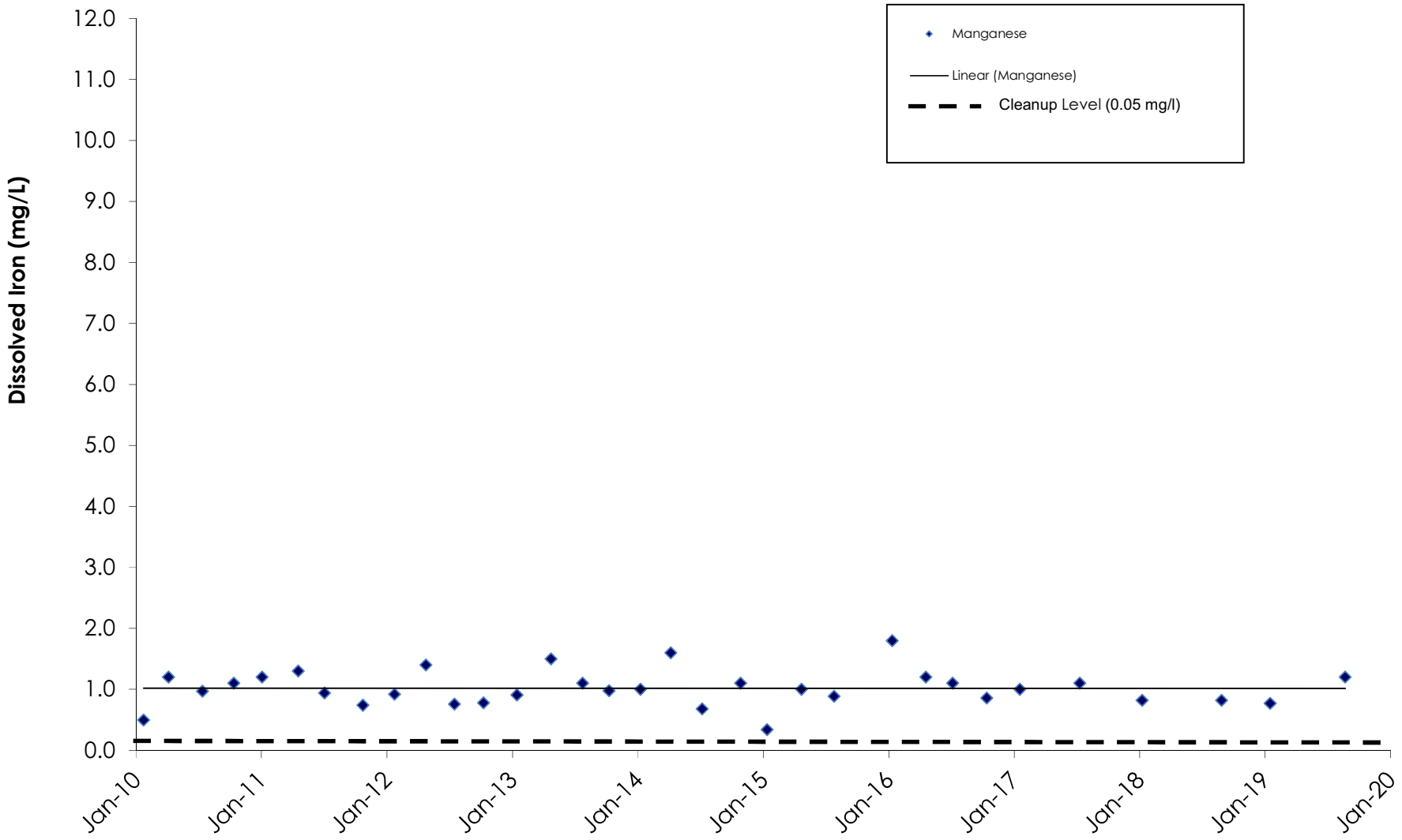


Figure 19

Dissolved Iron

Upper Regional Aquifer, Hidden Valley Landfill
Well MW-11D(2), 10 year trend

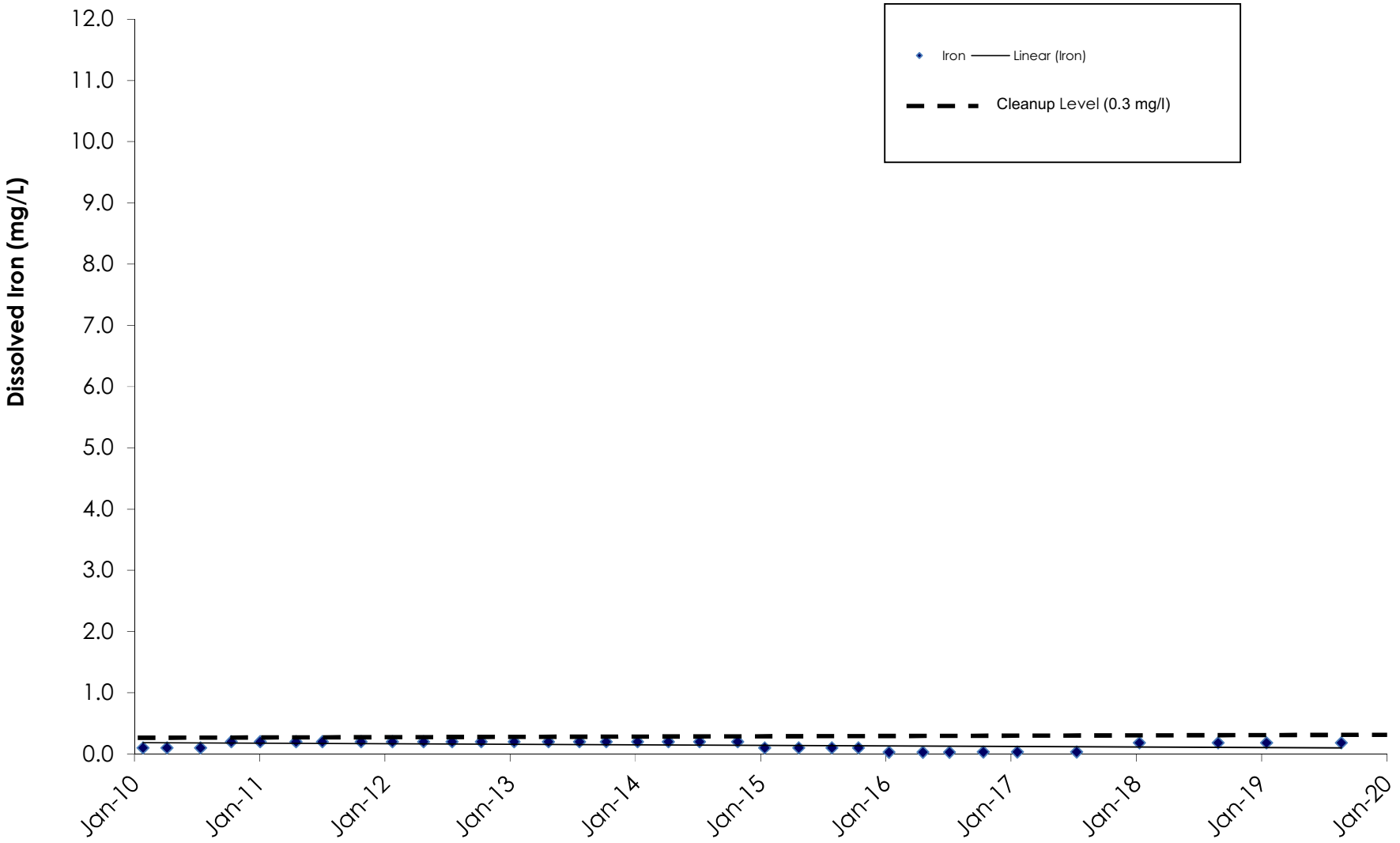


Figure 20

Dissolved Iron

Upper Regional Aquifer, Hidden Valley Landfill
Well MW-12D, 10 year trend

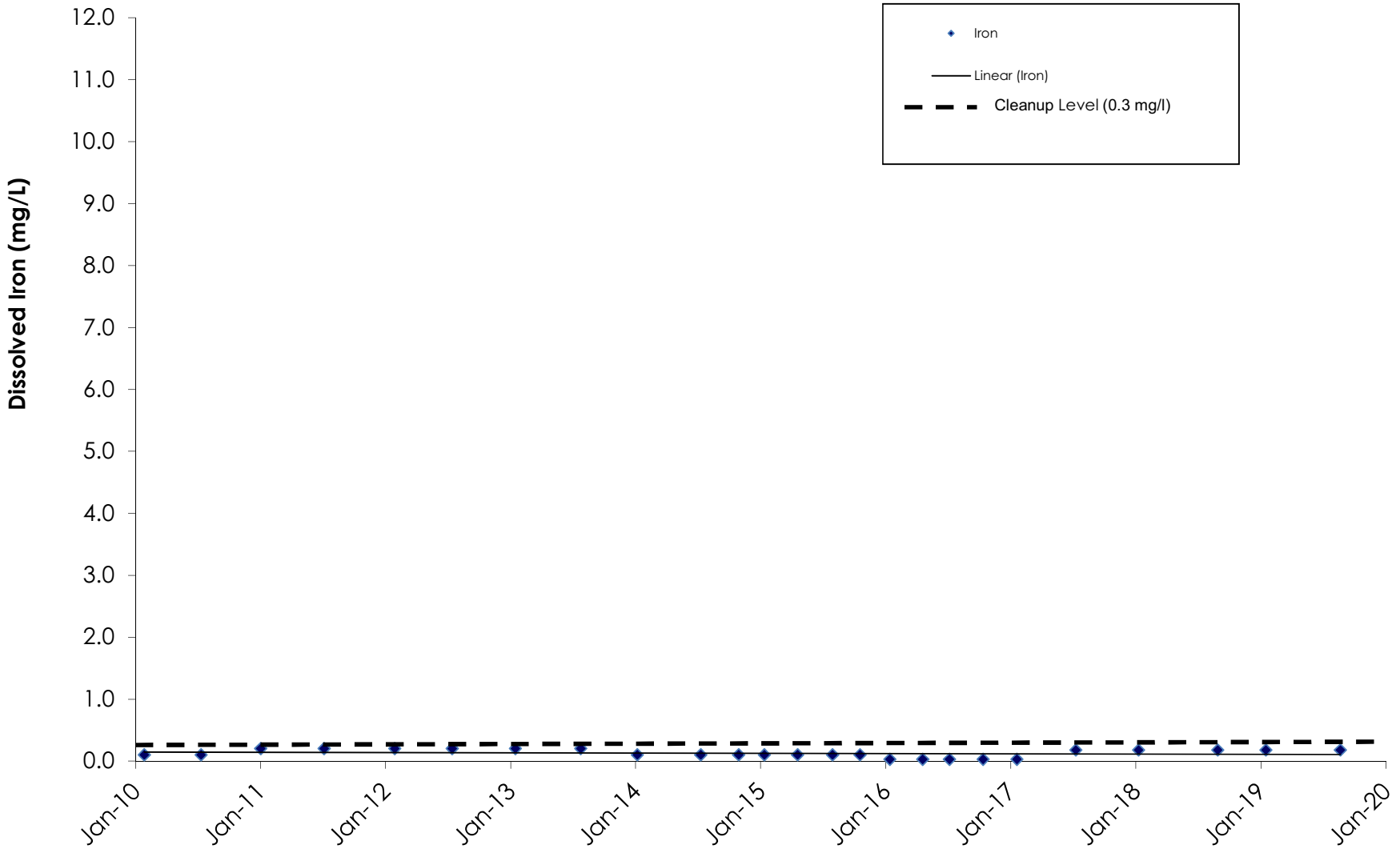


Figure 21

Dissolved Iron

Upper Regional Aquifer, Hidden Valley Landfill
Well MW-13D, 10 year trend

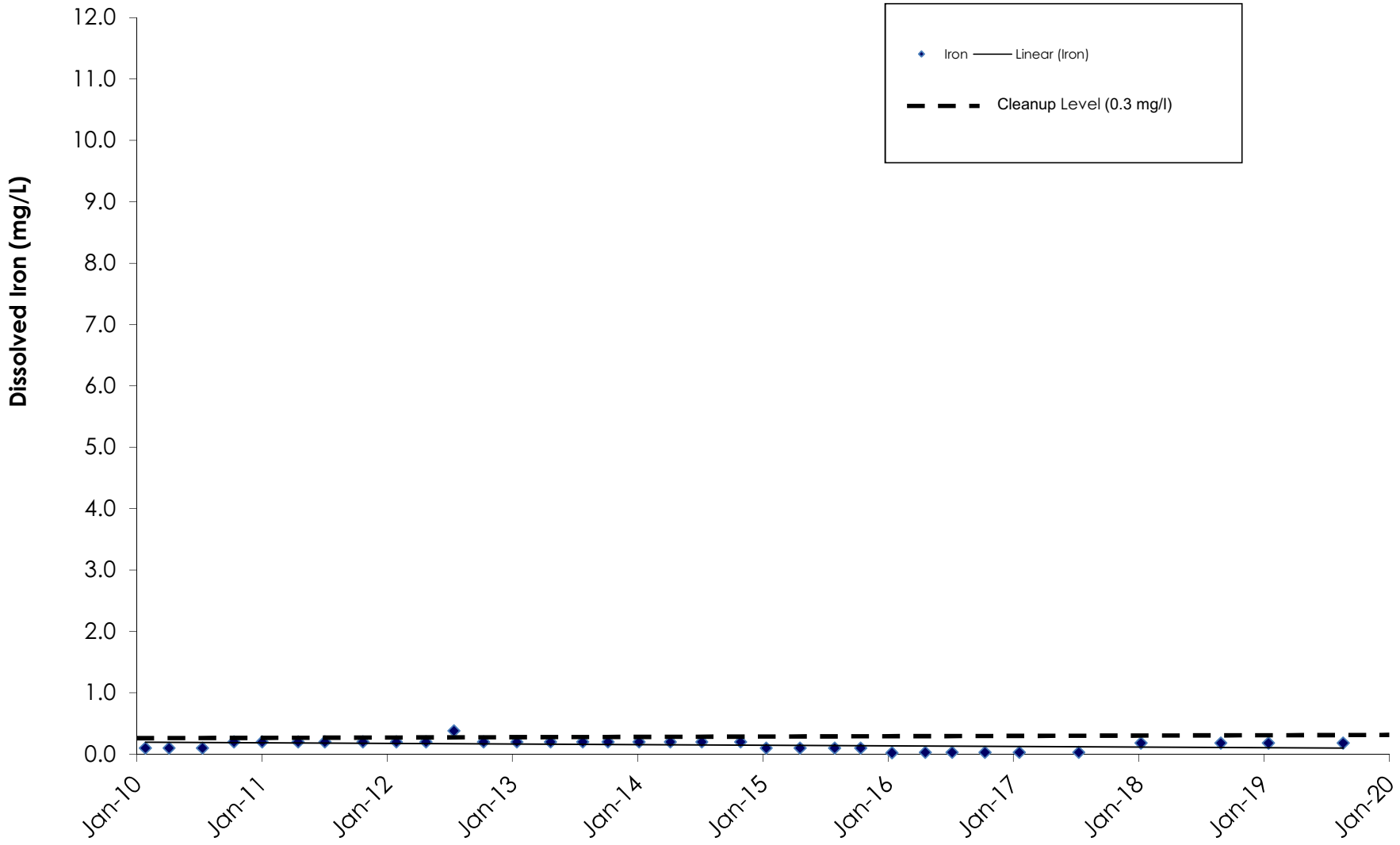


Figure 22

Dissolved Iron

Upper Regional Aquifer, Hidden Valley Landfill
Well MW-14D, 10 year trend

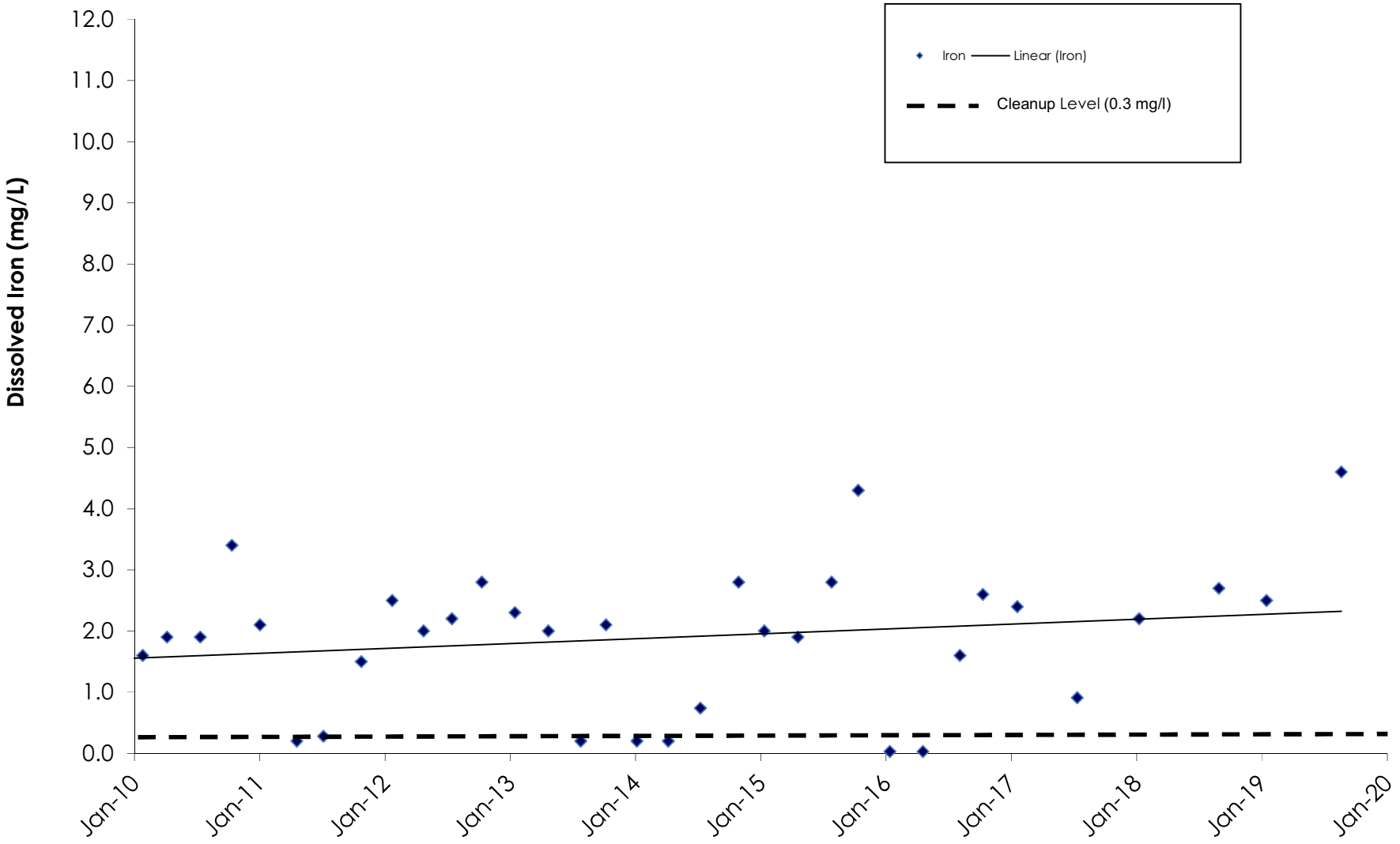


Figure 23

Dissolved Manganese

Upper Regional Aquifer, Hidden Valley Landfill

Well MW-11D(2), 10 year trend

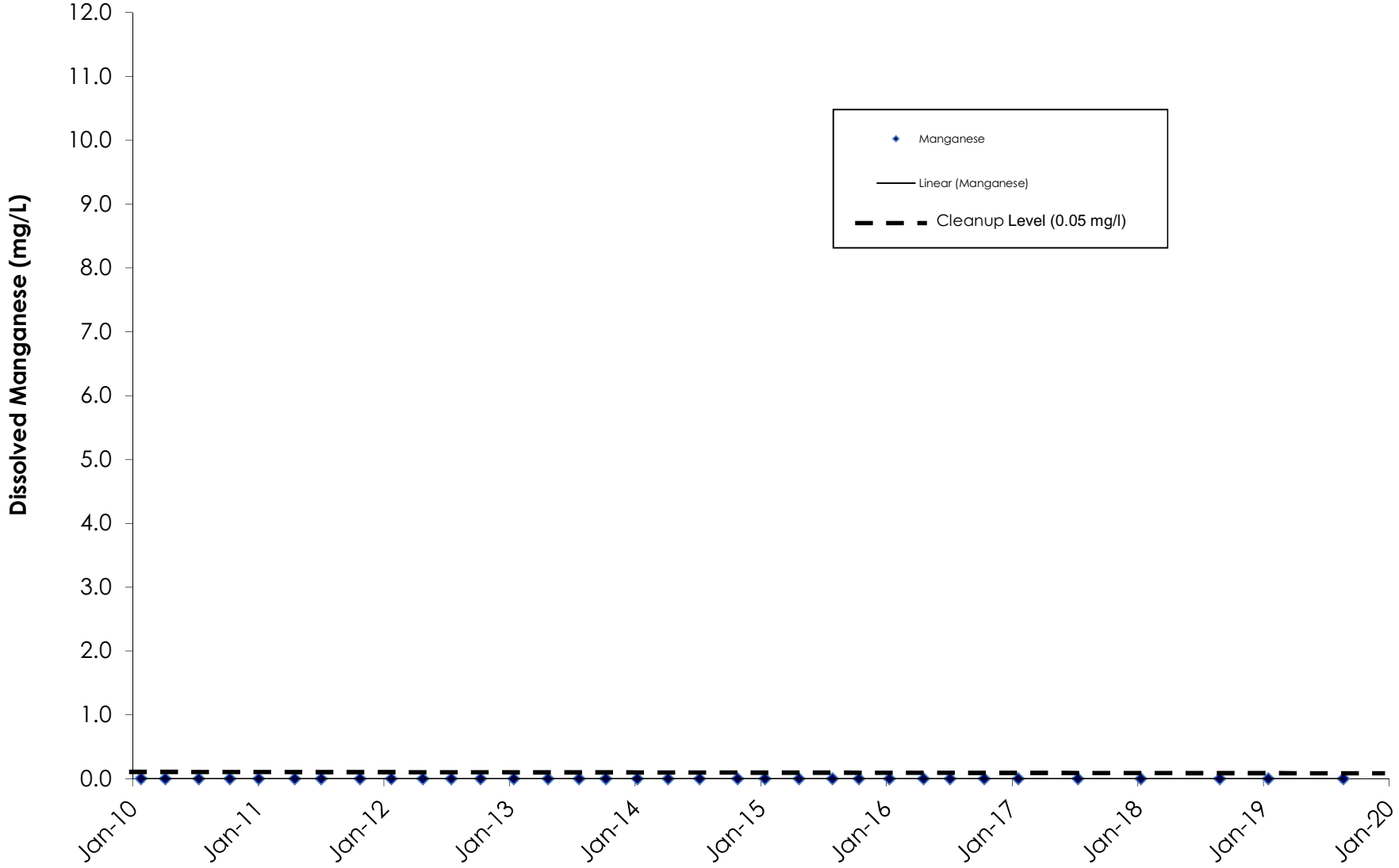


Figure 24

Dissolved Manganese

Upper Regional Aquifer, Hidden Valley Landfill
Well MW-12D, 10 year trend

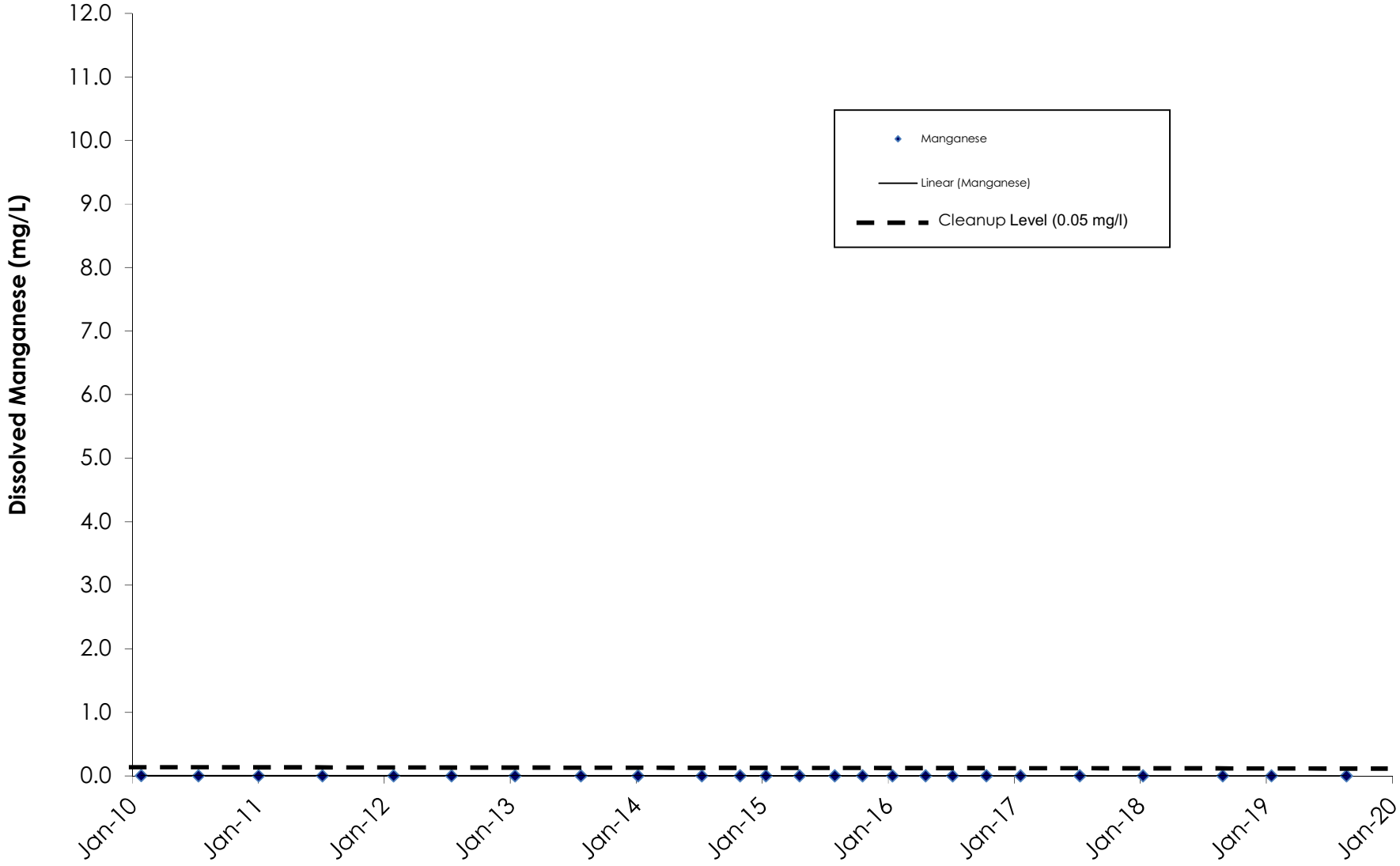


Figure 25

Dissolved Manganese

Upper Regional Aquifer, Hidden Valley Landfill

Well MW-13D, 10 year trend

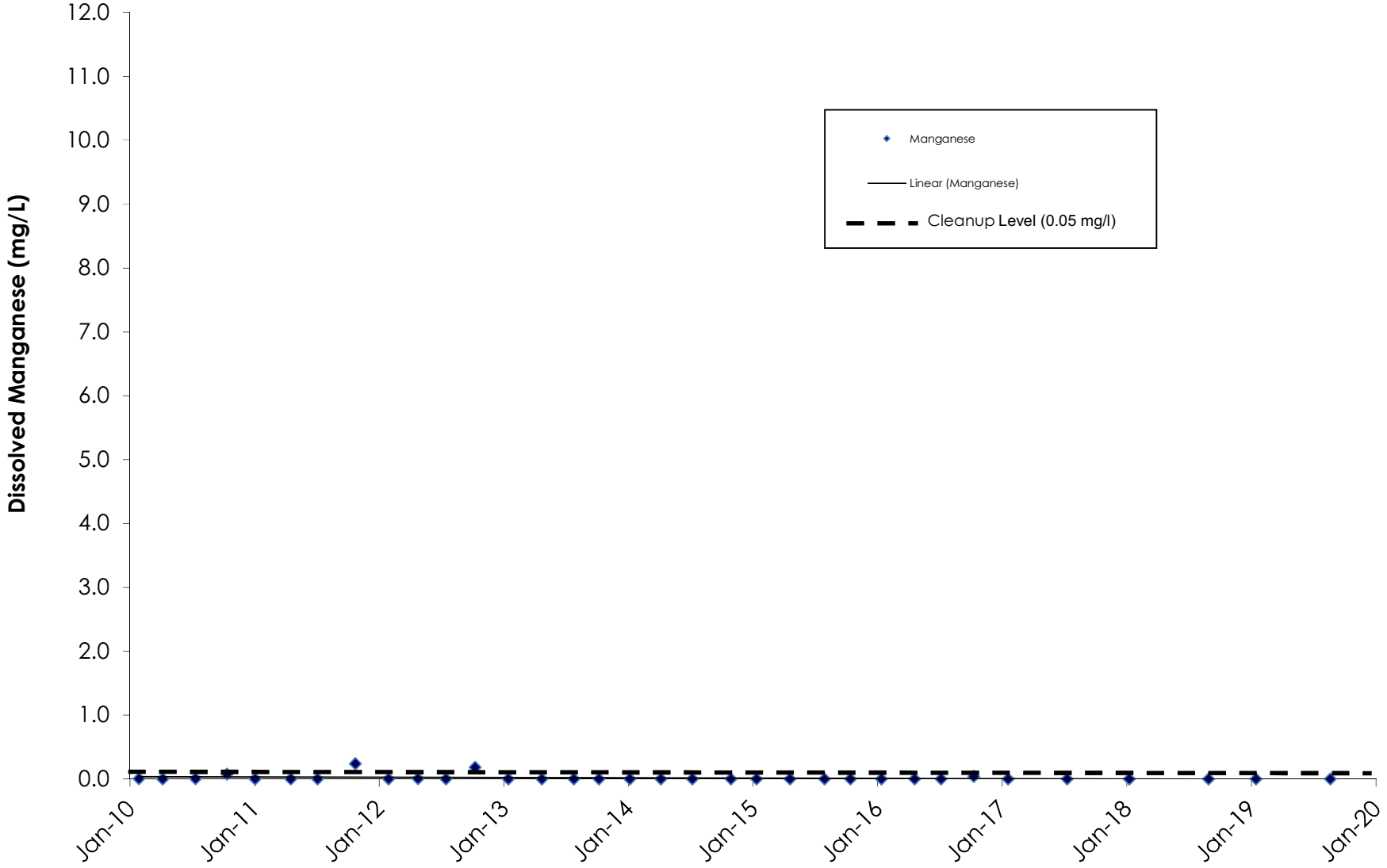
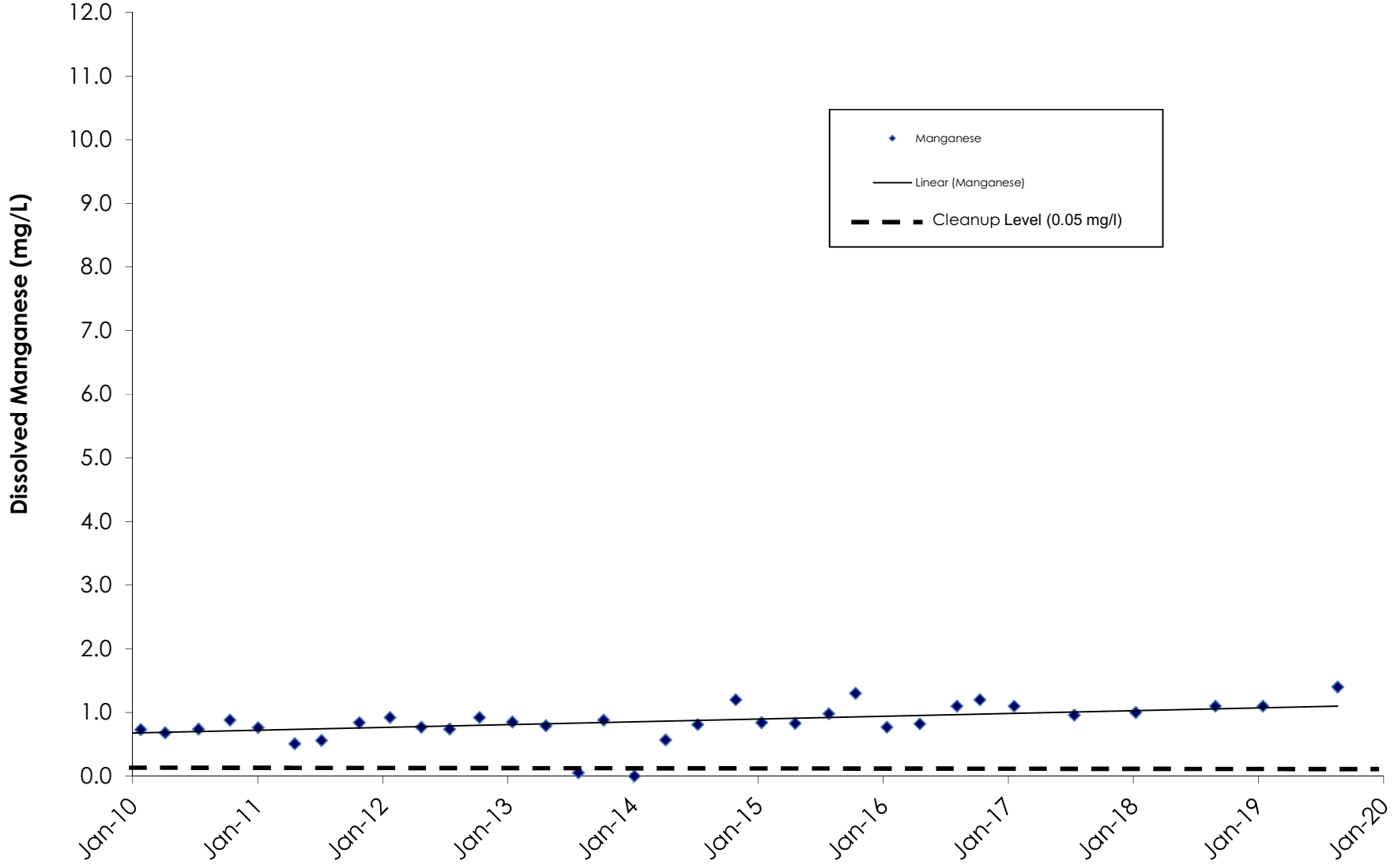


Figure 26

Dissolved Manganese

Upper Regional Aquifer, Hidden Valley Landfill

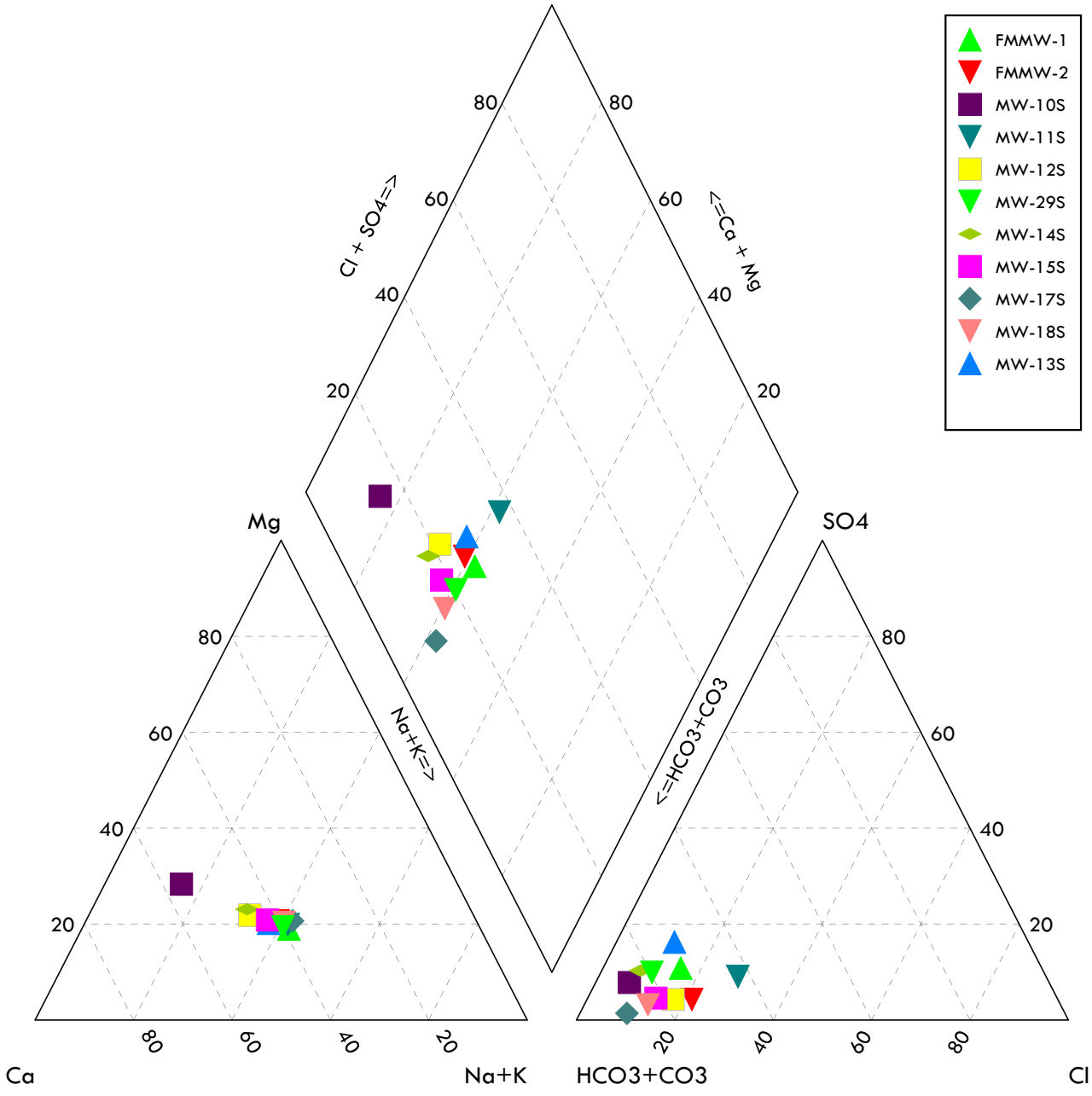
Well MW-14D, 10 year trend



Appendix F

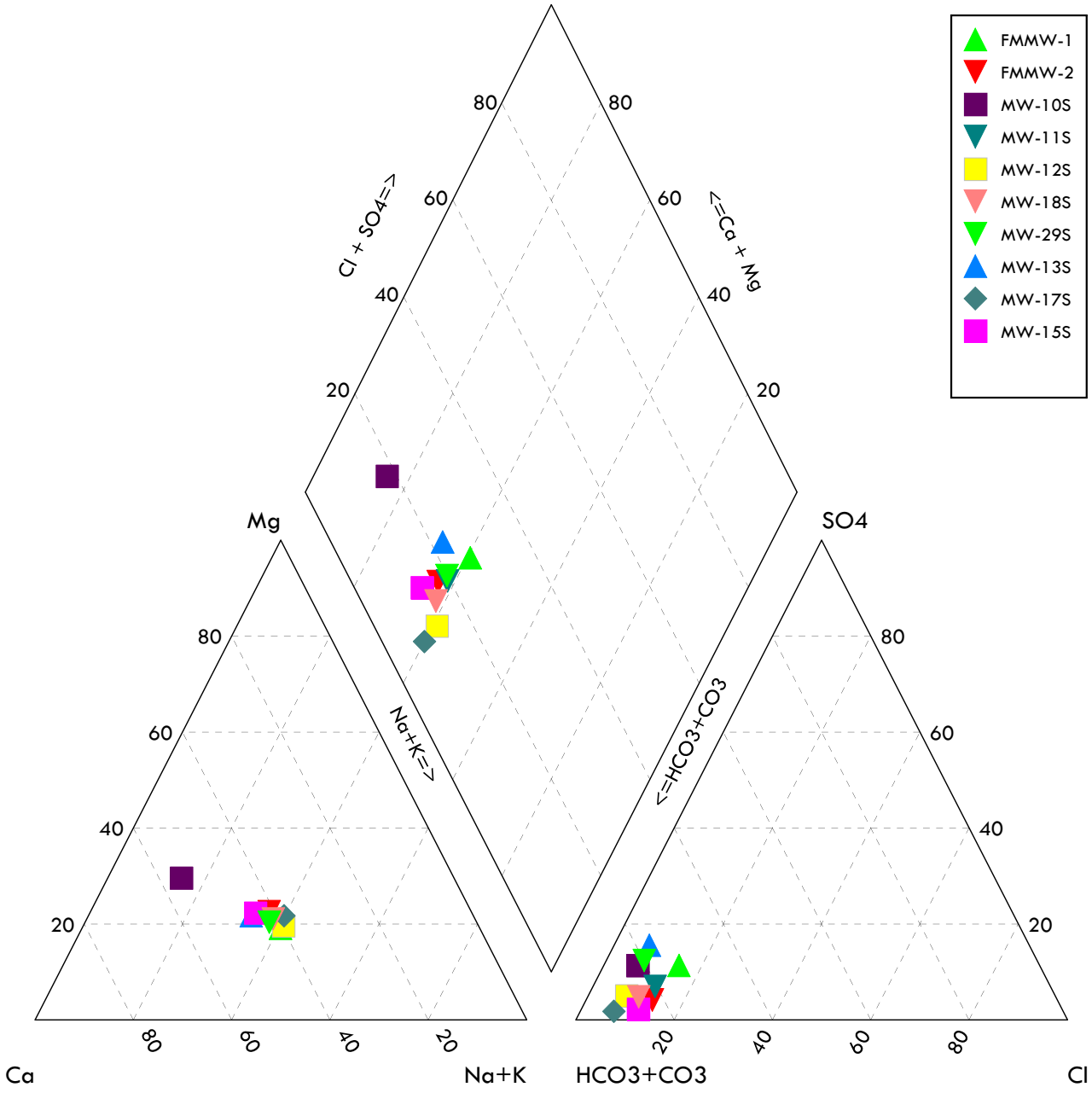
TRILINEAR DIAGRAMS

Shallow Aquifer - Semi-annual Event No. 1, 2019



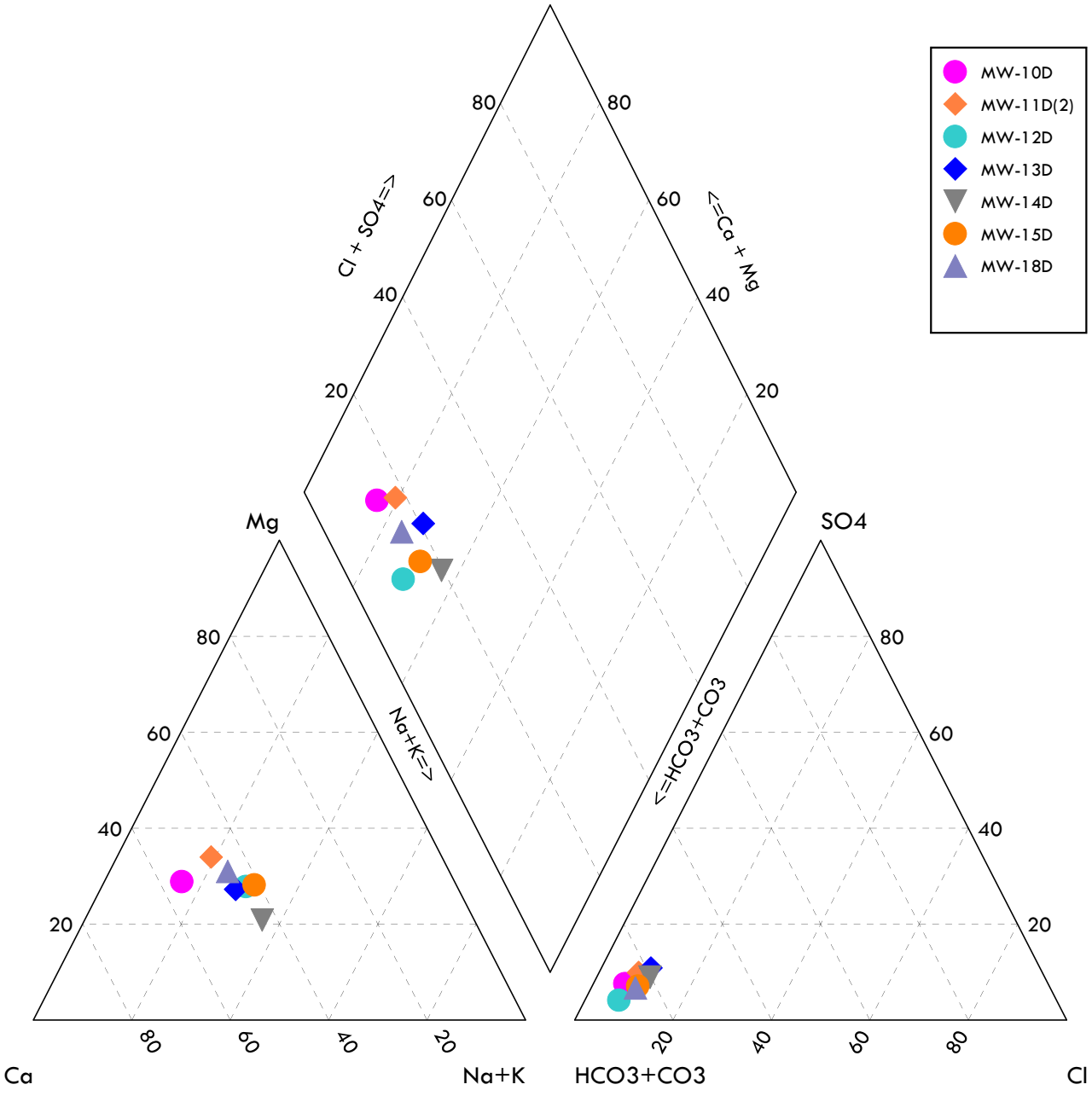
DESCRIPTION: Trilinear Diagram: Shallow Aquifer, Semi-annual Event No. 1 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: May 2019

Shallow Aquifer - Semi-annual Event No. 2, 2019



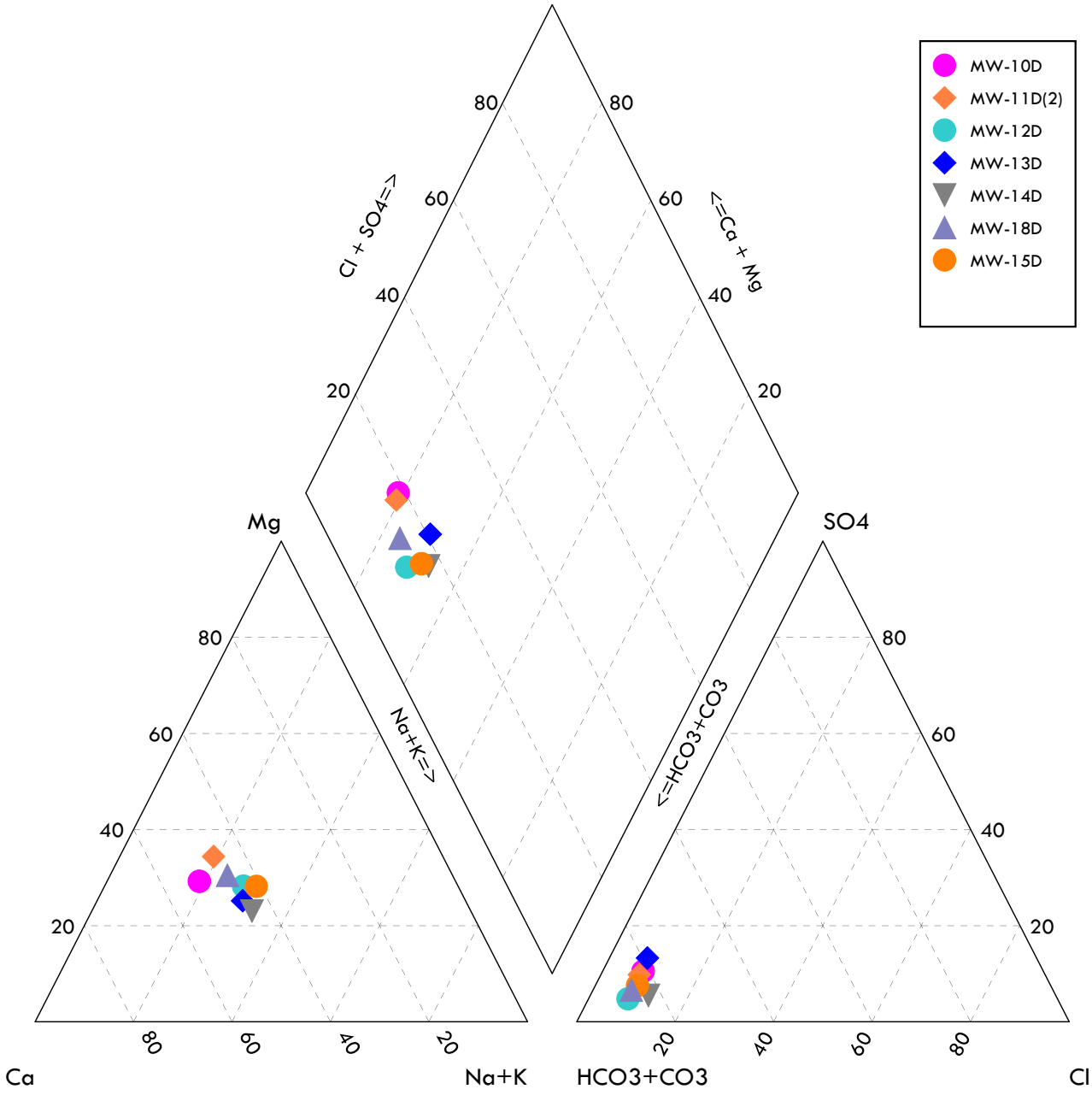
DESCRIPTION: Trilinear Diagram: Shallow Aquifer, Semi-annual Event No. 2 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: February 2020

Upper Regional Aquifer - Semi-annual Event No. 1, 2019



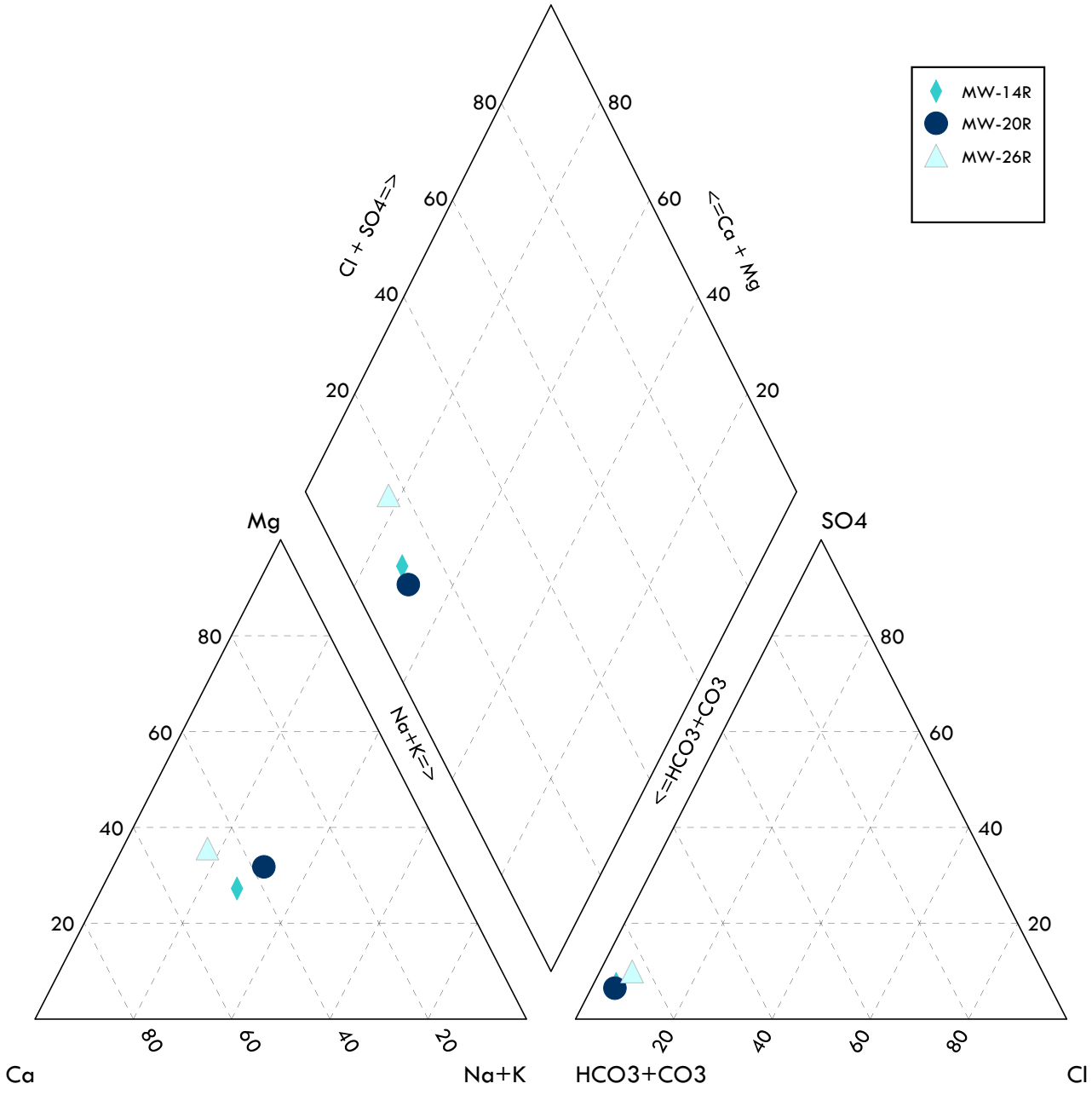
DESCRIPTION: Trilinear Diagram: Upper Regional Aquifer, Semi-annual Event No. 1 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: May 2019

Upper Regional Aquifer - Semi-annual Event No. 2, 2019



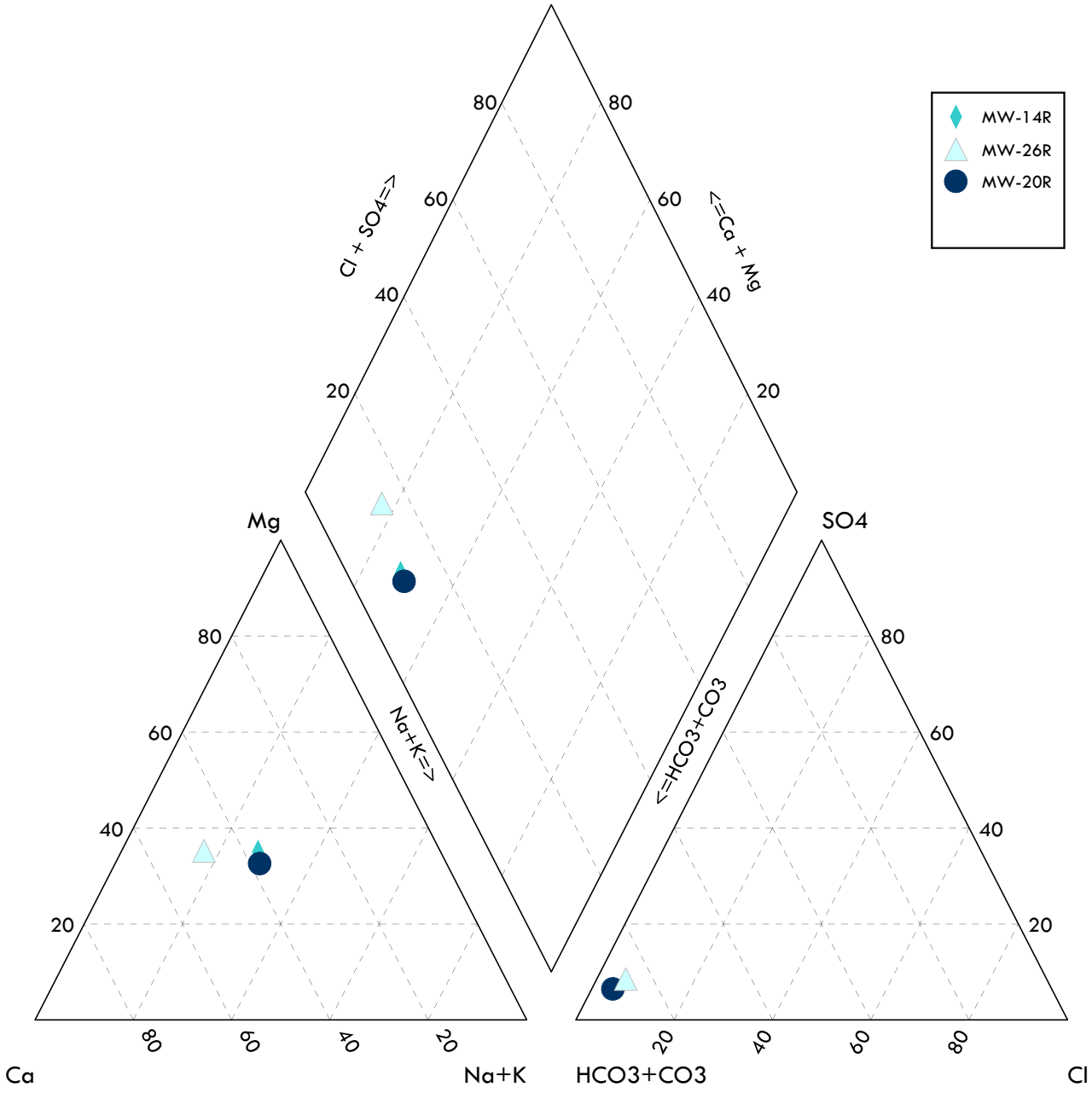
DESCRIPTION: Trilinear Diagram: Upper Regional Aquifer, Semi-annual Event No. 2 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: February 2020

Lower Regional Aquifer - Semi-annual Event No. 1, 2019



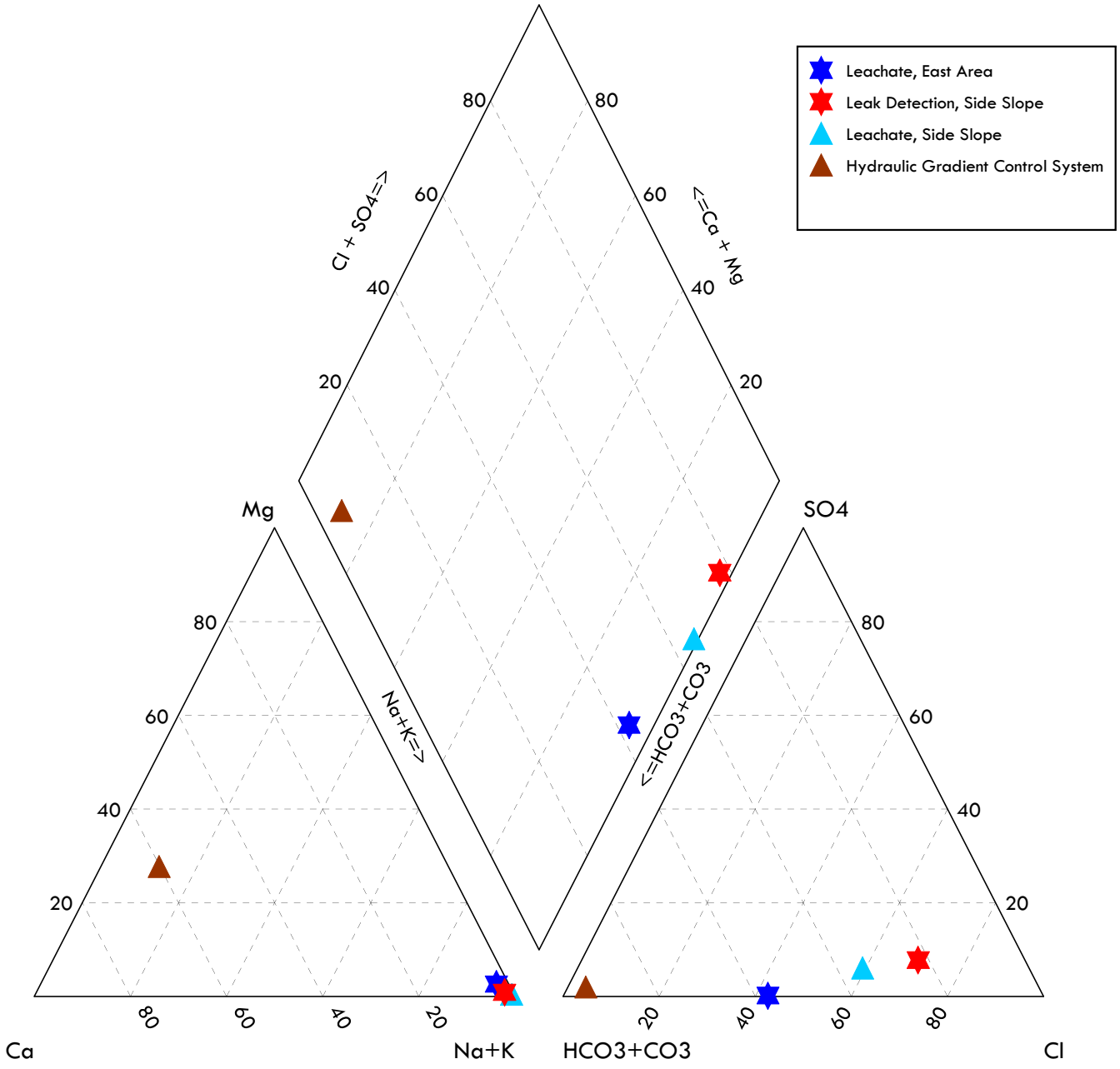
DESCRIPTION: Trilinear Diagram: Lower Regional Aquifer, Semi-annual Event No. 1 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: May 2019

Lower Regional Aquifer - Semi-annual Event No. 2, 2019



DESCRIPTION: Trilinear Diagram: Lower Regional Aquifer, Semi-annual Event No. 2 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: February 2020

Leachate and Leak Detection Locations - Semi-annual Event No. 1, 2019



DESCRIPTION: Trilinear Diagram: Leachate and Leak Detection Locations, Semi-annual Event No. 1 - 2019		
	PROJECT: Hidden Valley Landfill	PROJECT NO: 04219002.03
	CLIENT: LRI Hidden Valley	DATE: May 2019

Appendix G

STATISTICAL CALCULATIONS

Statistical Summary of Groundwater Data - Inorganics
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-10D																	
MW-10D	1/12/2015	195	195	88	88	5.9	5.9	0.1 L	0.05	1.8	1.8	7.5	7.5	140	140	1 L	0.5
MW-10D	4/20/2015	180.9	180.9	89	89	5.2	5.2	0.1 L	0.05	2.2	2.2	7.6	7.6	140	140	1 L	0.5
MW-10D	7/30/2015	195	195	67	67	6.7	6.7	0.1 L	0.05	0.79	0.79	11	11	120	120	1 L	0.5
MW-10D	10/13/2015	210	210	94	94	6.2	6.2	0.1 L	0.05	2.2	2.2	8.1	8.1	140	140	1 L	0.5
MW-10D	1/13/2016	226	226	93	93	5.9	5.9	0.38	0.38	2.1	2.1	7.9	7.9	150	150	1 L	0.5
MW-10D	4/19/2016	229	229	92	92	6.6	6.6	0.1 L	0.05	2.1	2.1	10	10	150	150	1 L	0.5
MW-10D	7/5/2016	231	231	87	87	8.0	8.0	0.1 L	0.05	0.99	0.99	14	14	130	130	1.1	1.1
MW-10D	10/10/2016	243	243	96	96	7.3	7.3	0.1 L	0.05	0.66	0.66	13.0	13	140	140	1	1
MW-10D	1/18/2017	217	217	84	84	5.6	5.6	0.1 L	0.05	1.7	1.7	11	11	140	140	1 L	0.5
MW-10D	7/13/2017	214	214	76	76	5.2	5.2	0.1 L	0.05	1.3	1.3	12	12	140	140	1 L	0.5
MW-10D	1/8/2018	222	222	79	79	4.9	4.9	0.1 L	0.05	2.3	2.3	8.6	8.6	140	140	1 L	0.5
MW-10D	8/28/2018	242	242	96	96	5.9	5.9	0.1 L	0.05	0.56	0.56	13	13	160	160	1.1	1.1
MW-10D	1/14/2019	258	258	110	110	5.7	5.7	0.1 L	0.05	0.85	0.85	9.2	9.2	180	180	1	1
MW-10D	8/20/2019	193	193	72	72	5.1	5.1	0.1 L	0.05	2.1	2.1	8.8	8.8	140	140	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		1		14		14		14		4	
Minimum conc.			181		67		4.9		0.050		0.56		7.5		120		0.5
Maximum conc.			258		110		8.0		0.38		2.3		14		180		1.1
Average conc.			218		87		6.0		0.074		1.5		10.1		144		0.7
Distribution			Lognormal		Lognormal		Lognormal		NC		Neither		Lognormal		Neither		NC
UCL 95			229.5		93.2		6.45		NC		2.3*		11.3		180*		NC

Statistical Summary of Groundwater Data - Inorganics
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-10S																	
MW-10S	1/12/2015	173	173	70	70	8.3	8.3	0.1 L	0.05	1.0	1.0	9.7	9.7	110	110	1.0 L	0.5
MW-10S	4/20/2015	147	147	68	68	6.4	6.4	0.1 L	0.05	1.0	1.0	11	11	110	110	1.0	1.0
MW-10S	7/30/2015	195	195	70	70	6.8	6.8	0.1 L	0.05	0.79	0.79	11	11	120	120	1.0 L	0.5
MW-10S	10/13/2015	214	214	88	88	8.6	8.6	0.1 L	0.05	1.4	1.4	10	10.0	130	130	1.4	1.4
MW-10S	1/13/2016	243	243	91	91	13	13.0	0.1 L	0.05	1.5	1.5	12	12.0	140	140	1.1	1.1
MW-10S	4/18/2016	236	236	87	87	9.0	9.0	0.1 L	0.05	1.1	1.1	14	14	130	130	1.4	1.4
MW-10S	7/5/2016	235	235	88	88	8.0	8.0	0.1 L	0.05	0.75	0.75	15	15	130	130	1.2	1.2
MW-10S	10/10/2016	254	254	100	100	7.8	7.8	0.1 L	0.05	0.8	0.81	12	12	150	150	1.1	1.1
MW-10S	1/18/2017	245	245	92	92	7.9	7.9	0.1 L	0.05	1.1	1.1	15	15	150	150	1.2	1.2
MW-10S	7/13/2017	225	225	83	83	5.7	5.7	0.1 L	0.05	0.46	0.46	14	14	140	140	1.4	1.4
MW-10S	1/8/2018	291	291	120	120	6.6	6.6	0.1 L	0.05	0.76	0.76	8.9	8.9	160	160	1.1	1.1
MW-10S	8/28/2018	247	247	99	99	6.0	6.0	0.1 L	0.05	0.48	0.48	13.0	13.0	140	140	1.1	1.1
MW-10S	1/14/2019	254	254	110	110	6.1	6.1	0.19	0.19	0.81	0.81	9.6	9.6	160	160	1.1	1.1
MW-10S	8/20/2019	306	306	130	130	7.7	7.7	0.1 L	0.05	0.20 L	0.1	17	17	180	180	1.6	1.6
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		1		13		14		14		12	
Minimum conc.			147		68		5.7		0.05		0.10		8.9		110		0.5
Maximum conc.			306		130		13.0		0.19		1.5		17.0		180		1.6
Average conc.			233		93		7.7		0.06		0.9		12.3		139		1.1
Distribution			Lognormal		Lognormal		Lognormal		NC		Normal		Lognormal		Lognormal		Neither
UCL 95			257.6		102.20		11.21		NC		1.04		13.6		149.5		1.6*

Statistical Summary of Groundwater Data - Inorganics
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-11D(2)																	
MW-11D(2)	1/14/2015	214	214	100	100	7.2	7.2	0.1 L	0.05	1.8	1.8	7.1	7.1	140	140	1 L	0.5
MW-11D(2)	4/23/2015	221	221	90	90	6	6	0.1 L	0.05	1.7	1.7	7.7	7.7	140	140	1 L	0.5
MW-11D(2)	7/29/2015	220	220	89	89	6.2	6.2	0.1 L	0.05	1.8	1.8	7.8	7.8	130	130	1 L	0.5
MW-11D(2)	10/14/2015	211	211	91	91	6.9	6.9	0.1 L	0.05	1.6	1.6	8.5	8.5	140	140	1 L	0.5
MW-11D(2)	1/11/2016	216	216	87	87	5.4	5.4	0.1 L	0.05	1.8	1.8	7.8	7.8	260	260	1 L	0.5
MW-11D(2)	4/19/2016	217	217	86	86	6.2	6.2	0.1 L	0.05	1.8	1.8	8.0	8.0	140	140	1 L	0.5
MW-11D(2)	7/5/2016	217	217	85	85	6	6	0.1 L	0.05	1.8	1.8	7.9	7.9	130	130	1 L	0.5
MW-11D(2)	10/12/2016	214	214	86	86	6.2	6.2	0.1 L	0.05	1.9	1.9	8.0	8.0	140	140	1 L	0.5
MW-11D(2)	1/19/2017	213	213	85	85	6.1	6.1	0.1 L	0.05	1.7	1.7	8.2	8.2	130	130	1 L	0.5
MW-11D(2)	7/11/2017	199	199	82	82	7.2	7.2	0.1 L	0.05	1.7	1.7	8.3	8.3	140	140	1 L	0.5
MW-11D(2)	1/10/2018	221	221	78	78	5.8	5.8	0.1 L	0.05	1.6	1.6	8.7	8.7	140	140	1 L	0.5
MW-11D(2)	8/27/2018	215	215	80	80	5.8	5.8	0.1 L	0.05	1.7	1.7	9.6	9.6	130	130	1 L	0.5
MW-11D(2)	1/15/2019	211	211	82	82	5.6	5.6	0.1 L	0.05	1.9	1.9	9.4	9.4	140	140	1 L	0.5
MW-11D(2)	8/21/2019	215	215	83	83	5.5	5.5	0.1 L	0.05	1.8	1.8	9.3	9.3	150	150	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		14		14		14		0	
Minimum conc.			199		78		5.4		0.05		1.6		7.1		130		0.5
Maximum conc.			221		100		7.2		0.05		1.9		9.6		260		0.5
Average conc.			215		86		6.2		0.05		1.8		8.3		146		0.5
Distribution			Neither		Lognormal		Lognormal		NC		Normal		Lognormal		Neither		NC
UCL 95			221*		88.6		6.43		NC		1.80		8.66		260*		NC

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-11S																	
MW-11S	1/14/2015	251	251	66	66	15	15	0.1 L	0.05	6.6	6.6	15	15	170	170	1 L	0.5
MW-11S	4/21/2015	262	262	78	78	13	13	0.1 L	0.05	3.6	3.6	16	16	170	170	1.2	1.2
MW-11S	7/29/2015	246	246	89	89	14	14	0.1 L	0.05	0.87	0.87	11	11	150	150	1 L	0.5
MW-11S	10/14/2015	238	238	95	95	15	15	0.1 L	0.05	0.2 L	0.1	11	11	150	150	1.2	1.2
MW-11S	1/11/2016	293	293	69	69	15	15	0.1 L	0.05	11	11	16	16	200	200	1.4	1.4
MW-11S	4/19/2016	204	204	53	53	12	12	0.1 L	0.05	3.5	3.5	14	14	130	130	1.5	1.5
MW-11S	7/5/2016	250	250	73	73	19	19	0.1 L	0.05	1.1	1.1	13	13	150	150	1.2	1.2
MW-11S	10/12/2016	245	245	78	78	19	19	0.1 L	0.05	0.76	0.76	12	12	150	150	1.0	1.0
MW-11S	1/18/2017	257	257	70	70	16	16	0.1 L	0.05	4.5	4.5	12	12	160	160	1.1	1.1
MW-11S	7/11/2017	201	201	65	65	13	13	0.17	0.17	1.5	1.5	13	13	160	160	1	1.0
MW-11S	1/9/2018	277	277	74	74	16	16	0.1 L	0.05	5.4 H	5.4	11	11	170	170	1.2	1.2
MW-11S	8/27/2018	254	254	85	85	14	14	0.1 L	0.05	0.67	0.67	11	11	170	170	1.3	1.3
MW-11S	1/15/2019	211	211	54	54	17	17	0.1 L	0.05	3.2	3.2	7.4	7.4	140	140	1 L	0.5
MW-11S	8/21/2019	257	257	100	100	11	11	0.1 L	0.05	0.86	0.86	8.2	8.2	170	170	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		1		13		14		14		10	
Minimum conc.			201		53		11.0		0.05		0.1		7.4		130		0.5
Maximum conc.			293		100		19.0		0.17		11.0		16.0		200		1.5
Average conc.			246		75		14.9		0.06		3.1		12.2		160		1.0
Distribution			Lognormal		Lognormal		Lognormal		NC		Lognormal		Lognormal		Lognormal		Neither
UCL 95			259.7		82.5		16.2		NC		**11.0***		13.71		168.5		1.5*

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-12D																	
MW-12D	1/13/2015	289	289	150	150	13.0	13.0	0.1 L	0.05	1.2	1.2	5.9	5.9	200	200	1 L	0.5
MW-12D	4/20/2015	244	244	130	130	9.3	9.3	0.1 L	0.05	1.3	1.3	6.4	6.4	190	190	1 L	0.5
MW-12D	7/31/2015	315	315	130	130	9.2	9.2	0.1 L	0.05	1.1	1.1	6.2	6.2	190	190	1 L	0.5
MW-12D	10/19/2015	316	316	140	140	9.3	9.3	0.1 L	0.05	1.1	1.1	6.1	6.1	210	210	1 L	0.5
MW-12D	1/14/2016	297	297	140	140	9.4	9.4	0.1 L	0.05	1.4	1.4	6.5	6.5	190	190	1 L	0.5
MW-12D	4/19/2016	278	278	120	120	8.3	8.3	0.1 L	0.05	1.6	1.6	6.9	6.9	230	230	1 L	0.5
MW-12D	7/6/2016	282	282	120	120	7.4	7.4	0.1 L	0.05	1.6	1.6	7.0	7.0	170	170	1 L	0.5
MW-12D	10/12/2016	293	293	130	130	9.2	9.2	0.1 L	0.05	1.3	1.3	6.4	6.4	180	180	1 L	0.5
MW-12D	1/19/2017	284	284	120	120	8.1	8.1	0.1 L	0.05	1.4	1.4	6.8	6.8	170	170	1 L	0.5
MW-12D	7/10/2017	266	266	110	110	7.7	7.7	0.1 L	0.05	1.5	1.5	6.8	6.8	170	170	1 L	0.5
MW-12D	1/9/2018	287	287	110	110	8.1	8.1	0.1 L	0.05	1.5 H	1.5	6.7	6.7	170	170	1 L	0.5
MW-12D	8/28/2018	275	275	120	120	8.4	8.4	0.1 L	0.05	1.3 H	1.3	7.6	7.6	180	180	1 L	0.5
MW-12D	1/16/2019	291	291	160	160	8.7	8.7	0.1 L	0.05	1.2	1.2	7.1	7.1	200	200	1 L	0.5
MW-12D	8/21/2019	321	321	140	140	9.0	9.0	0.1 L	0.05	1.1	1.1	7.2	7.2	210	210	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		14		14		14		0	
Minimum conc.			244		110		7.4		0.05		1.1		5.9		170		0.5
Maximum conc.			321		160		13.0		0.05		1.6		7.6		230		0.5
Average conc.			288		130		8.9		0.05		1.3		6.7		190		0.5
Distribution			Lognormal		Lognormal		Neither		NC		Lognormal		Lognormal		Lognormal		NC
UCL 95			298.7		137.3		13.0*		NC		1.42		6.92		199.02		NC

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-12S																	
MW-12S	1/15/2015	312	312	54	54	18	18	0.76	0.76	15	15	6.6	6.6	220	220	1.8	1.8
MW-12S	4/20/2015	243	243	130	130	13	13	1.2	1.2	0.2 L	0.1	1.6	1.6	180	180	3.1	3.1
MW-12S	7/31/2015	346	346	130	130	14	14	1.7	1.7	1.2	1.2	1.8	1.8	200	200	2.4	2.4
MW-12S	10/19/2015	337	337	150	150	13	13	1.0	1.0	1.1	1.1	4.0	4.0	210	210	2.4	2.4
MW-12S	1/14/2016	284	284	110	110	20	20	0.1 L	0.05	2.4	2.4	4.2	4.2	200	200	2.5	2.5
MW-12S	4/19/2016	428	428	170	170	28	28	2.0	2.0	0.2 L	0.1	1.2	1.2	240	240	4.6	4.6
MW-12S	7/6/2016	384	384	160	160	20	20	3.9	3.9	0.2 L	0.1	0.66	0.66	210	210	3.3	3.3
MW-12S	10/12/2016	362	362	150	150	20	20	1.8	1.8	1.4	1.4	2.1	2.1	210	210	2.1	2.1
MW-12S	1/19/2017	313	313	100	100	14	14	1.7	1.7	6.3	6.3	3.7	3.7	210	210	2.3	2.3
MW-12S	7/10/2017	398	398	160	160	23	23	3.8	3.8	0.2 L	0.1	0.63	0.63	230	230	3.8	3.8
MW-12S	1/9/2018	331	331	45	45	14	14	1.4	1.4	19 H	19	2.9	2.9	230	230	2.0	2.0
MW-12S	8/28/2018	340	340	140	140	11	11	2.9	2.9	1.4 H	1.4	0.81	0.81	210	210	2.2	2.2
MW-12S	1/14/2019	518	518	59	59	9.2	9.2	1.4	1.4	40	40	3.1	3.1	380	380	1.6	1.6
MW-12S	8/21/2019	326	326	160	160	10	10	1.0	1.0	1.3	1.3	8.7	8.7	220	220	1.7	1.7
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		13		10		14		14		14	
Minimum conc.			243		45		9.2		0.05		0.1		0.63		180		1.6
Maximum conc.			518		170		28.0		3.90		40.0		8.7		380		4.6
Average conc.			352		123		16.2		1.76		6.4		3.0		225		2.6
Distribution			Lognormal		Neither		Lognormal		Normal		Lognormal		Lognormal		Neither		Lognormal
UCL 95			385.5		170*		19.4		2.28		**40.0***		5.60		380*		3.01

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-13D																	
MW-13D	1/12/2015	272	272	120	120	12	12	0.1 L	0.05	0.78	0.78	12	12	180	180	1 L	0.5
MW-13D	4/20/2015	266	266	130	130	12	12	0.1 L	0.05	0.73	0.73	15	15	210	210	1	1
MW-13D	7/30/2015	370	370	142	142	13	13	0.1 L	0.05	0.21	0.21	19	19	220	220	1.3	1.3
MW-13D	10/14/2015	324	324	140	140	11	11	0.1 L	0.05	0.43	0.43	18	18	200	200	1.1	1.1
MW-13D	1/13/2016	360	360	140	140	14	14	0.1 L	0.05	3.8	3.8	16	16	230	230	1 L	0.5
MW-13D	4/19/2016	379	379	150	150	17	17	0.1 L	0.05	0.84	0.84	15	15	230	230	1.2	1.2
MW-13D	7/6/2016	366	366	150	150	15	15	0.1 L	0.05	0.54	0.54	12	12	220	220	1 L	0.5
MW-13D	10/10/2016	345	345	150	150	14	14	0.1 L	0.05	0.58	0.58	14	14	200	200	1.0 L	0.5
MW-13D	1/18/2017	341	341	140	140	12	12	0.1 L	0.05	0.57	0.57	16	16	200	200	1.1	1.1
MW-13D	7/10/2017	358	358	150	150	15	15	0.1 L	0.05	0.57	0.57	10	10	220	220	1.3	1.3
MW-13D	1/8/2018	337	337	120	120	12	12	0.1 L	0.05	1.2	1.2	12	12	200	200	1.1	1.1
MW-13D	8/28/2018	333	333	130	130	12	12	0.1 L	0.05	0.24	0.24	19	19	98	98	1.1	1.1
MW-13D	1/14/2019	270	270	100	100	8.9	8.9	0.1 L	0.05	0.99	0.99	13	13	180	180	1 L	0.5
MW-13D	8/20/2019	298	298	120	120	8.2	8.2	0.1 L	0.05	0.20 L	0.1	19	19	180	180	1.1	1.1
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		13		14		14		9	
Minimum conc.			266		100		8.2		0.05		0.10		10.0		98		0.5
Maximum conc.			379		150		17.0		0.05		3.8		19.0		230		1.3
Average conc.			330		134		12.6		0.05		0.8		15.0		198		0.9
Distribution			Normal		Neither		Lognormal		NC		Lognormal		Lognormal		Neither		Neither
UCL 95			348.3		150*		13.9		NC		1.55		16.66		230*		1.3*

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-13S																	
MW-13S	1/13/2015	195	195	89	89	8.8	8.8	0.1 L	0.05	1.0	1.0	11	11	140	140	1.0 L	0.5
MW-13S	4/20/2015	268	268	120	120	14	14	0.1 L	0.05	0.27	0.27	20	20	200	200	1.2	1.2
MW-13S	7/30/2015	352	352	160	160	13	13	0.1 L	0.05	0.2 L	0.1	22	22	220	220	1.3	1.3
MW-13S	10/14/2015	308	308	140	140	9.7	9.7	0.1 L	0.05	0.2 L	0.1	19	19	190	190	1.2	1.2
MW-13S	1/13/2016	383	383	110	110	16	16	0.1 L	0.05	10.0	10	17	17	250	250	1.0	1.0
MW-13S	4/19/2016	420	420	140	140	28	28	0.1 L	0.05	0.65	0.65	19	19	240	240	1.7	1.7
MW-13S	7/6/2016	383	383	150	150	20	20	0.1	0.1	0.2 L	0.1	8.8	8.8	210	210	1.6	1.6
MW-13S	10/11/2016	366	366	150	150	18	18	0.1 L	0.05	0.2 L	0.1	16	16	220	220	1.2	1.2
MW-13S	1/18/2017	323	323	130	130	12	12	0.1 L	0.05	0.5	0.46	17	17	190	190	1.2	1.2
MW-13S	7/10/2017	359	359	140	140	18	18	0.11	0.11	0.2 L	0.1	6.4	6.4	230	230	2.1	2.1
MW-13S	1/8/2018	293	293	100	100	10	10	0.1 L	0.05	1.8	1.8	12	12	180	180	1.2	1.2
MW-13S	8/28/2018	304	304	110	110	11	11	0.1 L	0.05	0.2 L	0.1	22	22	190	190	1.2	1.2
MW-13S	1/14/2019	204	204	70	70	8.0	8.0	0.1 L	0.05	1.2	1.2	15	15	150	150	1.1	1.1
MW-13S	8/20/2019	257	257	100	100	6.5	6.5	0.1 L	0.05	0.2 L	0.1	19	19	160	160	1.0 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		2		7		14		14		12	
Minimum conc.			195		70		6.5		0.05		0.1		6.4		140		0.5
Maximum conc.			420		160		28.0		0.11		10.0		22.0		250		2.1
Average conc.			315		122		13.8		0.06		1.1		16.0		198		1.2
Distribution			Lognormal		Lognormal		Lognormal		NC		Neither		Normal		Lognormal		Neither
UCL 95			356.2		138.2		17.3		NC		10.0*		18.30		216.1		2.1*

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-14D																	
MW-14D	1/12/2015	181	181	70	70	11	11	3.7	3.7	0.2 L	0.10	9.8	9.8	120	120	1.5	1.5
MW-14D	4/20/2015	159	159	72	72	7.7	7.7	4.0	4.0	0.2 L	0.10	11	11	110	110	1.7	1.7
MW-14D	7/27/2015	212	212	75	75	9.7	9.7	3.9	3.9	0.2 L	0.10	12	12	140	140	1.3	1.3
MW-14D	10/13/2015	265	265	100	100	15	15	4.1	4.1	0.2 L	0.10	10	10	150	150	1.9	1.9
MW-14D	1/13/2016	190	190	72	72	8.1	8.1	2.8	2.8	0.2 L	0.10	8.4	8.4	110	110	1.5	1.5
MW-14D	4/18/2016	206	206	76	76	9.6	9.6	2.7	2.7	0.2 L	0.10	11	11	120	120	1.6	1.6
MW-14D	8/4/2016	235	235	95	95	10	10	4.0	4.0	0.2 L	0.10	13	13	140	140	2.0	2.0
MW-14D	10/10/2016	264	264	91	91	15	15	4.1	4.1	0.2 L	0.10	12	12	140	140	1.5	1.5
MW-14D	1/18/2017	238	238	88	88	10	10	3.9	3.9	0.2 L	0.10	11	11	140	140	1.8	1.8
MW-14D	7/12/2017	238	238	84	84	8.3	8.3	3.7	3.7	0.2 L	0.10	10	10	130	130	1.7	1.7
MW-14D	1/8/2018	247	247	83	83	11	11	3.7	3.7	0.2 L	0.10	11	11	140	140	1.8	1.8
MW-14D	8/28/2018	250	250	90	90	9.0	9.0	3.9	3.9	0.2 H L	0.10	13	13	150	150	1.6	1.6
MW-14D	1/14/2019	230	230	88	88	8.3	8.3	3.7	3.7	0.2 L	0.10	9.3	9.3	160	160	1.9	1.9
MW-14D	8/20/2019	289	289	120	120	12	12	3.8	3.8	0.2 L	0.10	7.5	7.5	170	170	1.8	1.8
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		14		0		14		14		14	
Minimum conc.			159		70		7.7		2.7		0.1		7.5		110		1.3
Maximum conc.			289		120		15		4.1		0.1		13.0		170		2.0
Average conc.			229		86		10		3.7		0.1		11		137		1.7
Distribution			Lognormal		Lognormal		Lognormal		Neither		NC		Lognormal		Lognormal		Lognormal
UCL 95			248.7		92.6		11.5		4.1*		NC		11.52		146.38		1.79

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-14R																	
MW-14R	1/13/2015	92	92	49	49	2.2	2.2	0.1 L	0.05	0.2 L	0.10	3.6	3.6	94	94	1 L	0.5
MW-14R	4/22/2015	106	106	47	47	1.8	1.8	0.1 L	0.05	0.2 L	0.10	3.6	3.6	99	99	1 L	0.5
MW-14R	7/30/2015	105	105	46	46	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.6	3.6	100	100	1 L	0.5
MW-14R	10/13/2015	102	102	50	50	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.9	3.9	95	95	1 L	0.5
MW-14R	1/12/2016	103	103	56	56	1.8	1.8	0.1 L	0.05	0.2 L	0.10	3.5	3.5	94	94	1 L	0.5
MW-14R	4/18/2016	106	106	47	47	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.6	3.6	96	96	1 L	0.5
MW-14R	7/6/2016	103	103	47	47	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.7	3.7	89	89	1 L	0.5
MW-14R	10/12/2016	104	104	47	47	1.8	1.8	0.1 L	0.05	0.2 L	0.10	3.6	3.6	96	96	1 L	0.5
MW-14R	1/18/2017	105	105	47	47	1.6	1.6	0.1 L	0.05	0.2 L	0.10	3.6	3.6	91	91	1 L	0.5
MW-14R	7/11/2017	99	99	46	46	2.0	2.0	0.1 L	0.05	0.2 L	0.10	3.4	3.4	100	100	1 L	0.5
MW-14R	1/8/2018	104	104	44	44	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.4	3.4	86	86	1 L	0.5
MW-14R	8/27/2018	107	107	45	45	1.6	1.6	0.1 L	0.05	0.2 L	0.10	3.6	3.6	110	110	1 L	0.5
MW-14R	1/14/2019	105	105	44	44	1.6	1.6	0.1 L	0.05	0.2 L	0.10	3.5	3.5	120	120	1 L	0.5
MW-14R	8/20/2019	113	113	49	49	1.7	1.7	0.1 L	0.05	0.2 L	0.10	3.4	3.4	97	97	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		0		14		14		0	
Minimum conc.			92		44		1.6		0.05		0.1		3.4		86		0.5
Maximum conc.			113		56		2.2		0.05		0.1		3.9		120		0.5
Average conc.			104		47		1.8		0.05		0.1		3.6		98		0.5
Distribution			Neither		Neither		Neither		NC		NC		Neither		Neither		NC
UCL 95			113*		56*		2.2*		NC		NC		3.9*		120*		NC

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-14S																	
MW-14S	1/12/2015	115	115	41	41	4.9	4.9	0.1 L	0.05	1.8	1.8	6.1	6.1	85	85	1.3	1.3
MW-14S	4/20/2015	117	117	49	49	7.4	7.4	0.1 L	0.05	0.74	0.74	9.3	9.3	89	89	1.5	1.5
MW-14S	7/27/2015	217	217	74	74	17	17	0.35	0.35	0.2 L	0.1	8.2	8.2	130	130	1.5	1.5
MW-14S	10/15/2015	246	246	96	96	22	22	0.78	0.78	0.2 L	0.1	7.7	7.7	160	160	2.0	2.0
MW-14S	1/13/2016	178	178	64	64	8.2	8.2	0.36	0.36	1.3	1.3	7.4	7.4	110	110	1.5	1.5
MW-14S	4/18/2016	192	192	63	63	9.8	9.8	0.28	0.28	0.86	0.86	11	11	120	120	1.7	1.7
MW-14S	7/6/2016	216	216	70	70	13	13	0.1 L	0.05	0.42	0.42	14	14	130	130	1.3	1.3
MW-14S	10/14/2016	231	231	74	74	14	14	0.27	0.27	2.2	2.2	8.2	8.2	140	140	2.2	2.2
MW-14S	1/18/2017	176	176	62	62	7.7	7.7	0.75	0.75	0.64	0.64	8.9	8.9	110	110	1.6	1.6
MW-14S	7/12/2017	196	196	67	67	6.8	6.8	0.46	0.46	0.34	0.34	11	11	110	110	1.7	1.7
MW-14S	1/8/2018	128	128	42	42	4.4	4.4	0.27	0.27	1.0	1.0	5.4	5.4	83	83	1.8	1.8
MW-14S	8/28/2018	295	295	110	110	21	21	0.50	0.50	0.2 L	0.1	7.0	7.0	170	170	2.2	2.2
MW-14S	1/14/2019	127	127	46	46	3.1	3.1	0.48	0.48	0.80	0.80	5.5	5.5	95	95	1.9	1.9
No. Analyzed		13		13		13		13		13		13		13		13	
No. Detect		13		13		13		10		10		13		13		13	
Minimum conc.			115		41		3.1		0.05		0.1		5.4		83		1.3
Maximum conc.			295		110		22.0		0.78		2.2		14.0		170		2.2
Average conc.			187		66		10.7		0.358		0.8		8.4		118		1.7
Distribution			Lognormal		Lognormal		Lognormal		Normal		Lognormal		Lognormal		Lognormal		Lognormal
UCL 95			222.5		78.0		16.24		0.48		2.2*		9.86		133.6		1.87

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-15D																	
MW-15D	1/13/2015	281	281	140	140	12	12	0.1 L	0.05	0.5	0.5	9.6	9.6	190	190	1 L	0.5
MW-15D	4/21/2015	296	296	130	130	9.5	9.5	0.1 L	0.05	0.55	0.55	10	10	180	180	1.2	1.2
MW-15D	7/27/2015	282	282	120	120	10	10	0.1 L	0.05	0.65	0.65	9.7	9.7	180	180	1 L	0.5
MW-15D	7/27/2015	282	282	120	120	10	10	0.1 L	0.05	0.65	0.65	9.7	9.7	180	180	1 L	0.5
MW-15D	1/13/2016	294	294	130	130	9.7	9.7	0.1 L	0.05	0.58	0.58	10	10	170	170	1.1	1.1
MW-15D	4/18/2016	266	266	110	110	8.1	8.1	0.1 L	0.05	1.0	1.0	9.6	9.6	160	160	1 L	0.5
MW-15D	7/6/2016	266	266	110	110	8.8	8.8	0.1 L	0.05	0.94	0.94	9.9	9.9	160	160	1 L	0.5
MW-15D	10/10/2016	291	291	120	120	9.9	9.9	0.1 L	0.05	0.80	0.80	8.6	8.6	160	160	1 L	0.5
MW-15D	1/17/2017	277	277	120	120	8.7	8.7	0.1 L	0.05	0.83	0.83	10	10	380	380	1 L	0.5
MW-15D	7/11/2017	237	237	110	110	8.4	8.4	0.1 L	0.05	0.98	0.98	9.3	9.3	180	180	1 L	0.5
MW-15D	1/8/2018	262	262	100	100	8.5	8.5	0.1 L	0.05	0.82	0.82	9.6	9.6	170	170	1 L	0.5
MW-15D	8/27/2018	270	270	110	110	8.5	8.5	0.1 L	0.05	0.82	0.82	10	10	170	170	1 L	0.5
MW-15D	1/14/2019	286	286	120	120	9.3	9.3	0.1 L	0.05	0.70	0.70	9.6	9.6	190	190	1 L	0.5
MW-15D	8/20/2019	308	308	130	130	9.3	9.3	0.1 L	0.05	0.66	0.66	11	11	170	170	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		14		14		14		2	
Minimum conc.			237		100		8.1		0.05		0.50		8.6		160		0.5
Maximum conc.			308		140		12.0		0.05		1.0		11.0		380		1.2
Average conc.			278		119		9.3		0.05		0.75		9.8		189		0.6
Distribution			Lognormal		Lognormal		Lognormal		NC		Lognormal		Neither		Neither		NC
UCL 95			287.31		124.6		9.81		NC		0.84		11.0*		380*		NC

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-15S																	
MW-15S	1/13/2015	232	232	86	86	15	15	3.0	3.0	2.5	2.5	9.3	9.3	150	150	1.4	1.4
MW-15S	4/21/2015	240	240	88	88	13	13	3.6	3.6	0.2 L	0.1	9.4	9.4	140	140	1.9	1.9
MW-15S	7/27/2015	252	252	94	94	15	15	4.4	4.4	0.2 L	0.1	8.3	8.3	150	150	1.6	1.6
MW-15S	10/13/2015	297	297	150	150	16	16	4.7	4.7	0.2 L	0.1	7.3	7.3	160	160	2.1	2.1
MW-15S	1/13/2016	235	235	85	85	10	10	3.3	3.3	1.1	1.1	8.4	8.4	130	130	1.6	1.6
MW-15S	4/18/2016	259	259	95	95	12	12	2.9	2.9	0.42	0.42	10	10	150	150	1.6	1.6
MW-15S	7/6/2016	273	273	91	91	17	17	3.4	3.4	0.2 L	0.1	11	11	140	140	1.8	1.8
MW-15S	10/10/2016	270	270	89	89	19	19	2.8	2.8	0.2 L	0.1	11	11	150	150	1.7	1.7
MW-15S	1/17/2017	279	279	100	100	14	14	3.5	3.5	0.2 L	0.1	11	11	160	160	1.6	1.6
MW-15S	7/10/2017	264	264	96	96	12	12	2.7	2.7	0.2 L	0.1	11	11	160	160	1.6	1.6
MW-15S	1/8/2018	273	273	90	90	17	17	2.7	2.7	0.91	0.91	8.4	8.4	150	150	1.9	1.9
MW-15S	8/27/2018	282	282	98	98	16	16	3.2	3.2	0.2 L	0.1	10	10	170	170	2.0	2
MW-15S	1/14/2019	316	316	110	110	13	13	3.5	3.5	4.1	4.1	5.9	5.9	200	200	1.6	1.6
MW-15S	8/20/2019	376	376	160	160	15	15	4.1	4.1	0.29	0.29	3.9	3.9	200	200	1.8	1.8
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		14		6		14		14		14	
Minimum conc.			232		85		10.0		2.7		0.1		3.9		130		1.4
Maximum conc.			376		160		19.0		4.7		4.1		11.0		200		2.1
Average conc.			275		102		14.6		3.4		0.7		8.9		158		1.7
Distribution			Lognormal		Neither		Lognormal		Lognormal		NC		Neither		Neither		Lognormal
UCL 95			292.6		160*		15.9		3.73		NC		11.0*		200*		1.83

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-17S																	
MW-17S	1/13/2015	340	340	79	79	17	17	1.3	1.3	19	19	4.9	4.9	260	260	1.4	1.4
MW-17S	4/23/2015	424	424	160	160	18	18	4.8	4.8	4.1	4.1	5.4	5.4	240	240	1.9	1.9
MW-17S	7/27/2015	395	395	180	180	14	14	6.3	6.3	0.2 L	0.1	2.9	2.9	230	230	1.7	1.7
MW-17S	10/15/2015	404	404	200	200	13	13	10	10.0	0.2 L	0.1	1.5	1.5	220	220	2.2	2.2
MW-17S	1/12/2016	564	564	150	150	23	23	6.5	6.5	21	21	7.7	7.7	340	340	2.0	2.0
MW-17S	4/19/2016	442	442	190	190	26	26	4.4	4.4	0.66	0.66	5.7	5.7	240	240	2.7	2.7
MW-17S	7/6/2016	400	400	160	160	21	21	4.6	4.6	0.2 L	0.1	4.8	4.8	220	220	2.1	2.1
MW-17S	10/13/2016	411	411	170	170	22	22	4.2	4.2	0.2 L	0.1	4.7	4.7	250	250	2.0	2.0
MW-17S	1/17/2017	435	435	170	170	17	17	4.8	4.8	3.9	3.9	4.4	4.4	230	230	2.0	2.0
MW-17S	7/11/2017	367	367	150	150	24	24	4.6	4.6	0.31	0.31	5.2	5.2	220	220	2.0	2.0
MW-17S	1/8/2018	434	434	120	120	20	20	3.1	3.1	12	12	4.6	4.6	250	250	1.8	1.8
MW-17S	8/27/2018	393	393	160	160	13	13	3.8	3.8	0.2 L	0.1	2.0	2.0	220	220	1.9	1.9
MW-17S	1/16/2019	364	364	160	160	12	12	4.7	4.7	3.2	3.2	2.4	2.4	230	230	1.9	1.9
MW-17S	8/22/2019	457	457	210	210	11	11	8.9	8.9	0.51	0.51	3.9	3.9	240	240	2.0	2.0
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		14		9		14		14		14	
Minimum conc.			340		79		11.0		1.30		0.1		1.5		220		1.4
Maximum conc.			564		210		26.0		10.0		21.0		7.7		340		2.7
Average conc.			416		161		17.9		5.14		4.7		4.3		242		2.0
Distribution			Lognormal		Neither		Lognormal		Neither		Neither		Normal		Neither		Neither
UCL 95			442.1		210*		20.8		10.0*		**21.0***		5.07		340*		2.7*

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-18D																	
MW-18D	1/14/2015	263	263	120	120	9.6	9.6	0.1 L	0.05	1.6	1.6	5.5	5.5	170	170	1 L	0.5
MW-18D	4/23/2015	274	274	120	120	8.9	8.9	0.1 L	0.05	1.5	1.5	6.0	6.0	170	170	1 L	0.5
MW-18D	7/29/2015	274	274	120	120	8.9	8.9	0.1 L	0.05	1.6	1.6	6.3	6.3	170	170	1 L	0.5
MW-18D	10/16/2015	263	263	110	110	9.6	9.6	0.1 L	0.05	1.6	1.6	6.8	6.8	170	170	1 L	0.5
MW-18D	1/11/2016	260	260	120	120	7.6	7.6	0.1 L	0.05	1.6	1.6	6.5	6.5	170	170	1 L	0.5
MW-18D	4/19/2016	269	269	120	120	8.2	8.2	0.1 L	0.05	1.7	1.7	6.6	6.6	170	170	1 L	0.5
MW-18D	7/6/2016	269	269	110	110	7.7	7.7	0.1 L	0.05	1.6	1.6	6.7	6.7	170	170	1 L	0.5
MW-18D	10/11/2016	262	262	110	110	8.1	8.1	0.1 L	0.05	1.6	1.6	6.5	6.5	170	170	1 L	0.5
MW-18D	1/17/2017	260	260	110	110	7.2	7.2	0.1 L	0.05	1.7	1.7	6.7	6.7	170	170	1 L	0.5
MW-18D	7/13/2017	273	273	110	110	7.4	7.4	0.1 L	0.05	1.6	1.6	6.5	6.5	170	170	1 L	0.5
MW-18D	1/10/2018	265	265	100	100	7.4	7.4	0.1 L	0.05	1.5	1.5	6.7	6.7	160	160	1 L	0.5
MW-18D	8/29/2018	261	261	100	100	7.4	7.4	0.1 L	0.05	1.6	1.6	7.8	7.8	190	190	1 L	0.5
MW-18D	1/15/2019	251	251	98	98	7.3	7.3	0.1 L	0.05	1.7	1.7	7.4	7.4	150	150	1 L	0.5
MW-18D	8/21/2019	266	266	110	110	7.0	7.0	0.1 L	0.05	1.6	1.6	8.0	8.0	170	170	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		14		14		14		0	
Minimum conc.			251		98		7.0		0.05		1.5		5.5		150		0.5
Maximum conc.			274		120		9.6		0.05		1.7		8.0		190		0.5
Average conc.			265		111		8.0		0.05		1.6		6.7		169		0.5
Distribution			Lognormal		Neither		Neither		NC		Neither		Lognormal		Neither		NC
UCL 95			268.1		120*		9.6*		NC		1.7*		7.04		190*		NC

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-18S																	
MW-18S	1/14/2015	371	371	130	130	15	15	0.1 L	0.05	9.2	9.2	6.3	6.3	240	240	1.1	1.1
MW-18S	4/23/2015	334	334	120	120	14	14	0.1 L	0.05	4.0	4.0	7.8	7.8	200	200	1.5	1.5
MW-18S	7/29/2015	315	315	140	140	14	14	0.1 L	0.05	0.36	0.36	5.3	5.3	190	190	1.6	1.6
MW-18S	10/16/2015	317	317	140	140	15	15	0.1 L	0.05	0.34	0.34	4.2	4.2	200	200	1.7	1.7
MW-18S	1/11/2016	410	410	120	120	17	17	0.1 L	0.05	11	11	10	10	260	260	1.4	1.4
MW-18S	4/19/2016	360	360	140	140	26	26	0.1 L	0.05	0.55	0.55	4.8	4.8	210	210	2.1	2.1
MW-18S	7/6/2016	343	343	140	140	22	22	0.1 L	0.05	0.2 L	0.1	4.6	4.6	200	200	1.6	1.6
MW-18S	10/11/2016	337	337	140	140	21	21	0.1 L	0.05	0.2 L	0.1	3.4	3.4	210	210	1.4	1.4
MW-18S	1/17/2017	395	395	130	130	15	15	0.1 L	0.05	11	11	4.9	4.9	230	230	1.4	1.4
MW-18S	7/13/2017	365	365	130	130	24	24	0.1 L	0.05	0.49	0.49	3.5	3.5	200	200	1.9	1.9
MW-18S	1/10/2018	421	421	120	120	17	17	0.1 L	0.05	10 H	10	4.5	4.5	260	260	1.5	1.5
MW-18S	8/29/2018	326	326	130	130	14	14	0.1 L	0.05	0.28	0.28	4.0	4.0	210	210	1.5	1.5
MW-18S	1/15/2019	337	337	130	130	14	14	0.1 L	0.05	3.1	3.1	4.7	4.7	200	200	1.3	1.3
MW-18S	8/21/2019	346	346	140	140	12	12	0.1 L	0.05	3.2	3.2	7.5	7.5	220	220	1.2	1.2
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		12		14		14		14	
Minimum conc.			315		120		12.0		0.05		0.1		3.4		190		1.1
Maximum conc.			421		140		26.0		0.05		11.0		10.0		260		2.1
Average conc.			356		132		17.1		0.05		3.8		5.4		216		1.5
Distribution			Lognormal		Neither		Neither		NC		Lognormal		Lognormal		Neither		Lognormal
UCL 95			371.8		140*		26.0*		NC		**11.0***		6.36		260*		1.65

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-20R																	
MW-20R	1/12/2015	90	90	45	45	2.0	2.0	0.1 L	0.05	0.2 L	0.1	2.9	2.9	89	89	1 L	0.5
MW-20R	4/23/2015	100	100	47	47	1.8	1.8	0.1 L	0.05	0.2 L	0.1	3.0	3.0	90	90	1 L	0.5
MW-20R	7/28/2015	100	100	47	47	1.8	1.8	0.1 L	0.05	0.2 L	0.1	3.1	3.1	85	85	1 L	0.5
MW-20R	10/14/2015	97	97	48	48	1.7	1.7	0.1 L	0.05	0.2 L	0.1	3.2	3.2	85	85	1 L	0.5
MW-20R	1/12/2016	94	94	46	46	1.6	1.6	0.1 L	0.05	0.2 L	0.1	3.0	3.0	88	88	1 L	0.5
MW-20R	4/19/2016	102	102	48	48	1.8	1.8	0.1 L	0.05	0.2 L	0.1	3.1	3.1	97	97	1 L	0.5
MW-20R	7/6/2016	100	100	46	46	1.7	1.7	0.1 L	0.05	0.2 L	0.1	3.1	3.1	79	79	1 L	0.5
MW-20R	10/13/2016	100	100	47	47	1.7	1.7	0.1 L	0.05	0.2 L	0.1	2.8	2.8	100	100	1 L	0.5
MW-20R	1/18/2017	100	100	46	46	1.6	1.6	0.1 L	0.05	0.2 L	0.1	3.1	3.1	85	85	1 L	0.5
MW-20R	7/12/2017	105	105	44	44	1.7	1.7	0.1 L	0.05	0.2 L	0.1	2.9	2.9	86	86	1 L	0.5
MW-20R	1/8/2018	100	100	43	43	1.7	1.7	0.1 L	0.05	0.2 L	0.1	3.0	3.0	87	87	1 L	0.5
MW-20R	8/28/2018	98	98	44	44	1.7	1.7	0.1 L	0.05	0.2 L	0.1	3.1	3.1	92	92	1 L	0.5
MW-20R	1/14/2019	100	100	42	42	1.6	1.6	0.1 L	0.05	0.2 L	0.1	2.9	2.9	110	110	1 L	0.5
MW-20R	8/21/2019	106	106	47	47	1.6	1.6	0.1 L	0.05	0.2 L	0.1	3.2	3.2	95	95	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		0		14		14		0	
Minimum conc.			90		42		1.6		0.05		0.1		2.8		79		0.5
Maximum conc.			106		48		2.0		0.05		0.1		3.2		110		0.5
Average conc.			99		46		1.7		0.05		0.1		3.0		91		0.5
Distribution			Neither		Lognormal		Neither		NC		NC		Lognormal		Lognormal		NC
UCL 95			106*		46.6		2.0*		NC		NC		3.09		94.3		NC

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-26R																	
MW-26R	1/12/2015	167	167	78	78	4.7	4.7	0.10 L	0.05	0.2 L	0.1	9.0	9.0	120	120	1 L	0.5
MW-26R	4/23/2015	189	189	82	82	4.5	4.5	0.10 L	0.05	0.2 L	0.10	9.4	9.4	120	120	1 L	0.5
MW-26R	7/31/2015	186	186	75	75	4.4	4.4	0.10 L	0.05	0.2 L	0.10	8.9	8.9	120	120	1 L	0.5
MW-26R	10/14/2015	183	183	82	82	4.4	4.4	0.10 L	0.05	0.2 L	0.10	10	10.0	130	130	1 L	0.5
MW-26R	1/12/2016	193	193	85	85	4.4	4.4	0.10 L	0.05	0.2 L	0.10	9.7	9.7	130	130	1 L	0.5
MW-26R	4/19/2016	197	197	87	87	4.6	4.6	0.10 L	0.05	0.2 L	0.10	9.9	9.9	130	130	1 L	0.5
MW-26R	7/6/2016	195	195	84	84	4.6	4.6	0.10 L	0.05	0.2 L	0.10	9.2	9.2	120	120	1 L	0.5
MW-26R	10/12/2016	191	191	91	91	4.5	4.5	0.10 L	0.05	0.2 L	0.10	8.8	8.8	110	110	1 L	0.5
MW-26R	1/18/2017	199	199	85	85	4.4	4.4	0.10 L	0.05	0.2 L	0.10	9.9	9.9	130	130	1 L	0.5
MW-26R	7/11/2017	184	184	84	84	4.8	4.8	0.10 L	0.05	0.2 L	0.10	8.9	8.9	150	150	1 L	0.5
MW-26R	1/8/2018	201	201	81	81	4.5	4.5	0.10 L	0.05	0.2 L	0.10	9.2	9.2	130	130	1 L	0.5
MW-26R	8/28/2018	193	193	84	84	4.5	4.5	0.10 L	0.05	0.2 L	0.10	8.0	8.0	140	140	1 L	0.5
MW-26R	1/14/2019	203	203	84	84	4.6	4.6	0.10 L	0.05	0.2 L	0.10	9.5	9.5	150	150	1 L	0.5
MW-26R	8/20/2019	200	200	91	91	4.4	4.4	0.10 L	0.05	0.2 L	0.10	8.5	8.5	130	130	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		0		14		14		0	
Minimum conc.			167		75		4.4		0.05		0.10		8.0		110		0.5
Maximum conc.			203		91		4.8		0.05		0.10		10.0		150		0.5
Average conc.			192		84		4.5		0.05		0.10		9.2		129		0.5
Distribution			Neither		Lognormal		Neither		NC		NC		Lognormal		Lognormal		NC
UCL 95			203*		85.9		4.8*		NC		NC		9.49		134.9		NC

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		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
FMMW-1																	
FMMW-1	1/14/2015	293	293	110	110	18	18	0.1 L	0.05	2.1	2.1	15	15	180	180	1.0 L	0.5
FMMW-1	4/22/2015	271	271	98	98	12	12	0.1 L	0.05	1.5	1.5	15	15	170	170	1.1	1.1
FMMW-1	7/29/2015	276	276	140	140	13	13	0.1 L	0.05	1.2	1.2	16	16	170	170	1.0 L	0.5
FMMW-1	10/16/2015	278	278	110	110	15	15	0.1 L	0.05	0.85	0.85	17	17	180	180	1.2	1.2
FMMW-1	1/11/2016	257	257	95	95	8.3	8.3	0.1 L	0.05	2.0	2.0	15	15	170	170	1.1	1.1
FMMW-1	4/20/2016	330	330	110	110	20	20	0.1 L	0.05	2.9	2.9	11	11	190	190	1.2	1.2
FMMW-1	7/5/2016	331	331	120	120	22	22	0.1 L	0.05	1.7	1.7	12	12	210	210	1.0 L	0.5
FMMW-1	10/11/2016	320	320	110	110	22	22	0.1 L	0.05	1.3	1.3	12	12	240	240	1 L	0.5
FMMW-1	1/18/2017	299	299	110	110	14	14	0.1 L	0.05	1.9	1.9	11	11	180	180	1.1	1.1
FMMW-1	7/12/2017	341	341	110	110	21	21	0.1 L	0.05	1.4	1.4	8.0	8.0	190	190	1.4	1.4
FMMW-1	1/10/2018	312	312	100	100	15	15	0.1 L	0.05	3.0	3.0	8.2	8.2	190	190	1.3	1.3
FMMW-1	8/28/2018	278	278	98	98	14	14	0.1 L	0.05	1.6	1.6	16	16	170	170	1 L	0.5
FMMW-1	1/15/2019	291	291	100	100	15	15	0.1 L	0.05	0.81	0.81	14	14	180	180	1 L	0.5
FMMW-1	8/21/2019	290	290	96	96	14	14	0.1 L	0.05	1.3	1.3	14	14	170	170	1 L	0.5
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		0		14		14		14		7	
Minimum conc.			257		95		8.3		0.05		0.81		8.0		170		0.5
Maximum conc.			341		140		22		0.05		3.0		17		240		1.4
Average conc.			298		108		16.0		0.05		1.7		13.2		185		0.9
Distribution			Lognormal		Neither		Lognormal		NC		Lognormal		Normal		Neither		Neither
UCL 95			310.28		140*		18.4		NC		2.09		14.51		240*		1.4*

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Monitoring Well	Date	Specific Conductance		Alkalinity		Chloride		Ammonia		Nitrate		Sulfate		TDS		TOC	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
FMMW-2																	
FMMW-2	1/14/2015	403	403	100	100	19	19	0.28	0.28	16	16	10	10	260	260	1.1	1.1
FMMW-2	4/22/2015	321	321	110	110	15	15	0.14	0.14	3.9	3.9	8.6	8.6	200	200	1.5	1.5
FMMW-2	7/29/2015	350	350	140	140	15	15	0.14	0.14	2.8	2.8	4.6	4.6	220	220	1.4	1.4
FMMW-2	10/16/2015	359	359	140	140	16	16	0.15	0.15	4.5	4.5	5.4	5.4	220	220	1.7	1.7
FMMW-2	1/11/2016	501	501	110	110	15	15	0.1 L	0.05	22	22	20	20	330	330	1.4	1.4
FMMW-2	4/20/2016	336	336	110	110	23	23	0.1 L	0.05	1.3	1.3	14	14	190	190	1.8	1.8
FMMW-2	7/5/2016	300	300	100	100	19	19	0.1 L	0.05	1.5	1.5	13	13	200	200	1.3	1.3
FMMW-2	10/11/2016	362	362	130	130	22	22	0.11	0.11	3.9	3.9	5.7	5.7	230	230	1.5	1.5
FMMW-2	1/18/2017	351	351	96	96	17	17	0.1 L	0.05	9.6	9.6	9	9	230	230	1.3	1.3
FMMW-2	7/12/2017	309	309	100	100	17	17	0.1 L	0.05	1.6	1.6	13	13	190	190	1.7	1.7
FMMW-2	1/10/2018	378	378	92	92	19	19	0.1 L	0.05	9.8	9.8	11	11	230	230	1.3	1.3
FMMW-2	8/28/2018	317	317	120	120	15	15	0.1 L	0.05	1.7	1.7	5.4	5.4	200	200	1.5	1.5
FMMW-2	1/15/2019	430	430	95	95	19	19	0.13	0.13	17	17	5.2	5.2	290	290	1.4	1.4
FMMW-2	8/21/2019	417	417	140	140	16	16	0.1 L	0.05	5.3	5.3	6.7	6.7	240	240	1.3	1.3
No. Analyzed		14		14		14		14		14		14		14		14	
No. Detect		14		14		14		6		14		14		14		14	
Minimum conc.			300		92		15		0.05		1.30		4.6		190		1.1
Maximum conc.			501		140		23		0.28		22.0		20.0		330		1.8
Average conc.			367		113		17.6		0.10		7.2		9.4		231		1.4
Distribution			Lognormal		Lognormal		Lognormal		Neither		Lognormal		Lognormal		Lognormal		Lognormal
UCL 95			393.9		122.1		18.95		0.28*		**15.73**		12.23		250		1.54

Notes:
Inorganic parameters measured in mg/L
Bold indicates UCL 95 is greater than Cleanup Level.
J indicates analyte was detected below the established reporting limit but above the detection limit
H indicates analyte was analyzed outside of specified holding time
L indicates below the given method reporting limit (MRL).
NC indicates not calculated due to less than 50 percent detection frequency.
* UCL represents maximum concentration detected because the calculated value was greater than the data sample range or the distribution was neither lognormal nor normal.
Statistical calculations use one half the MRL for non-detected parameters.

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-10D					
MW-10D	01/12/15	0.100 L	0.050	0.001 L	0.0005
MW-10D	04/20/15	0.100 L	0.050	0.001 L	0.0005
MW-10D	07/30/15	0.100 L	0.050	0.001 L	0.0005
MW-10D	10/13/15	0.100 L	0.050	0.001 L	0.0005
MW-10D	01/13/16	0.029	0.029	0.001 L	0.0005
MW-10D	04/19/16	0.029 L	0.015	0.001 L	0.0005
MW-10D	07/05/16	0.029 L	0.015	0.001 L	0.0005
MW-10D	10/10/16	0.030 L	0.015	0.001 L	0.0005
MW-10D	01/18/17	0.030 L	0.015	0.001 L	0.0005
MW-10D	07/13/17	0.180 L	0.090	0.001 L	0.0005
MW-10D	01/08/18	0.180 L	0.090	0.001 L	0.0005
MW-10D	08/28/18	0.180 L	0.090	0.001 L	0.0005
MW-10D	01/14/19	0.180 L	0.090	0.001 L	0.0005
MW-10D	08/20/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		1		0	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0005
Average conc.			0.053		0.0005
Distribution			NC		NC
UCL 95			NC		NC
MW-10S					
MW-10S	01/12/15	0.100 L	0.050	0.001 L	0.0005
MW-10S	04/20/15	0.100 L	0.050	0.001 L	0.0005
MW-10S	07/30/15	0.100 L	0.050	0.001 L	0.0005
MW-10S	10/13/15	0.100 L	0.050	0.001 L	0.0005
MW-10S	01/13/16	0.029 L	0.015	0.001 L	0.0005
MW-10S	04/18/16	0.029 L	0.015	0.001 L	0.0005
MW-10S	07/05/16	0.029 L	0.015	0.001 L	0.0005
MW-10S	10/10/16	0.030 L	0.015	0.001 L	0.0005
MW-10S	01/18/17	0.030 L	0.015	0.001 L	0.0005
MW-10S	07/13/17	0.180 L	0.090	0.001 L	0.0005
MW-10S	01/08/18	0.180 L	0.090	0.001 L	0.0005
MW-10S	08/28/18	0.180 L	0.090	0.001 L	0.0005
MW-10S	01/14/19	0.180 L	0.090	0.001 L	0.0005
MW-10S	08/20/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		0		0	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0005
Average conc.			0.052		0.0005
Distribution			NC		NC
UCL 95			NC		NC

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-11D(2)					
MW-11D(2)	01/14/15	0.100 L	0.050	0.001 L	0.0005
MW-11D(2)	04/23/15	0.100 L	0.050	0.001 L	0.0005
MW-11D(2)	07/29/15	0.100 L	0.050	0.001 L	0.0005
MW-11D(2)	10/14/15	0.100 L	0.050	0.001 L	0.0005
MW-11D(2)	01/11/16	0.029 L	0.015	0.001 L	0.0005
MW-11D(2)	04/19/16	0.029 L	0.015	0.001 L	0.0005
MW-11D(2)	07/05/16	0.029 L	0.015	0.001 L	0.0005
MW-11D(2)	10/12/16	0.030 L	0.015	0.001 L	0.0005
MW-11D(2)	01/19/17	0.030 L	0.015	0.001 L	0.0005
MW-11D(2)	07/11/17	0.180 L	0.090	0.001 L	0.0005
MW-11D(2)	01/10/18	0.180 L	0.090	0.001 L	0.0005
MW-11D(2)	08/27/18	0.180 L	0.090	0.001 L	0.0005
MW-11D(2)	01/15/19	0.180 L	0.090	0.001 L	0.0005
MW-11D(2)	08/21/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		0		0	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0005
Average conc.			0.052		0.0005
Distribution			NC		NC
UCL 95			NC		NC
MW-11S					
MW-11S	01/14/15	0.100 L	0.050	0.001 L	0.0005
MW-11S	04/21/15	0.100 L	0.050	0.0012	0.0012
MW-11S	07/29/15	0.100 L	0.050	0.0025	0.0025
MW-11S	10/14/15	0.100 L	0.050	0.0028	0.0028
MW-11S	01/11/16	0.029 L	0.015	0.001 L	0.0005
MW-11S	04/19/16	0.029 L	0.015	0.0014	0.0014
MW-11S	07/05/16	0.029 L	0.015	0.0032	0.0032
MW-11S	10/12/16	0.030 L	0.015	0.0072	0.0072
MW-11S	01/18/17	0.030 L	0.015	0.001 L	0.0005
MW-11S	07/11/17	0.180 L	0.090	0.0035	0.0035
MW-11S	01/09/18	0.180 L	0.090	0.001 L	0.0005
MW-11S	08/27/18	0.180 L	0.090	0.0058	0.0058
MW-11S	01/15/19	0.180 L	0.090	0.001 L	0.0005
MW-11S	08/21/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		0		8	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0072
Average conc.			0.052		0.0022
Distribution			NC		Neither
UCL 95			NC		0.0072*

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-12D					
MW-12D	01/13/15	0.100 L	0.050	0.001 L	0.0005
MW-12D	04/20/15	0.100 L	0.050	0.001 L	0.0005
MW-12D	07/31/15	0.100 L	0.050	0.001 L	0.0005
MW-12D	10/19/15	0.100 L	0.050	0.001 L	0.0005
MW-12D	01/14/16	0.029 L	0.015	0.001 L	0.0005
MW-12D	04/19/16	0.029 L	0.015	0.001 L	0.0005
MW-12D	07/06/16	0.029 L	0.015	0.001 L	0.0005
MW-12D	10/12/16	0.030 L	0.015	0.001 L	0.0005
MW-12D	01/19/17	0.030 L	0.015	0.001 L	0.0005
MW-12D	07/10/17	0.180 L	0.090	0.001 L	0.0005
MW-12D	01/09/18	0.180 L	0.090	0.001 L	0.0005
MW-12D	08/28/18	0.180 L	0.090	0.001 L	0.0005
MW-12D	01/16/19	0.180 L	0.090	0.001 L	0.0005
MW-12D	08/21/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		0		0	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0005
Average conc.			0.052		0.0005
Distribution			NC		NC
UCL 95			NC		NC
MW-12S					
MW-12S	01/15/15	0.100 L	0.050	0.240	0.240
MW-12S	04/20/15	0.100 L	0.050	0.340	0.340
MW-12S	07/31/15	0.100 L	0.050	0.511	0.511
MW-12S	10/19/15	0.100 L	0.050	0.990	0.990
MW-12S	01/14/16	0.029 L	0.015	0.016	0.016
MW-12S	04/19/16	0.029 L	0.015	0.350	0.350
MW-12S	07/06/16	0.029 L	0.015	0.690	0.690
MW-12S	10/12/16	0.030 L	0.015	0.830	0.830
MW-12S	01/19/17	0.030 L	0.015	0.550	0.550
MW-12S	07/10/17	0.180 L	0.090	0.770	0.770
MW-12S	01/09/18	0.180 L	0.090	0.430	0.430
MW-12S	08/28/18	0.180 L	0.090	0.840	0.840
MW-12S	01/14/19	0.180 L	0.090	0.500	0.500
MW-12S	08/21/19	0.180 L	0.090	0.980	0.980
No. Analyzed		14		14	
No. Detect		0		14	
Minimum conc.			0.015		0.016
Maximum conc.			0.090		0.990
Average conc.			0.052		0.574
Distribution			NC		Normal
UCL 95			NC		**0.71**

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-13D					
MW-13D	01/12/15	0.100 L	0.050	0.001 L	0.0005
MW-13D	04/20/15	0.100 L	0.050	0.001 L	0.0005
MW-13D	07/30/15	0.100 L	0.050	0.001 L	0.0005
MW-13D	10/14/15	0.100 L	0.050	0.001 L	0.0005
MW-13D	01/13/16	0.020 L	0.010	0.001 L	0.0005
MW-13D	04/19/16	0.029 L	0.015	0.001 L	0.0005
MW-13D	07/06/16	0.029 L	0.015	0.001 L	0.0005
MW-13D	10/10/16	0.030 L	0.015	0.039	0.0390
MW-13D	01/18/17	0.030 L	0.015	0.001 L	0.0005
MW-13D	07/10/17	0.180 L	0.090	0.001 L	0.0005
MW-13D	01/08/18	0.180 L	0.090	0.001 L	0.0005
MW-13D	08/28/18	0.180 L	0.090	0.001 L	0.0005
MW-13D	01/14/19	0.180 L	0.090	0.001 L	0.0005
MW-13D	08/20/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		0		1	
Minimum conc.			0.010		0.0005
Maximum conc.			0.090		0.0390
Average conc.			0.051		0.0033
Distribution			NC		NC
UCL 95			NC		NC
MW-13S					
MW-13S	01/13/15	0.100 L	0.050	0.0011	0.0011
MW-13S	04/20/15	0.100 L	0.050	0.001 L	0.001
MW-13S	07/30/15	0.100 L	0.050	0.034	0.034
MW-13S	10/14/15	0.100 L	0.050	0.190	0.190
MW-13S	01/13/16	0.020 L	0.010	0.0076	0.0076
MW-13S	04/19/16	0.054	0.054	0.024	0.024
MW-13S	07/06/16	0.029 L	0.015	0.051	0.051
MW-13S	10/11/16	0.030 L	0.015	0.150	0.150
MW-13S	01/18/17	0.030 L	0.015	0.0034	0.0034
MW-13S	07/10/17	0.180 L	0.090	0.013	0.013
MW-13S	01/08/18	0.180 L	0.090	0.001 L	0.0005
MW-13S	08/28/18	0.180 L	0.090	0.0074	0.0074
MW-13S	01/14/19	5.80	5.80	0.001 L	0.0005
MW-13S	08/20/19	0.180 L	0.090	0.0033	0.0033
No. Analyzed		14		14	
No. Detect		2		11	
Minimum conc.			0.010		0.0005
Maximum conc.			5.800		0.190
Average conc.			0.462		0.035
Distribution			NC		Lognormal
UCL 95			NC		**0.19***

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-14D					
MW-14D	01/12/15	2.00	2.00	0.840	0.840
MW-14D	04/20/15	1.90	1.90	0.830	0.830
MW-14D	07/27/15	2.80	2.80	0.980	0.980
MW-14D	10/13/15	4.30	4.30	1.30	1.30
MW-14D	01/13/16	0.029 L	0.0145	0.770	0.770
MW-14D	04/18/16	0.029 L	0.0145	0.820	0.820
MW-14D	08/04/16	1.60	1.60	1.10	1.10
MW-14D	10/10/16	2.60	2.60	1.20	1.20
MW-14D	01/18/17	2.40	2.40	1.10	1.10
MW-14D	07/12/17	0.910	0.910	0.960	0.960
MW-14D	01/08/18	2.20	2.20	1.00	1.00
MW-14D	08/28/18	2.70	2.70	1.10	1.10
MW-14D	01/14/19	2.50	2.50	1.10	1.10
MW-14D	08/20/19	4.60	4.60	1.40	1.40
No. Analyzed		14		14	
No. Detect		12		14	
Minimum conc.			0.0145		0.770
Maximum conc.			4.600		1.400
Average conc.			2.181		1.036
Distribution			Normal		Lognormal
UCL 95			**2.81**		**1.130**
MW-14S					
MW-14S	01/12/15	0.100 L	0.050	0.028	0.028
MW-14S	04/20/15	0.100 L	0.050	0.042	0.042
MW-14S	07/27/15	0.100 L	0.050	0.170	0.170
MW-14S	10/15/15	0.110	0.110	0.680	0.680
MW-14S	01/13/16	0.029 L	0.0145	0.110	0.110
MW-14S	04/18/16	0.029 L	0.0145	0.180	0.180
MW-14S	07/06/16	0.029 L	0.0145	0.029	0.029
MW-14S	10/14/16	0.043	0.043	0.110	0.110
MW-14S	01/18/17	0.088	0.088	0.250	0.250
MW-14S	07/12/17	0.180 L	0.090	0.240	0.240
MW-14S	01/08/18	0.180 L	0.090	0.100	0.100
MW-14S	08/28/18	0.180 L	0.090	0.240	0.240
MW-14S	01/14/19	0.180 L	0.090	0.190	0.190
No. Analyzed		13		13	
No. Detect		3		13	
Minimum conc.			0.015		0.028
Maximum conc.			0.110		0.680
Average conc.			0.061		0.182
Distribution			NC		Lognormal
UCL 95			NC		**0.403**

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-14R					
MW-14R	01/13/15	0.100 L	0.050	0.001 L	0.0005
MW-14R	04/22/15	0.100 L	0.050	0.0011	0.0011
MW-14R	07/30/15	0.100 L	0.050	0.170	0.170
MW-14R	10/13/15	0.100 L	0.050	0.200	0.200
MW-14R	01/12/16	0.045	0.045	0.200	0.200
MW-14R	04/18/16	0.059	0.059	0.200	0.200
MW-14R	07/06/16	0.045	0.045	0.180	0.180
MW-14R	10/12/16	0.063	0.063	0.190	0.190
MW-14R	01/18/17	0.059	0.059	0.180	0.180
MW-14R	07/11/17	0.180 L	0.090	0.420	0.420
MW-14R	01/08/18	0.180 L	0.090	0.180	0.180
MW-14R	08/27/18	0.180 L	0.090	0.190	0.190
MW-14R	01/14/19	0.180 L	0.090	0.0010 L	0.0005
MW-14R	08/20/19	0.180 L	0.090	0.190	0.190
No. Analyzed		14		14	
No. Detect		5		12	
Minimum conc.			0.045		0.0005
Maximum conc.			0.090		0.420
Average conc.			0.066		0.164
Distribution			NC		Neither
UCL 95			NC		**0.420***
MW-15D					
MW-15D	01/13/15	0.100 L	0.050	0.260	0.260
MW-15D	04/21/15	0.100 L	0.050	0.280	0.280
MW-15D	07/27/15	0.100 L	0.050	0.087	0.087
MW-15D	10/13/15	0.100 L	0.050	0.028	0.028
MW-15D	01/13/16	0.029 L	0.0145	0.190	0.190
MW-15D	04/18/16	0.029 L	0.0145	0.006	0.006
MW-15D	07/06/16	0.029 L	0.0145	0.096	0.096
MW-15D	10/10/16	0.030 L	0.015	0.0072	0.0072
MW-15D	01/17/17	0.030 L	0.015	0.088	0.088
MW-15D	07/11/17	0.180 L	0.090	0.083	0.083
MW-15D	01/08/18	0.180 L	0.090	0.064	0.064
MW-15D	08/27/18	0.180 L	0.090	0.023	0.023
MW-15D	01/14/19	0.180 L	0.090	0.026	0.026
MW-15D	08/20/19	0.180 L	0.090	0.026	0.026
No. Analyzed		14		14	
No. Detect		0		14	
Minimum conc.			0.015		0.0060
Maximum conc.			0.090		0.280
Average conc.			0.052		0.090
Distribution			NC		Lognormal
UCL 95			NC		**0.280***

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-15S					
MW-15S	01/13/15	0.100 L	0.050	0.780	0.780
MW-15S	04/21/15	0.100 L	0.050	0.610	0.610
MW-15S	07/27/15	0.120	0.120	0.870	0.870
MW-15S	10/13/15	0.100 L	0.050	1.100	1.100
MW-15S	01/13/16	0.029 L	0.0145	0.670	0.670
MW-15S	04/18/16	0.029	0.029	0.740	0.740
MW-15S	07/06/16	0.054	0.054	0.810	0.810
MW-15S	10/10/16	0.100	0.100	0.880	0.880
MW-15S	01/17/17	0.030 L	0.015	0.930	0.930
MW-15S	07/10/17	0.180 L	0.090	0.640	0.640
MW-15S	01/08/18	0.180 L	0.090	0.850	0.850
MW-15S	08/27/18	0.180 L	0.090	0.830	0.830
MW-15S	01/14/19	0.180 L	0.090	1.10	1.10
MW-15S	08/20/19	0.180 L	0.090	1.20	1.20
No. Analyzed		14		14	
No. Detect		4		14	
Minimum conc.			0.015		0.610
Maximum conc.			0.120		1.200
Average conc.			0.067		0.858
Distribution			NC		Lognormal
UCL 95			NC		**0.952**
MW-17S					
MW-17S	01/13/15	0.100 L	0.050	0.34	0.34
MW-17S	04/23/15	0.100 L	0.050	1.00	1.00
MW-17S	07/27/15	0.100 L	0.050	0.906	0.906
MW-17S	10/15/15	0.100 L	0.050	1.10	1.10
MW-17S	01/12/16	0.029 L	0.0145	1.80	1.80
MW-17S	04/19/16	0.029 L	0.0145	1.20	1.20
MW-17S	07/06/16	0.029 L	0.0145	1.10	1.10
MW-17S	10/13/16	0.030 L	0.015	0.86	0.86
MW-17S	01/17/17	0.030 L	0.015	1.0	1.00
MW-17S	07/11/17	0.180 L	0.090	1.10	1.10
MW-17S	01/08/18	0.180 L	0.090	0.82	0.82
MW-17S	08/27/18	0.180 L	0.090	0.82	0.82
MW-17S	01/16/19	0.180 L	0.090	0.77	0.77
MW-17S	08/22/19	0.180 L	0.090	1.20	1.20
No. Analyzed		14		14	
No. Detect		0		14	
Minimum conc.			0.015		0.340
Maximum conc.			0.090		1.80
Average conc.			0.052		1.001
Distribution			NC		Neither
UCL 95			NC		**1.80***

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-18D					
MW-18D	01/14/15	0.100 L	0.050	0.001 L	0.0005
MW-18D	04/23/15	0.100 L	0.050	0.0019	0.0019
MW-18D	07/29/15	0.100 L	0.050	0.001 L	0.0005
MW-18D	10/16/15	0.280	0.280	0.001 L	0.0005
MW-18D	01/11/16	0.029 L	0.0145	0.001 L	0.0005
MW-18D	04/19/16	0.029 L	0.0145	0.001 L	0.0005
MW-18D	07/06/16	0.029 L	0.0145	0.001 L	0.0005
MW-18D	10/11/16	0.030 L	0.015	0.001 L	0.0005
MW-18D	01/17/17	0.056	0.056	0.001 L	0.0005
MW-18D	07/13/17	0.180 L	0.090	0.001 L	0.0005
MW-18D	01/10/18	0.180 L	0.090	0.001 L	0.0005
MW-18D	08/29/18	0.180 L	0.090	0.001 L	0.0005
MW-18D	01/15/19	0.180 L	0.090	0.001 L	0.0005
MW-18D	08/21/19	0.410	0.410	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		3		1	
Minimum conc.			0.015		0.0005
Maximum conc.			0.410		0.0019
Average conc.			0.094		0.0006
Distribution			NC		NC
UCL 95			NC		NC
MW-18S					
MW-18S	01/14/15	0.100 L	0.050	0.0013 L	0.00065
MW-18S	04/23/15	0.100 L	0.050	0.0013 L	0.00065
MW-18S	07/29/15	0.100 L	0.050	0.0013 L	0.00065
MW-18S	10/16/15	0.100 L	0.050	0.0013 L	0.00065
MW-18S	01/11/16	0.029 L	0.0145	0.0010 L	0.0005
MW-18S	04/19/16	0.029 L	0.0145	0.0010 L	0.0005
MW-18S	07/06/16	0.029 L	0.0145	0.0014	0.0014
MW-18S	10/11/16	0.030 L	0.015	0.0056	0.0056
MW-18S	01/17/17	0.034	0.034	0.0010 L	0.0005
MW-18S	07/13/17	0.180 L	0.090	0.0010 L	0.0005
MW-18S	01/10/18	0.180 L	0.090	0.0010 L	0.0005
MW-18S	08/29/18	0.180 L	0.090	0.0010 L	0.0005
MW-18S	01/15/19	0.180 L	0.090	0.0010 L	0.0005
MW-18S	08/21/19	0.180 L	0.090	0.0010 L	0.0005
No. Analyzed		14		14	
No. Detect		1		2	
Minimum conc.			0.015		0.0005
Maximum conc.			0.090		0.0056
Average conc.			0.053		0.0010
Distribution			NC		NC
UCL 95			NC		NC

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
MW-20R					
MW-20R	01/12/15	0.100 L	0.050	0.001 L	0.0005
MW-20R	04/23/15	0.370	0.370	0.001 L	0.0005
MW-20R	07/28/15	0.100 L	0.050	0.0417	0.0417
MW-20R	10/14/15	0.100 L	0.050	0.0260	0.0260
MW-20R	01/12/16	0.029 L	0.0145	0.001 L	0.0005
MW-20R	04/19/16	0.029 L	0.0145	0.001 L	0.0005
MW-20R	07/06/16	0.029 L	0.0145	0.001 L	0.0005
MW-20R	10/13/16	0.030 L	0.015	0.001	0.001
MW-20R	01/18/17	0.030 L	0.015	0.001 L	0.0005
MW-20R	07/12/17	0.180 L	0.090	0.001 L	0.0005
MW-20R	01/08/18	0.180 L	0.090	0.001 L	0.0005
MW-20R	08/28/18	0.180 L	0.090	0.001 L	0.0005
MW-20R	01/14/19	0.180 L	0.090	0.001 L	0.0005
MW-20R	08/21/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		1		3	
Minimum conc.			0.015		0.0005
Maximum conc.			0.370		0.0417
Average conc.			0.075		0.005
Distribution			NC		NC
UCL 95			NC		NC
MW-26R					
MW-26R	01/12/15	0.610	0.610	0.380	0.380
MW-26R	04/23/15	0.650	0.650	0.400	0.400
MW-26R	07/31/15	0.570	0.570	0.370	0.370
MW-26R	10/14/15	0.630	0.630	1.000	1.00
MW-26R	01/12/16	0.680	0.680	0.400	0.400
MW-26R	04/19/16	0.660	0.660	0.380	0.380
MW-26R	07/06/16	0.700	0.700	0.370	0.370
MW-26R	10/12/16	0.690	0.690	0.400	0.400
MW-26R	01/18/17	0.600	0.600	0.380	0.380
MW-26R	07/11/17	0.690	0.690	0.200	0.200
MW-26R	01/08/18	0.640	0.640	0.380	0.380
MW-26R	08/28/18	0.600	0.600	0.390	0.390
MW-26R	01/14/19	0.580	0.580	0.390	0.390
MW-26R	08/20/19	0.670	0.670	0.410	0.410
No. Analyzed		14		14	
No. Detect		14		14	
Minimum conc.			0.570		0.200
Maximum conc.			0.700		1.000
Average conc.			0.641		0.418
Distribution			Lognormal		Neither
UCL 95			**0.662**		**1.000***

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Monitoring Well	Date	Iron		Manganese	
		Result	Conc.	Result	Conc.
FMMW-1					
FMMW-1	01/14/15	0.100 L	0.050	0.001 L	0.0005
FMMW-1	04/22/15	0.100 L	0.050	0.001 L	0.0005
FMMW-1	07/29/15	0.100 L	0.050	0.001 L	0.0005
FMMW-1	10/16/15	0.230	0.230	0.001 L	0.0005
FMMW-1	01/11/16	0.029 L	0.0145	0.001 L	0.0005
FMMW-1	04/20/16	0.029 L	0.0145	0.001 L	0.0005
FMMW-1	07/05/16	0.029 L	0.0145	0.001 L	0.0005
FMMW-1	10/11/16	0.030 L	0.015	0.001 L	0.0005
FMMW-1	01/18/17	0.031	0.031	0.001 L	0.0005
FMMW-1	07/12/17	0.180 L	0.090	0.001 L	0.0005
FMMW-1	01/10/18	0.180 L	0.090	0.001 L	0.0005
FMMW-1	08/28/18	0.180 L	0.090	0.001 L	0.0005
FMMW-1	01/15/19	0.180 L	0.090	0.001 L	0.0005
FMMW-1	08/21/19	0.180 L	0.090	0.001 L	0.0005
No. Analyzed		14		14	
No. Detect		2		0	
Minimum conc.			0.015		0.0005
Maximum conc.			0.230		0.0005
Average conc.			0.066		0.0005
Distribution			NC		NC
UCL 95			NC		NC
FMMW-2					
FMMW-2	01/14/15	0.100 L	0.050	0.086	0.086
FMMW-2	04/22/15	0.100 L	0.050	0.070	0.070
FMMW-2	07/29/15	0.100 L	0.050	0.082	0.082
FMMW-2	10/16/15	0.100 L	0.050	0.068	0.068
FMMW-2	01/11/16	0.029 L	0.0145	0.028	0.028
FMMW-2	04/20/16	0.029 L	0.0145	0.055	0.055
FMMW-2	07/05/16	0.029 L	0.0145	0.041	0.041
FMMW-2	10/11/16	0.030 L	0.015	0.067	0.067
FMMW-2	01/18/17	0.030 L	0.015	0.047	0.047
FMMW-2	07/12/17	0.180 L	0.090	0.036	0.036
FMMW-2	01/10/18	0.180 L	0.090	0.0065	0.0065
FMMW-2	08/28/18	0.180 L	0.090	0.043	0.043
FMMW-2	01/15/19	0.180 L	0.090	0.079	0.079
FMMW-2	08/21/19	0.180 L	0.090	0.011	0.011
No. Analyzed		14		14	
No. Detect		0		14	
Minimum conc.			0.015		0.0065
Maximum conc.			0.090		0.0860
Average conc.			0.052		0.051
Distribution			NC		Normal
UCL 95			NC		**0.063**

Notes:

Metals measured in mg/L

MW-14S was dry in August of 2019 and therefore was not sampled

Bold indicates UCL 95 is greater than Cleanup Level.

L indicates below the given method reporting limit (MRL).

NC indicates not calculated due to less than 50 percent detection frequency.

* UCL represents maximum concentration detected because the calculated value was greater than the data sample range or the distribution was neither lognormal nor normal.

Statistical calculations use one half the MRL for non-detected parameters.

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-11S			
MW-11S	01/12/15	0.5 L	0.25
MW-11S	04/20/15	0.5 L	0.25
MW-11S	07/30/15	0.5 L	0.25
MW-11S	10/13/15	0.5 L	0.25
MW-11S	01/11/16	0.5 L	0.25
MW-11S	04/19/16	0.5 L	0.25
MW-11S	07/05/16	0.5 L	0.25
MW-11S	10/12/16	0.5 L	0.25
MW-11S	01/18/17	0.5 L	0.25
MW-11S	07/11/17	0.5 L	0.25
MW-11S	01/09/18	0.5 L	0.25
MW-11S	08/27/18	0.5 L	0.25
MW-11S	01/15/19	0.5 L	0.25
MW-11S	08/21/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-12S			
MW-12S	01/12/15	0.5 L	0.25
MW-12S	04/20/15	0.5 L	0.25
MW-12S	07/30/15	0.5 L	0.25
MW-12S	10/13/15	0.5 L	0.25
MW-12S	01/14/16	0.5 L	0.25
MW-12S	04/19/16	0.73	0.73
MW-12S	07/06/16	0.5 L	0.25
MW-12S	10/12/16	0.5 L	0.25
MW-12S	01/19/17	0.5 L	0.25
MW-12S	07/10/17	0.5 L	0.25
MW-12S	01/09/18	0.5 L	0.25
MW-12S	08/28/18	0.5 L	0.25
MW-12S	01/14/19	0.5 L	0.25
MW-12S	08/21/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		1	
Minimum conc.			0.25
Maximum conc.			0.73
Average conc.			0.28
Distribution			NC
UCL 95			NC
MW-12D			
MW-12D	01/12/15	0.5 L	0.25
MW-12D	04/20/15	0.5 L	0.25
MW-12D	07/30/15	0.5 L	0.25
MW-12D	10/13/15	0.5 L	0.25
MW-12D	01/14/16	0.5 L	0.25
MW-12D	04/19/16	0.5 L	0.25
MW-12D	07/06/16	0.5 L	0.25
MW-12D	10/12/16	0.5 L	0.25
MW-12D	01/19/17	0.5 L	0.25
MW-12D	07/10/17	0.5 L	0.25
MW-12D	01/09/18	0.5 L	0.25
MW-12D	08/28/18	0.5 L	0.25
MW-12D	01/16/19	0.5 L	0.25
MW-12D	08/21/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-13S			
MW-13S	01/12/15	0.5 L	0.25
MW-13S	04/20/15	0.5 L	0.25
MW-13S	07/30/15	0.5 L	0.25
MW-13S	10/13/15	0.5 L	0.25
MW-13S	01/13/16	0.5 L	0.25
MW-13S	04/19/16	0.5 L	0.25
MW-13S	07/06/16	0.5 L	0.25
MW-13S	10/11/16	0.5 L	0.25
MW-13S	01/18/17	0.5 L	0.25
MW-13S	07/10/17	0.5 L	0.25
MW-13S	01/08/18	0.5 L	0.25
MW-13S	08/28/18	0.5 L	0.25
MW-13S	01/14/19	0.5 L	0.25
MW-13S	08/20/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-13D			
MW-13D	01/12/15	0.5 L	0.25
MW-13D	04/20/15	0.5 L	0.25
MW-13D	07/30/15	0.5 L	0.25
MW-13D	10/13/15	0.5 L	0.25
MW-13D	01/13/16	0.5 L	0.25
MW-13D	04/19/16	0.5 L	0.25
MW-13D	07/06/16	0.5 L	0.25
MW-13D	10/10/16	0.5 L	0.25
MW-13D	01/18/17	0.5 L	0.25
MW-13D	07/10/17	0.5 L	0.25
MW-13D	01/08/18	0.5 L	0.25
MW-13D	08/28/18	0.5 L	0.25
MW-13D	01/14/19	0.5 L	0.25
MW-13D	08/20/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-15S			
MW-15S	01/12/15	0.5 L	0.25
MW-15S	04/20/15	0.5 L	0.25
MW-15S	07/30/15	0.5 L	0.25
MW-15S	10/13/15	0.5 L	0.25
MW-15S	01/13/16	0.5 L	0.25
MW-15S	04/18/16	0.5 L	0.25
MW-15S	07/06/16	0.5 L	0.25
MW-15S	10/10/16	0.5 L	0.25
MW-15S	01/17/17	0.5 L	0.25
MW-15S	07/10/17	0.5 L	0.25
MW-15S	01/08/18	0.5 L	0.25
MW-15S	08/27/18	0.5 L	0.25
MW-15S	01/14/19	0.5 L	0.25
MW-15S	08/20/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
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Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-17S			
MW-17S	01/12/15	0.5 L	0.25
MW-17S	04/20/15	0.5 L	0.25
MW-17S	07/30/15	0.5 L	0.25
MW-17S	10/13/15	0.5 L	0.25
MW-17S	01/12/16	0.5 L	0.25
MW-17S	04/19/16	0.5 L	0.25
MW-17S	07/06/16	0.5 L	0.25
MW-17S	10/13/16	0.5 L	0.25
MW-17S	01/17/17	0.5 L	0.25
MW-17S	07/11/17	0.5 L	0.25
MW-17S	01/08/18	0.5 L	0.25
MW-17S	08/27/18	0.5 L	0.25
MW-17S	01/16/19	0.5 L	0.25
MW-17S	08/22/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
MW-18S			
MW-18S	01/12/15	0.5 L	0.25
MW-18S	04/20/15	0.5 L	0.25
MW-18S	07/30/15	0.5 L	0.25
MW-18S	10/13/15	0.5 L	0.25
MW-18S	01/11/16	0.5 L	0.25
MW-18S	04/19/16	0.5 L	0.25
MW-18S	07/06/16	0.5 L	0.25
MW-18S	10/11/16	0.5 L	0.25
MW-18S	01/17/17	0.5 L	0.25
MW-18S	07/13/17	0.5 L	0.25
MW-18S	01/10/18	0.5 L	0.25
MW-18S	08/29/18	0.5 L	0.25
MW-18S	01/15/19	0.5 L	0.25
MW-18S	08/21/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene Result	Conc.
FMMW-2			
FMMW-2	01/12/15	0.5 L	0.25
FMMW-2	04/20/15	0.5 L	0.25
FMMW-2	07/30/15	0.5 L	0.25
FMMW-2	10/13/15	0.5 L	0.25
FMMW-2	01/11/16	0.5 L	0.25
FMMW-2	04/20/16	0.5 L	0.25
FMMW-2	07/05/16	0.5 L	0.25
FMMW-2	10/11/16	0.5 L	0.25
FMMW-2	01/18/17	0.5 L	0.25
FMMW-2	07/12/17	0.5 L	0.25
FMMW-2	01/10/18	0.5 L	0.25
FMMW-2	08/28/18	0.5 L	0.25
FMMW-2	01/15/19	0.5 L	0.25
FMMW-2	08/21/19	0.5 L	0.25
No. Analyzed		14	
No. Detect		0	
Minimum conc.			0.25
Maximum conc.			0.25
Average conc.			0.25
Distribution			NC
UCL 95			NC

Notes:
VOCs measured in ug/L
L = below the method reporting limit (MRL)
NC = not calculated due to less than 50 percent detection frequency or historically no detections.
Statistical calculations use one half the MRL for non-detected

Statistical Summary of Groundwater Data - Volatile Organic Compounds
2019 Annual Monitoring Report
Hidden Valley Landfill, Pierce County, Washington

Monitoring Well	Date	1,4-Dichlorobenzene		Tetrachloroethene (PCE)	
		Result	Conc.	Result	Conc.
MW-11D(2)					
MW-11D(2)	01/12/15	0.5 L	0.25	0.67	0.67
MW-11D(2)	04/20/15	0.5 L	0.25	0.50 L	0.25
MW-11D(2)	07/30/15	0.5 L	0.25	0.85	0.85
MW-11D(2)	10/13/15	0.5 L	0.25	0.77	0.77
MW-11D(2)	01/11/16	0.5 L	0.25	0.98	0.98
MW-11D(2)	04/19/16	0.5 L	0.25	0.82	0.82
MW-11D(2)	07/05/16	0.5 L	0.25	0.96	0.96
MW-11D(2)	10/12/16	0.5 L	0.25	0.82	0.82
MW-11D(2)	01/19/17	0.5 L	0.25	1.00	1.00
MW-11D(2)	07/11/17	0.5 L	0.25	0.92	0.92
MW-11D(2)	01/10/18	0.5 L	0.25	0.80	0.80
MW-11D(2)	08/27/18	0.5 L	0.25	0.86	0.86
MW-11D(2)	01/15/19	0.5 L	0.25	0.99	0.99
MW-11D(2)	08/21/19	0.5 L	0.25	0.88	0.88
No. Analyzed		14		14	
No. Detect		0		13	
Minimum conc.			0.25		0.25
Maximum conc.			0.25		1.00
Average conc.			0.25		0.83
Distribution			NC		Neither
UCL 95			NC		1.00*

Notes:
VOCs measured in ug/L
Bold indicates UCL 95 is greater than Cleanup Level.
L = below the method reporting limit (MRL)
NC = not calculated due to less than 50 percent detection frequency or historically no detections
was greater than the data sample range or the distribution was neither lognormal nor normal.
Calculations use half the MRL for non-detected parameters

Appendix H

QUARTERLY SITE INSPECTION REPORTS

Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 2/19/2019

Signature: [signature] Weather: Cloudy

Items	Yes	No	Comments
Cover System			
Settlement Depressions (sinkholes)		X	
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water		X	
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)		X	
Stormwater Conveyance System			
Ditch Obstructions or Flat Areas		X	
Culvert Obstructions		X	
Catch Basin Debris or Silt Accumulation		X	
Stormwater Basin Debris or Silt		X	
Cover Erosion			
Gullies and/or Erosion Scars		X	
Presence of Seeps		X	
Vector Control			
Evidence of Ground Burrows		X	
Leachate Collection & Leak Detection Systems			
Piping or Valve Issues		X	
Pump or Meter Issues	X		See Condensate Sump inspection Form
Foaming at Pump		X	

Other Remarks:

Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 6/12/19

Signature: [signature] Weather: Sunny

Items	Yes	No	Comments
Cover System			
Settlement Depressions (sinkholes)		X	
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water		X	
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)		X	
Stormwater Conveyance System			
Ditch Obstructions or Flat Areas		X	
Culvert Obstructions		X	
Catch Basin Debris or Silt Accumulation		X	
Stormwater Basin Debris or Silt		X	
Cover Erosion			
Gullies and/or Erosion Scars		X	
Presence of Seeps		X	
Vector Control			
Evidence of Ground Burrows		X	
Leachate Collection & Leak Detection Systems			
Piping or Valve Issues		X	
Pump or Meter Issues	X		See Condensate Sump inspection form
Foaming at Pump		X	

Other Remarks:

Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Alexa Deep Date: 8/22/19

Signature: Alexa Deep Weather: overcast

Items	Yes	No	Comments
Cover System			
Settlement Depressions (sinkholes)		X	
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water		X	
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)	X		some developing along entrance road side of LI=
Stormwater Conveyance System			
Ditch Obstructions or Flat Areas		X	
Culvert Obstructions		X	
Catch Basin Debris or Silt Accumulation		X	
Stormwater Basin Debris or Silt		X	
Cover Erosion			
Gullies and/or Erosion Scars		X	
Presence of Seeps		X	
Vector Control			
Evidence of Ground Burrows		X	
Leachate Collection & Leak Detection Systems			
Piping or Valve Issues	X		see condensate measurement form
Pump or Meter Issues		X	
Foaming at Pump		X	

Other Remarks:

Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 11-26-19

Signature: [signature] Weather: Cloudy

Items	Yes	No	Comments
Cover System			
Settlement Depressions (sinkholes)		X	
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water		X	
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)		X	
Stormwater Conveyance System			
Ditch Obstructions or Flat Areas		X	
Culvert Obstructions		X	
Catch Basin Debris or Silt Accumulation		X	
Stormwater Basin Debris or Silt		X	
Cover Erosion			
Gullies and/or Erosion Scars		X	
Presence of Seeps		X	
Vector Control			
Evidence of Ground Burrows		X	
Leachate Collection & Leak Detection Systems			
Piping or Valve Issues	X		See Condensate Measurement Form
Pump or Meter Issues		X	
Foaming at Pump		X	

Other Remarks:

Appendix I

LANDFILL GAS SYSTEM O&M REPORTS

Hidden Valley Landfill
LFG System Monitoring & Maintenance
January 9th and 10th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on January 9th and 10th

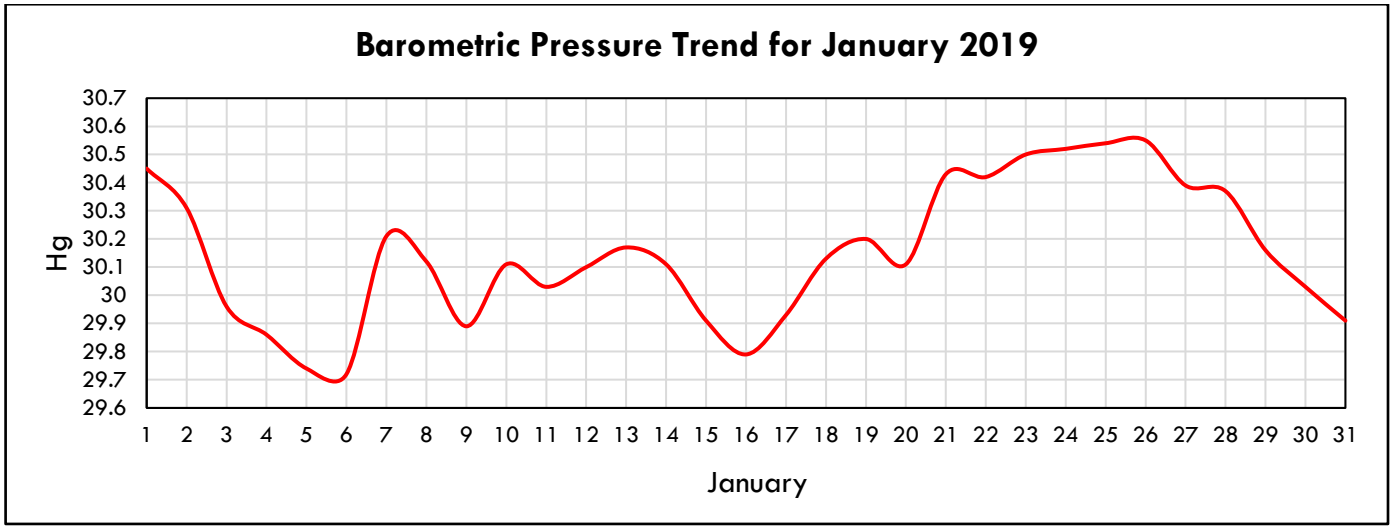
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
1/9/2019 10:43	30.7	22.5	2.3	44.5	190	190	29.15
1/10/2019 8:30	34.7	23	1.4	40.9	247	247	29.50

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
1/9/2019 15:47	38.4	25.4	0.9	35.3	258	258	29.15
1/10/2019 10:30	36.5	23.4	1.2	38.9	212	212	29.54



Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-1-17

Hidden Valley Landfill
LFG System Monitoring & Maintenance
February 13th, 19th and 20th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on February 19th and 20th
- Completed the following LFG system repairs on February 13th:
    - Replaced 10" header near N-33

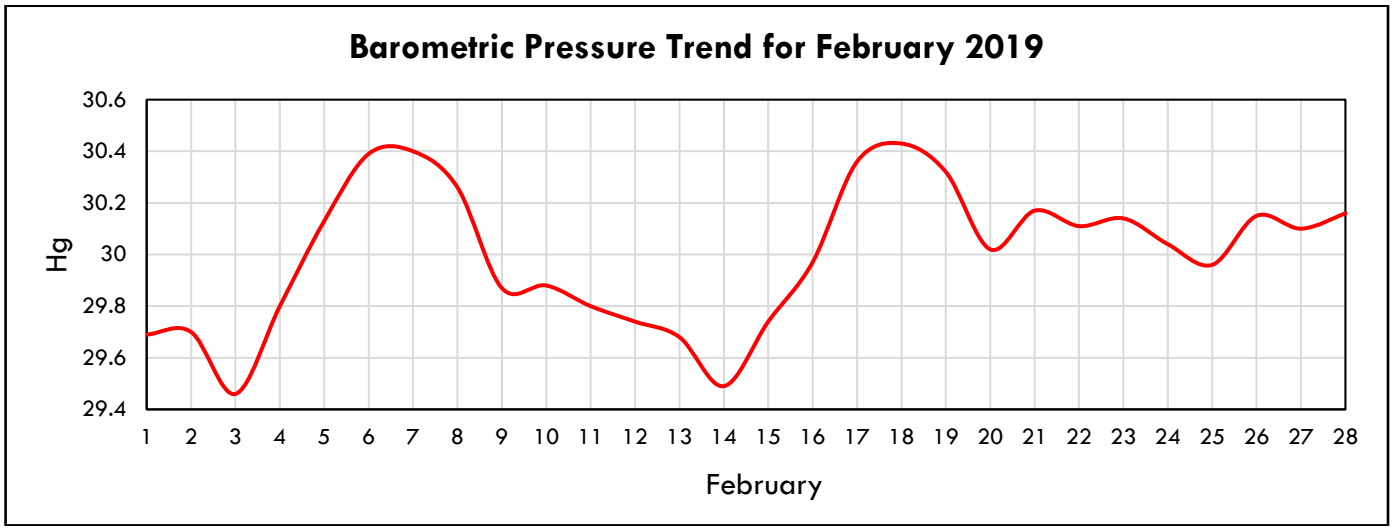
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
2/19/2019 11:18	39.7	21.4	2.8	36.1	175	175	29.62
2/20/2019 8:24	40.7	24.3	1.9	33.1	282	282	29.30

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
2/19/2019 16:23	41.6	27.6	0.9	29.9	320	320	29.47



Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-2-19

Photo Log

Before Header Replacement near N-33

Before Header Replacement near N-33

Before Header Replacement near N-33

Before Header Replacement near N-33

After Header Replacement near N-33

Hidden Valley Landfill
LFG System Monitoring & Maintenance
March 25th and 26th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on March 25th and 26th

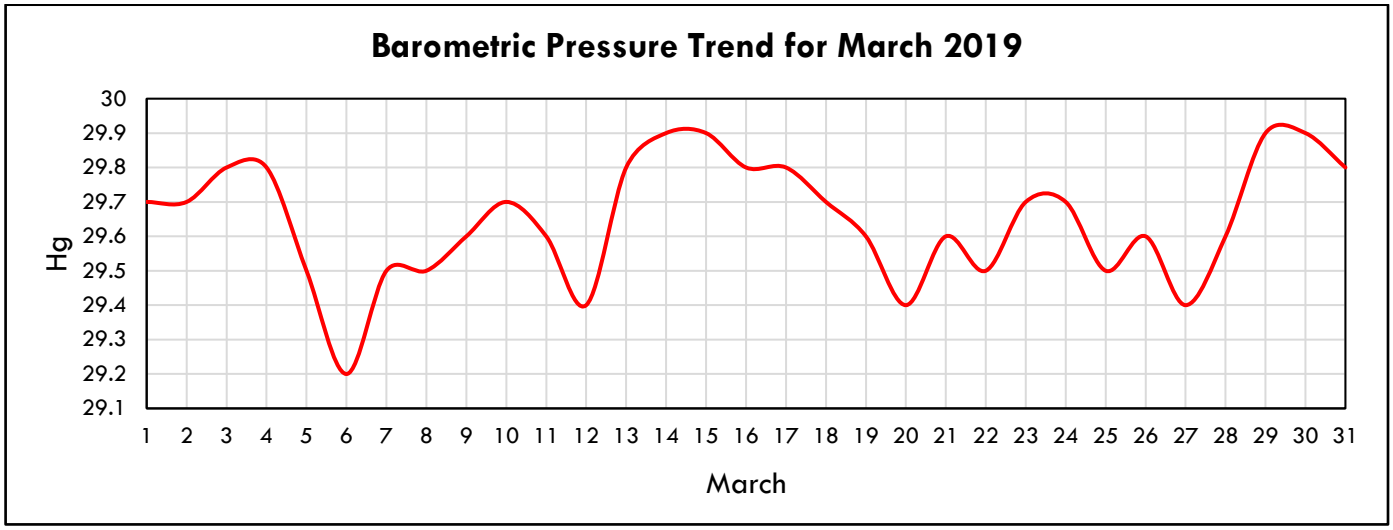
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4 %	CO_2 %	O_2 %	Balance %	Init. Flow SCFM	Adj. Flow SCFM	Baro. Press. inches Hg
3/25/2019 10:29	30.0	17.7	7.0	45.3	218	218	29.35

After system maintenance

Date & Time	CH_4 %	CO_2 %	O_2 %	Balance %	Init. Flow SCFM	Adj. Flow SCFM	Baro. Press. inches Hg
3/25/2019 15:44	40.4	24.3	2.0	33.3	0	0	29.29



Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-3-25

Hidden Valley Landfill
LFG System Monitoring & Maintenance
April 10th, 11th, and 12th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on April 10th, 11th, and 12th
- Completed the following LFG system repairs:
  - Repair cleanout at E2B
  - Repair at N-5
  - Repair at N-20
  - Repair at N-33
  - Repair at N-60

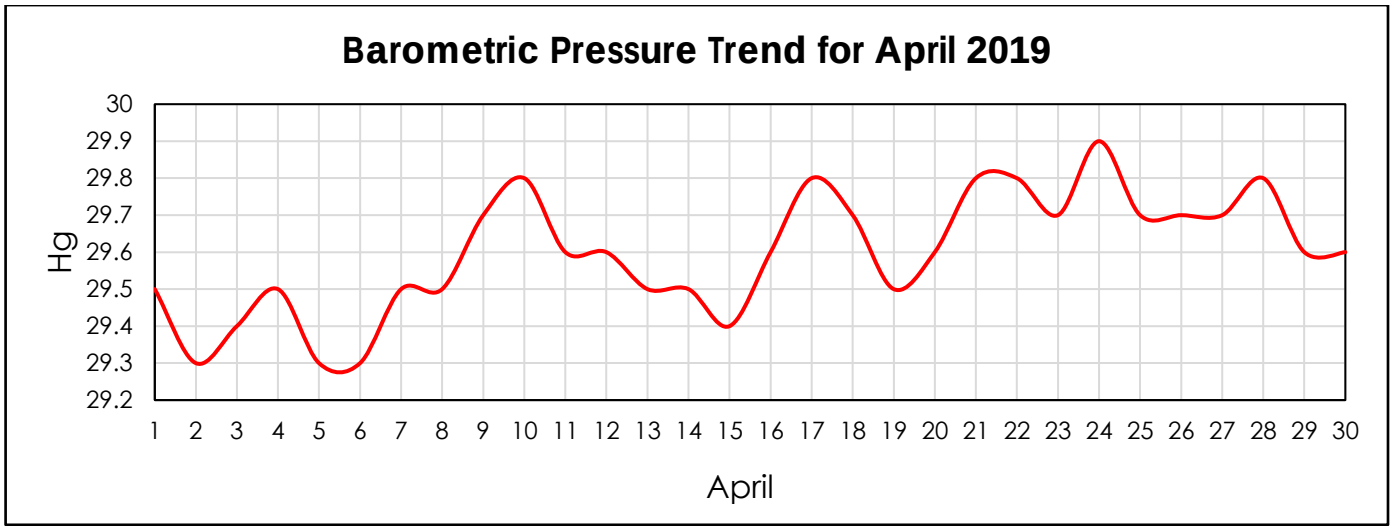
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
4/10/2019 12:43	27.8	17.2	5.7	49.3	316	316	29.72
4/11/2019 8:11	27.6	17.4	7.0	48.0	374	374	29.53
4/12/2019 8:03	22.4	13.8	9.7	54.1	325	325	29.46

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
4/11/2019 16:55	24.1	17.5	8.7	49.7	340	340	29.39
4/12/2019 9:38	37.6	24.7	3.3	34.4	214	214	29.46



Data Source: https://www.wunderground.com/history/daily/us/wa/puyallup/KPLU/date/2019-4-23

Photo Log

Before hose replacement at E2B

After hose replacement at E2B

Before hose replacement at N-5

After hose replacement at N-5

Before hose and valve replacement at N-20

After hose and valve replacement at N-20

Before hose replacement at N-33

After hose replacement at N-33

Before hose replacement at N-60

After hose replacement at N-60

Hidden Valley Landfill
LFG System Monitoring & Maintenance
May 1st and 2nd, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on May 1st and 2nd

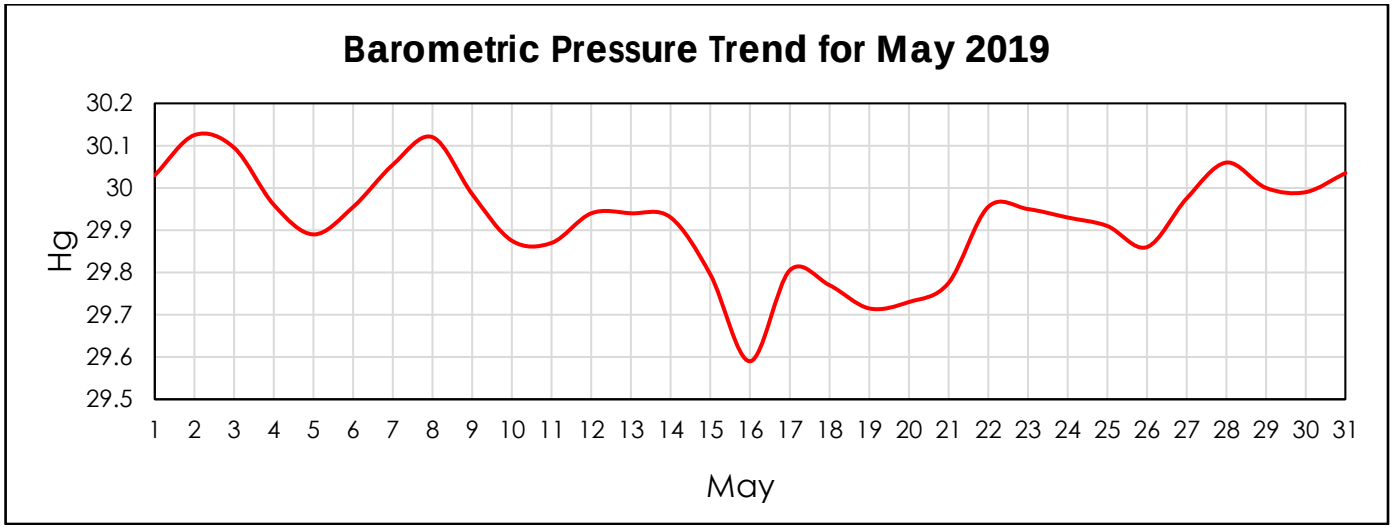
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
5/1/2019 15:36	34.5	21.5	3.9	40.1	196	196	29.46
5/2/2019 7:11	32.7	20.9	4.5	41.9	218	218	29.56

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
5/2/2019 12:03	35.8	21.5	3.5	39.2	237	237	29.62



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-05-31/2019-05-31/monthly

Hidden Valley Landfill
LFG System Monitoring & Maintenance
June 26th & 27th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on June 26th and 27th, 2019
- Installed new wellheads at extraction wells N-35, E-29, E-31, and N-75
- Repaired damaged 4-inch lateral line at extraction well E-37.

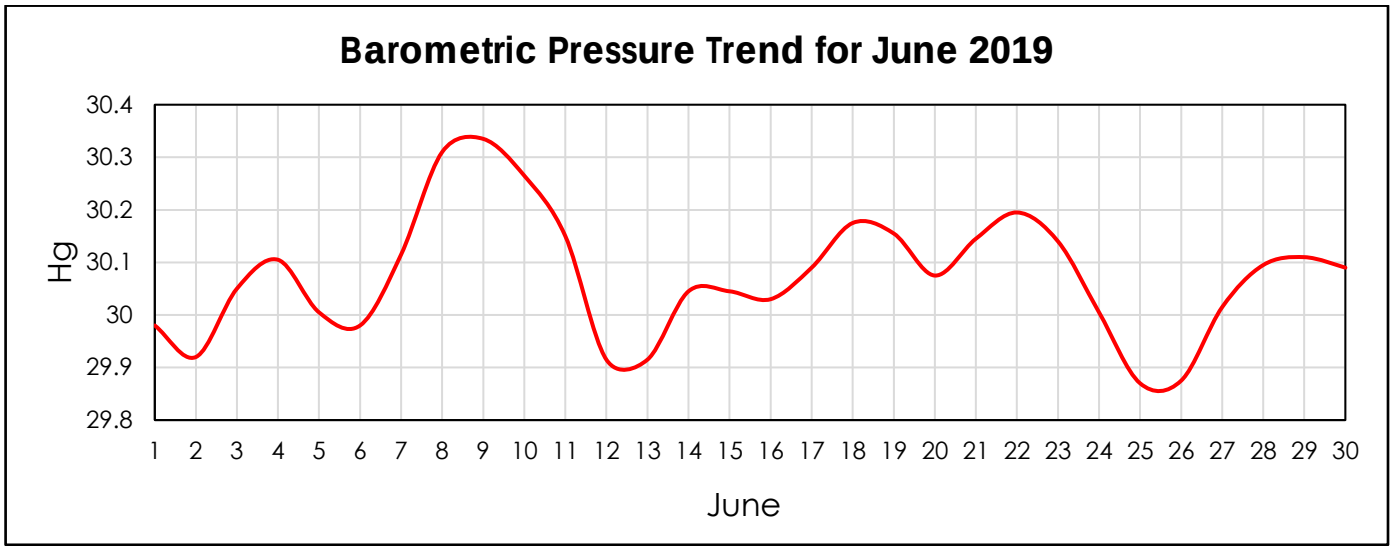
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
6/26/2019 7:17	24.0	17.1	7.5	51.4	319	319	29.35
6/27/2019 7:14	19.1	12.3	10.9	57.7	288	288	29.43

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
6/26/2019 15:31	17.7	11.6	12.0	58.7	245	245	29.32
6/27/2019 13:23	24.4	16.7	9.1	49.8	245	245	29.47



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-06-11/2019-06-11/daily

Hidden Valley Landfill
LFG System Monitoring & Maintenance
July 23rd and 25th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on July 23rd and 25th, 2019

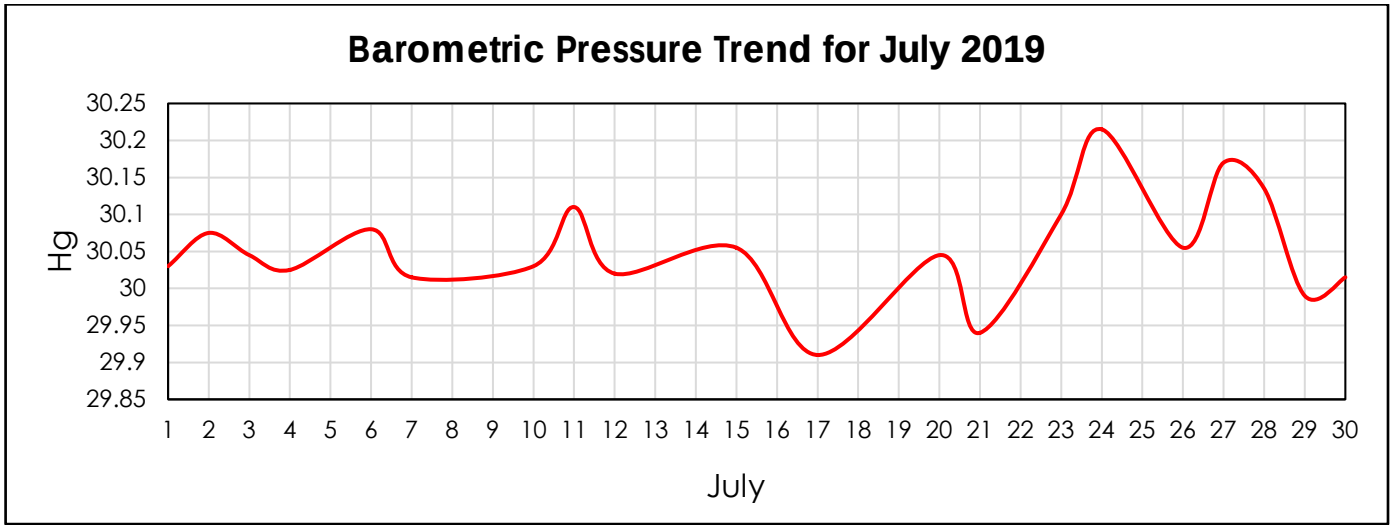
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
7/23/2019 10:59	26.0	17.8	7.4	48.8	191	191	29.53
7/25/2019 7:34	31.5	19.0	6.2	43.3	195	195	29.62

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
7/23/2019 16:46	37.4	22.1	4.0	36.5	181	181	29.49
7/25/2019 11:50	42.0	23.3	0.9	33.8	288	288	29.52



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-07-19/2019-07-19/monthly

Hidden Valley Landfill
LFG System Monitoring & Maintenance
August 6th, 7th and 8th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on July 23rd and 25th, 2019
- Completed the following LFG system repairs:
  - Replaced damaged 6" PVC Tee, 2" valve, and 6" LFG hose at N-56
  - Installed 8" Isolation valve on header at E-37
  - Replaced valve at E-40
  - Replaced damaged 3" LFG hoses at E-39

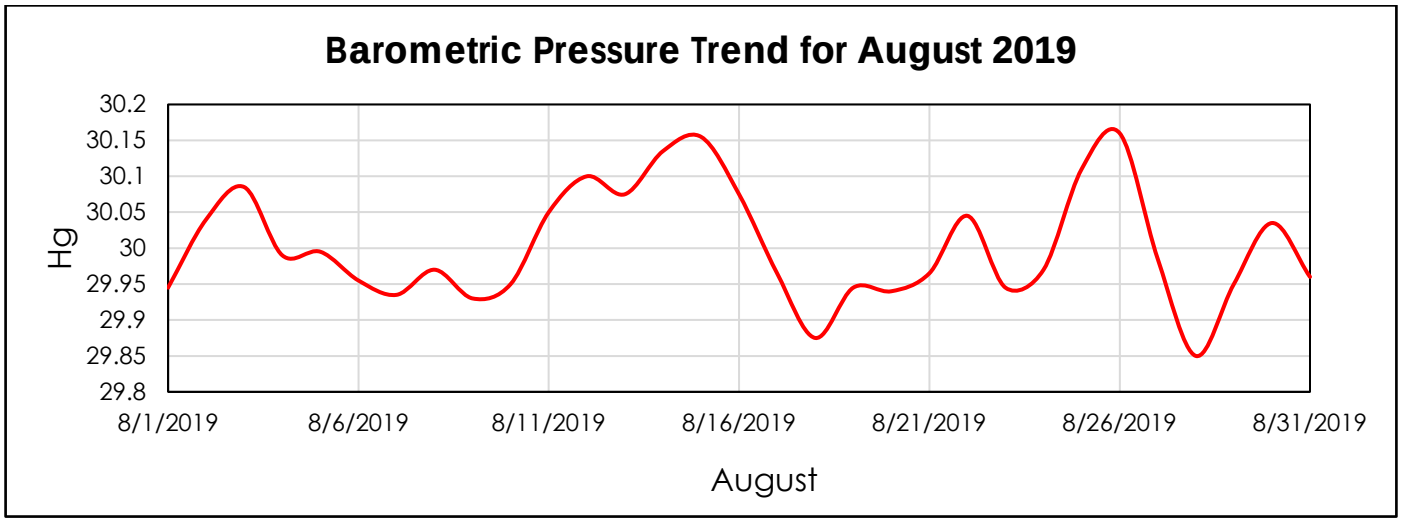
LANDFILL FLARE STATION

Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
8/6/2019 11:55	29.2	21.5	2.1	47.2	292	292	29.44
8/6/2019 14:52	30.9	21.8	1.6	45.7	319	319	29.35

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
8/7/2019 6:30	26.1	18.7	4.6	50.6	333	333	29.44
8/7/2019 15:27	39.2	25.2	1.3	34.3	244	244	29.31



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL125/table/2019-08-6/2019-08-6/monthly

Photo Log

Before N-56 repairs facing S

After N-56 repairs facing S

Before N-56 repairs facing N

After N-56 repairs facing N

Before E-37 Header Installation

Before E-37 Header Installation

Before 3” hose replacement at E-39

After 3” hose replacement at E-39

Hidden Valley Landfill
LFG System Monitoring & Maintenance
September 4th, 5th, and 26th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on September 4th, 5th, and 26th
- Completed the following LFG system repairs:
  - Replaced two (2) damaged 10-inch LFG hoses at extraction well EW-24
  - Replaced two (2) damaged 8-inch LFG hoses at extraction well EW-3

LANDFILL FLARE STATION

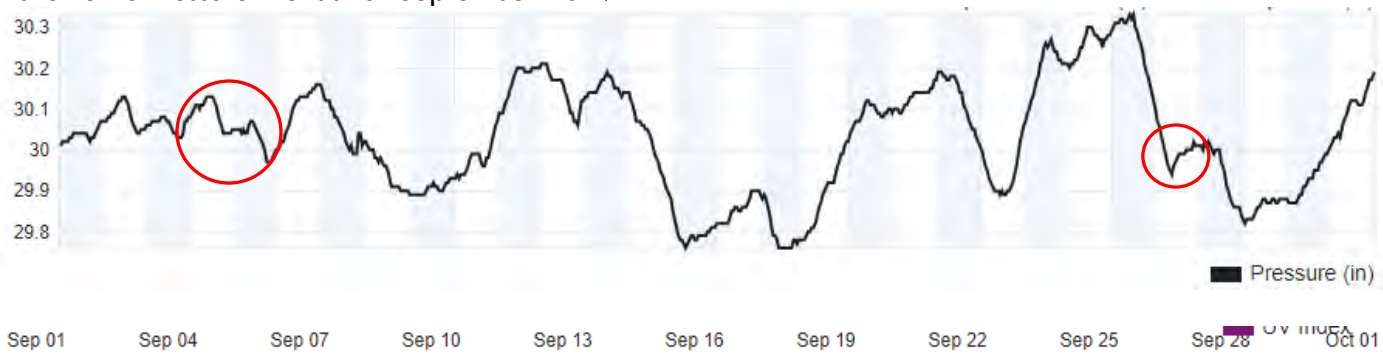
Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
9/4/2019 8:20	33.3	22.9	2.8	41.0	221	221	29.54
9/5/2019 7:59	39.7	24.0	2.6	33.7	181	181	29.48
9/26/2019 7:18	33.1	23.8	1.6	41.5	216	216	29.37

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
9/4/2019 16:21	42.4	24.3	1.2	32.1	181	181	29.36
9/5/2019 15:18	42.4	25.3	0.8	31.5	229	229	29.34
9/26/2019 9:00	34.7	23.7	1.1	40.5	240	240	29.35

Barometric Pressure Trends for September 2019



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-09-22/2019-09-22/monthly

Photo Log

Before 10-in. hose replacement at E-26

After 10-in. Hose replacement at E-26

Before 8-inch hose replacement at N-4

After 8-inch hose replacement at N-4

Hidden Valley Landfill
LFG System Monitoring & Maintenance
October 2nd and 3rd, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on October 2nd and 3rd, 2019
- Completed the following LFG system repairs:
    - Installed QED well heads at E-7, E-43, and N-73

LANDFILL FLARE STATION

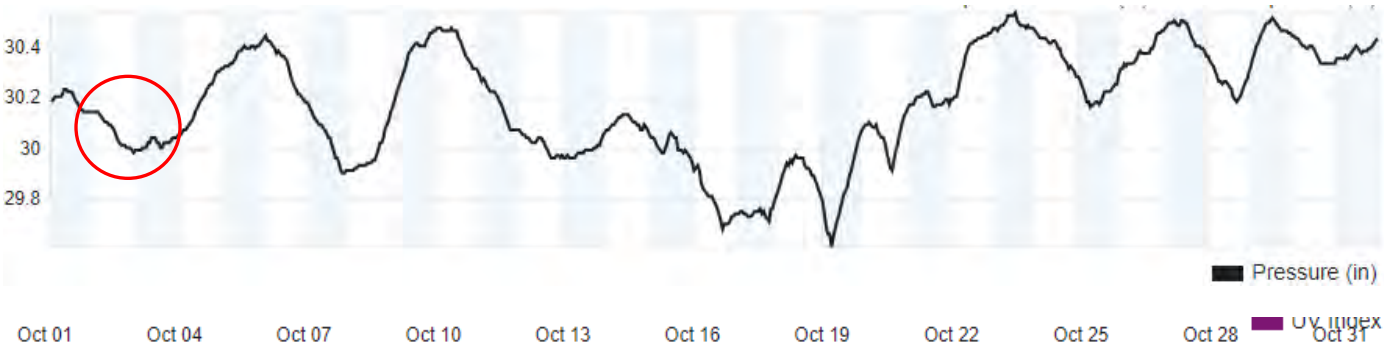
Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
10/2/2019 8:47	27.7	19.1	4.1	49.1	255	255	14.76
10/3/2019 7:56	33.6	18.6	3.6	44.2	236	236	29.44

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
10/2/2019 16:19	36.6	21.8	2.0	39.6	229	229	29.38

Barometric Pressure Trends for October 2019



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-10-22/2019-10-22/monthly

Photo Log

New QED wellhead at E-7

New QED wellhead at E-43

New QED wellheads at N-73 and N-75

Hose replacement at E-43

Hidden Valley Landfill
LFG System Monitoring & Maintenance
November 20th and 22nd, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- None

LANDFILL FLARE STATION

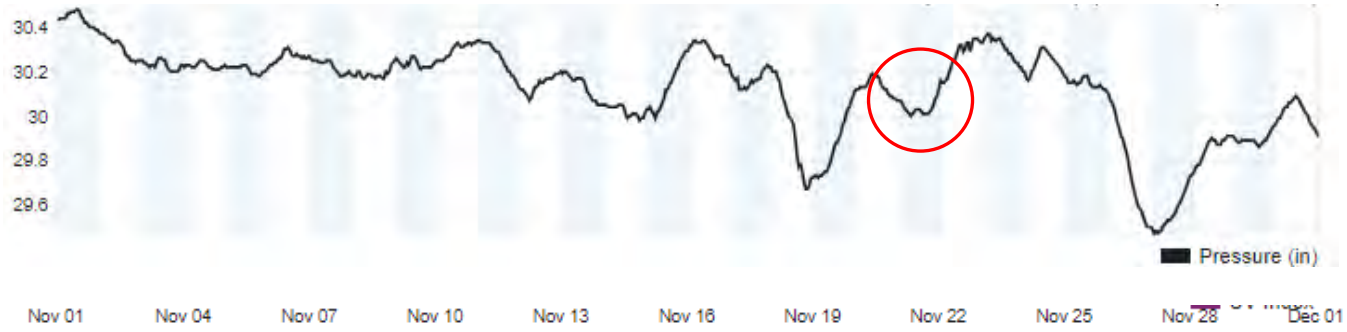
Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
11/20/2019 11:26	29.0	20.8	3.4	46.8	234	234	29.56

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg

Barometric Pressure Trends for November 2019



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-11-22/2019-11-22/monthly

Hidden Valley Landfill
LFG System Monitoring & Maintenance
December 3rd, 4th, and 19th, 2019

MAINTENANCE ITEMS COMPLETED THIS MONTH:

- Performed monthly extraction well monitoring on December 3rd and 4th, 2019
- Completed the following LFG system repairs:
    - Installed QED well heads at N-36, N-37, N-44, E-28, E-29, and E-42

LANDFILL FLARE STATION

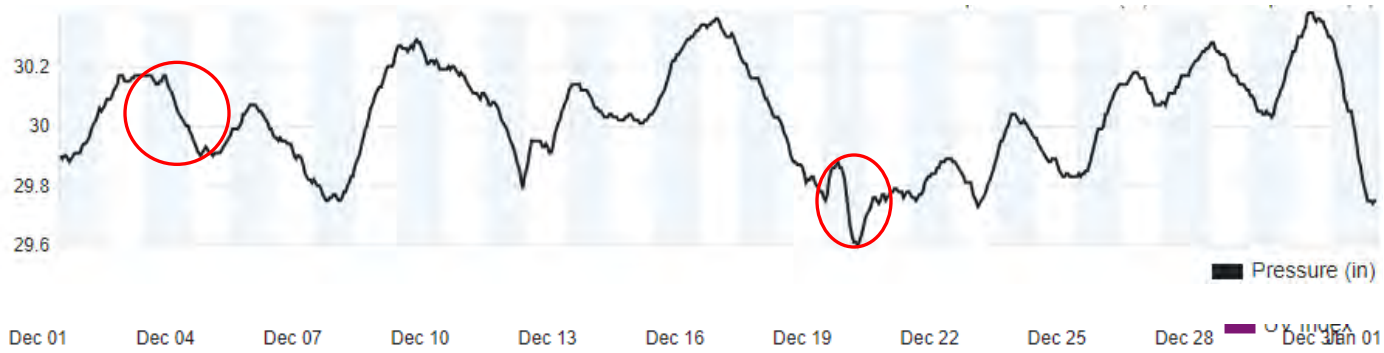
Before system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
12/4/2019 8:19	35.3	23.1	1.7	39.9	198	198	29.57
12/4/2019 12:25	38.5	24.4	1.5	35.6	167	167	29.31

After system maintenance

Date & Time	CH_4	CO_2	O_2	Balance	Init. Flow	Adj. Flow	Baro. Press.
	%	%	%	%	SCFM	SCFM	inches Hg
12/3/2019 16:29	37.9	24.3	1.3	36.5	175	175	29.50

Barometric Pressure Trends for December 2019



Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/graph/2019-12-22/2019-12-22/monthly

Photo Log

N-36 prior to QED wellhead Replacement

N-36 after QED wellhead replacement

N-44 prior to QED wellhead replacement

N-44 after QED wellhead replacement

N-37 after QED wellhead replacement

E-28 after QED wellhead replacement

E-29 after QED wellhead replacement

E-42 after QED wellhead replacement

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 2-19-2019

Signature: [signature] Weather: Cloudy

Instructions: Inspect each sump for pump operation and measure condensate fluid level, which should be below the overflow drainage pipe. Note any unusual observations such as soil staining or air leaks in the comments section.

Sump	Operation per Design (Y or N)	(1) Depth to Condensate (ft)	(2) Depth to Bottom (ft)	Height of Condensate (ft) = (2) – (1)	Comments
Sump No. 1	Y	—	9.54	—	Dry
Sump No. 2	Y	6.39	8.55	2.16	
Sump No. 3	Y	8.58	9.02	0.44	
Sump No. 4	Y	6.33	8.85	2.52	
Sump No. 5	Y	7.33	10.01	2.68	
Sump No. 6	N	6.76	9.64	2.94	
Sump No. 7	Y	—	9.21	—	Dry
Sump No. 8	Y	7.46	9.26	1.80	
Sump No. 9	Y	7.86	9.55	1.69	
Sump No. 10	N	—	9.59	—	Dry
Sump No. 11	Y	7.22	9.64	2.42	

Other Remarks:

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 5/28/19

Signature: [signature] Weather: overcast

Instructions: Inspect each sump for pump operation and measure condensate fluid level, which should be below the overflow drainage pipe. Note any unusual observations such as soil staining or air leaks in the comments section.

Sump	Operation per Design (Y or N)	(1) Depth to Condensate (ft)	(2) Depth to Bottom (ft)	Height of Condensate (ft) = (2) – (1)	Comments
Sump No. 1	Y	—	10.40	Dry	
Sump No. 2	Y	6.41	8.60	2.19	
Sump No. 3	Y	8.79	8.95	0.16	
Sump No. 4	Y	6.38	8.70	2.32	
Sump No. 5	Y	8.01	10.05	2.04	
Sump No. 6	N	6.20	9.51	3.31	
Sump No. 7	Y	—	9.22	Dry	
Sump No. 8	Y	7.45	9.21	1.76	
Sump No. 9	Y	7.99	9.50	1.51	
Sump No. 10	N	—	9.59	Dry	
Sump No. 11	Y	7.23	9.59	2.36	

Other Remarks:

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Alexa Deep Date: 8/22/19

Signature: Alexa Deep Weather: overcast

Instructions: Inspect each sump for pump operation and measure condensate fluid level, which should be below the overflow drainage pipe. Note any unusual observations such as soil staining or air leaks in the comments section.

Sump	Operation per Design (Y or N)	(1) Depth to Condensate (ft)	(2) Depth to Bottom (ft)	Height of Condensate (ft) = (2) – (1)	Comments
Sump No. 1	Y	—	10.09	Dry	
Sump No. 2	Y	6.43	8.61	2.18	
Sump No. 3	Y	8.89	8.96	0.07	
Sump No. 4	Y	6.30	8.70	2.4	
Sump No. 5	Y	4.75	10.00	5.25	
Sump No. 6	N	6.23	9.51	3.28	
Sump No. 7	Y	—	9.25	Dry	
Sump No. 8	Y	7.37	9.30	1.93	
Sump No. 9	Y	7.90	9.53	1.63	
Sump No. 10	N	—	9.60	Dry	
Sump No. 11	Y	7.26	9.64	2.38	

Other Remarks:

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Travis Berndahl Date: 11-26-19

Signature: [signature] Weather: Cloudy

Instructions: Inspect each sump for pump operation and measure condensate fluid level, which should be below the overflow drainage pipe. Note any unusual observations such as soil staining or air leaks in the comments section.

Sump	Operation per Design (Y or N)	(1) Depth to Condensate (ft)	(2) Depth to Bottom (ft)	Height of Condensate (ft) = (2) – (1)	Comments
Sump No. 1	Y	—	9.52	Dry	
Sump No. 2	Y	6.40	9.50	3.10	
Sump No. 3	Y	—	8.95	Dry	
Sump No. 4	Y	6.31	8.40	2.09	
Sump No. 5	Y	7.91	10.01	2.10	
Sump No. 6	N	6.02	9.50	3.48	
Sump No. 7	Y	—	9.35	Dry	
Sump No. 8	Y	7.41	9.30	1.89	
Sump No. 9	Y	7.91	9.51	1.60	
Sump No. 10	N	—	9.58	Dry	
Sump No. 11	Y	7.25	9.52	2.27	

Other Remarks: