First Quarter 2021 Monitoring Report

LRI Landfill
Graham, Washington

Pierce County Recycling, Composting
& Disposal, LLC dba LRI
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SCS ENGINEERS

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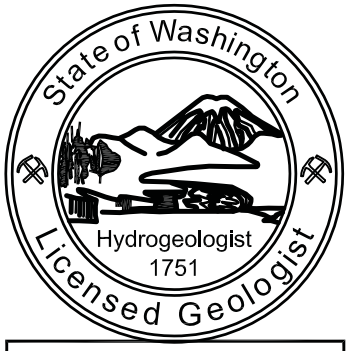
This document is the First Quarter 2021 Monitoring Report for the LRI Landfill located in Graham, Washington. Activities this quarter included monitoring the volume and specific conductance of water pumped from the leak detection/collection system, quarterly groundwater monitoring, monthly landfill gas monitoring, and weekly surface water monitoring. This document was prepared by Sam Graber and Kevin Lakey of SCS Engineers and submitted to Mr. Keith Johnston of the Tacoma-Pierce County Health Department.



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Attachments:
Attachment A: Groundwater Flow Map
Attachment B: Groundwater Data Summary Tables
Attachment C: Field Sampling Documentation
Attachment D: Statistical Calculations
Attachment E: Trilinear Diagrams
Attachment F: Analytical Data Validation Report
Attachment G: Groundwater and LDCS Time Trend Plots
Attachment H: LDCS & Leachate Pumping Records and Conductivity Measurements
Attachment I: Surface Water Data
Attachment J: Landfill Gas Data

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GROUNDWATER MONITORING

First Quarter 2021 groundwater samples were collected on March 8 and March 9, 2021. Water level elevations were measured on March 9, 2021. Nine monitoring wells (MW-1A, MW-2A, MW-3, MW-4, MW-5A, MW-6, MW-7, MW-9, and MW-10) were sampled during this monitoring period. Field quality control samples consisted of one field blank and one duplicate sample collected at MW-5A. Sampling procedures followed the LRI Landfill Groundwater Monitoring Plan (GWMP), dated March 10, 2014.

Groundwater samples were obtained using low-flow purging and sampling techniques with dedicated pumps at all monitoring wells except MW-4, where a non-dedicated QED Sample Pro pump was deployed. Samples for laboratory analyses were submitted to TestAmerica, Inc. of Denver, Colorado for the parameters listed in Appendix I and II of WAC 173-351-990. The groundwater sampling locations are shown on Figure 1.

A groundwater surface elevation map for the First Quarter monitoring event is included as Figure 1 in Attachment A. The average groundwater gradients and flow directions calculated for the quarter remain similar to those previously reported at the facility, with a flow rate of about 45 feet per year towards the northwest for horizontal groundwater movement within the uppermost aquifer (assuming a horizontal hydraulic conductivity of 1×10^{-3} centimeters per second and an effective porosity of 30 percent).

Field measurements and analytical results for groundwater, leak detection/collection system (LDCS), and quality control samples are summarized on the following tables presented in Attachment B: including Groundwater Level Elevations, Field Parameters, Inorganic Parameters, Appendix I Metals, Appendix II Metals, Volatile Organic Compounds, Cation-Anion Balance, and Duplicate Sample Results.

Copies of the Field Sampling Data Sheets are included in Attachment C. Statistical calculations are provided in Attachment D. Trilinear (Piper) plots of groundwater and LDCS sample results are included in Attachment E. Data validation results are summarized in Attachment F.

Groundwater results were reviewed and validated (see attached Data Validation Report). Field measurements and analytical data were uploaded into the Washington State Department of Ecology (Ecology) Environmental Information Management (EIM) System. Laboratory reports were provided to the Tacoma-Pierce County Health Department (TPCHD) and the Washington Department of Ecology (Ecology) under separate cover.

A nonparametric inter-well prediction limit approach was used to evaluate the water quality results for Appendix I parameters listed in WAC 173-351-990 (15 total metals and nitrate). Prediction limits were generated using background data for nitrate and eight rounds of quarterly sampling conducted in 2014 and 2015 for fifteen (15) total metals. Using this procedure, the highest concentration of each parameter in the data set was selected as the prediction limit for that parameter. In addition, the prediction limit data set includes ongoing water quality results from background (upgradient) wells MW-9 and MW-10. Appendix I total metal and nitrate concentrations measured at the downgradient monitoring wells were less than or equal to prediction limit values at all of the monitoring wells this quarter.

Groundwater time-trend plots for inorganic parameters and metals are included in Attachment G. The following four plots are provided for each monitoring well:

- Plot 1 — ammonia, nitrate, chloride, TOC
- Plot 2 — alkalinity, sulfate, TDS
- Plot 3 — calcium, magnesium, sodium, potassium
- Plot 4 — iron, manganese, zinc, arsenic

Time trend plots show that concentrations of metals and inorganic parameters remained generally consistent with previously observed values during the First Quarter. The highest concentrations of chloride and nitrate in the uppermost aquifer continue to be observed in background well MW-10.

Reported detections of inorganic parameters and metals measured at downgradient monitoring wells during the First Quarter were less than or equal to the groundwater quality criteria listed in WAC 173-200-040, with the exceptions shown in Exhibit 1.

Exhibit 1. Groundwater Results Greater Than WAC 173-200-040 Criteria

Parameter	Groundwater Quality Criteria	MW-1A	MW-2A	MW-3	MW-4	MW-5A	MW-6	MW-7
Arsenic, Total	0.00005	**	**	**	0.0098	0.0058	0.0074	0.0053
Iron, Dissolved	0.30	1.5	0.49	*	*	*	*	*
Manganese, Dissolved	0.05	0.24	0.28	0.42	0.23	0.19	0.18	0.25

Notes:
Concentrations listed as mg/L = milligrams per liter
** = Not detected above the method reporting limit (MRL), but MRL exceeded WAC 173-200-040 GW Quality Criteria
* = Reported value was less than WAC 173-200-040 Groundwater Quality Criteria

The values listed in Exhibit 1 are typical of previous results (see time-trend plots in Attachment G), are interpreted to be within natural background variation, and in the case of total arsenic, are less than or equal to the background level used to establish the prediction limit (prediction limits are not applicable for dissolved iron or manganese). The method reporting limit (MRL) for arsenic is 0.005 milligrams per liter (mg/L), which is greater than the WAC 173-200-040 criteria of 0.00005 mg/L. Therefore, arsenic results reported as non-detect are considered to be greater than the WAC 173-200-040 criterion.

Low-level detections of ammonia (up to 0.19 mg/L) were reported at each downgradient monitoring well, except MW-1A and MW-2A, during the First Quarter. Similar low-level ammonia detections have been reported in the past; including at background well MW-10 during the Second Quarter 2018 monitoring event. Therefore, the low-level ammonia concentrations appear to be due to site-wide aquifer chemistry, which has also affected water quality within the LDCS.

The cation-anion balance evaluates the difference in the sum of cations and anions (in milliequivalents per liter [meq/L]) within a water sample to determine if it is electroneutral (balanced cation and anion charges). Consistent with WAC 173-350-430(5), a threshold of ten percent difference is used if the total cation-anion sum is less than 5.0 meq/L, and a threshold of five percent difference is used if the total cation-anion sum is greater than or equal to 5.0 meq/L. Cation-

anion balance evaluations were below the appropriate threshold for all of the monitoring wells this quarter.

Graphical plots of the current monitoring well water quality results are presented on trilinear (piper) diagrams in Attachment E. These plots demonstrate the inherent water quality differences between groundwater from the monitoring wells, shallow groundwater from the LDCS, and leachate (collected annually in December).

No VOCs were reported in samples collected from the monitoring wells during the First Quarter.

LEAK DETECTION/COLLECTION SYSTEM (LDCS) MONITORING

A leak detection/collection system (LDCS) is present directly beneath the composite liner of each landfill cell to provide for early leak detection and to collect leachate in the event a leachate leak develops in the composite liner or leachate force main. The system consists of a high permeability gravel blanket that is underlain and overlain by geosynthetic fabrics. The system also dewaters groundwater that is present within the glacial till. Leachate leaks are indicated by the presence acetone and 2-butanone (primary leachate indicator parameters) and increases in concentrations of ammonia and chloride (secondary leachate indicator parameters), as well as specific conductance (conductivity), total dissolved solids, alkalinity, sodium, potassium, and total organic carbon.

LDCS Maintenance. A sampling pump with new discharge tubing was deployed in LDCS-5 on March 3, 2021 by LRI and SCS personnel. The newly deployed pump was used to collect the First Quarter sample on March 9, 2021.

LDCS Daily Monitoring. Daily monitoring of the LDCS sumps for volume of water pumped, liquid level, and specific conductance (conductivity) was performed by using a programmable logic controller (PLC) and through direct measurements by LRI site personnel. Rainfall data were recorded manually using an on-site rain gauge. The combined field and PLC data, as well as time series plots of the data, are included in Attachment H.

LDCS-1 conductivity levels displayed spikes during November and December of 2020 (see the time trend plots in Appendix F). These dates coincided with large rain events. Given the timing of when the spikes occurred and when the rain events were recorded, it is interpreted that the rainfall events may have caused groundwater within the LDCS to come in contact with the overlying clay material, which in turn, caused the conductivity of the groundwater to rise. The conductivity levels at LDCS-1 decreased to levels more consistent with historic data beginning on January 9th.

LDCS-2B conductivity levels slowly drifted higher during the fourth quarter of 2020. The conductivity probe was subsequently recalibrated on January 7, 2021. Following recalibration, conductivity values decreased to levels more consistent with historic data and readings measured in the field. However, the flowmeter at LDCS-2B was also noted to be not working properly. SCS will work with LRI to repair or replace the meter.

LDCS-4A conductivity readings began to display a spike on December 30, 2020. See below for a discussion regarding water quality at LDCS-4A.

Conductivity data from the remaining LDCS sumps trended within typical historical ranges during the First Quarter of 2021.

LDCS Quarterly Monitoring. Samples were collected with disposable bailers at LDCS-1, LDCS-2A, and LDCS-2B, and with dedicated QED Sleeper Pumps at LDCS-3A, LDCS-4A, LDCS-4B, LDCS-5, LDCS-6, and LDCS-7. In addition, a sample was collected from the temporary HDPE sump at LDCS-8A with a peristaltic pump.

On the morning of January 4, 2021, site personnel observed dark-colored liquid being pumped from the LDCS at Cell 4A into the concrete stormwater channel. The appearance and associated odor of the liquid indicated that landfill leachate had entered the LDCS system. The discharge of impacted LDCRS water into the concrete channel was immediately stopped. LRI notified Ecology and the TPCHD on January 4, 2021. A follow up letter was submitted to Ecology on January 7, 2021.

Groundwater withdrawn from LDCS-4A was routed to the leachate collection system for disposal as leachate as soon as the leak was discovered. Further investigation at Cell 4A found that a pipe weld on the leachate force main had failed. LRI staff promptly repaired the forcemain. SCS collected additional samples from LDCS-4A on January 5, January 15, January 21 and January 28, 2021. Field and laboratory data results are included on the groundwater summary tables in Attachment B.

The sample collected from LDCS-4A on January 5 displayed elevated concentrations of alkalinity (510 mg/L), ammonia (36 mg/L), chloride (120 mg/L), TDS (640 mg/L), and dissolved potassium (26 mg/L) and sodium (130 mg/L). A low-level detection of primary leachate indictor, acetone, was also detected at a concentration of 3.5 micrograms per liter (µg/L). The acetone detection was J-flagged since it was detected below the parameter's reporting limit of 10 µg/L. Subsequent samples collected from LDCS-4A displayed parameter concentrations more consistent with historic results (see time trend plots in Attachment G). No VOCs were reported present in the samples following the January 5, 2021 sample.

LDCS-1 water quality results included low-level detections of 1-4-dichlorobenzene and benzene at concentrations of 0.73 µg/L and 0.60 µg/L, respectively. However, the primary leachate indicator parameters, acetone and 2-butanone, were not detected and secondary leachate indicator parameters, ammonia and chloride, remained low. Therefore, the VOC detections reported at LDCS-1 do not appear to be the result of leachate.

LDCS-4B water quality results included reported detections of primary leachate indicator parameters acetone and 2-butanone, at concentrations of 12 µg/L and 6.9 µg/L, respectively. LDCS-4B was subsequently resampled on April 26, 2021. No VOCs were reported in the resample results. Additionally, secondary leachate indicator parameters, ammonia and chloride, remained consistent with historic results in the samples collected in March and April. Therefore, the VOC detections reported in the First Quarter sample do not appear to be the result of leachate.

Due to a slowly increasing trend of chloride at LDCS-4B (see Attachment G), water from LDCS-4B has been routed into the leachate collection system since July of 2019 and is not being discharged through the concrete channel. However, the overall water quality results do not indicate a leachate impact (see the summary tables in Attachment B and the piper plots in Attachment E).

LDCS-5 water quality continues to display fluctuating, but elevated, concentrations of secondary leachate indicator parameters ammonia and chloride, as well as alkalinity, iron, manganese, sodium, potassium, TDS, and TOC (see summary tables in Attachment B and time trend plots in Attachment G). Primary leachate indicator parameters acetone and 2-butanone have not been detected at LDCS-5 since 2018. Groundwater withdrawn from LDCS-5 continues to be directed to the leachate collection system, as it has been since May of 2016, and is not being discharged through the concrete channel.

LDCS-7 water quality results included a reported detection of carbon disulfide at a concentration of 9.5 µg/L. This result is similar to past results, including background water quality testing that found detections of VOC's and elevated concentrations of inorganic parameters and metals. Elevated concentrations continue to be reported for alkalinity, chloride, sulfate, TDS, total organic carbon, dissolved calcium, magnesium, manganese, and sodium. Since carbon disulfide and elevated concentrations of general chemistry parameters were detected at LDCS-7 prior to the placement of refuse in the cell, the reported detections appear to be due to background water quality. Additionally, no detections of primary leachate indicator parameters acetone and 2-butanone were reported in the sample collected during the First Quarter.

LDCS-8A water quality results included relatively elevated concentrations of alkalinity, chloride, sulfate, TDS, total organic carbon, and dissolved barium, calcium, magnesium, manganese, sodium. These results are consistent with background sampling performed at LDCS-8A prior to the placement of waste in the cell. Additionally, no detections of the primary leachate indicator parameters acetone and 2-butanone, or secondary leachate indicator, ammonia, were reported in the sample collected during the First Quarter. Therefore, the elevated concentrations of general chemistry parameters detected at LDCS-8A do not appear to be the result of leachate.

LDCS time trend plots for inorganic parameters and dissolved metals are included in Attachment G. The following four plots are provided for each leak detection sump:

- Plot 1 — ammonia, nitrate, chloride, TOC
- Plot 2 — alkalinity, sulfate, TDS
- Plot 3 — calcium, magnesium, sodium, potassium
- Plot 4 — iron, manganese, zinc, arsenic

Graphical plots of the LDCS water quality results are presented on trilinear (piper) diagrams in Attachment D. These plots demonstrate the inherent water quality differences between groundwater from the monitoring wells, shallow groundwater from the LDCS, and leachate (collected annually in December).

SURFACE WATER MONITORING

Surface water monitoring was performed per the requirements of NPDES Construction Stormwater General Permit (CSWGP) WAR 002603C and NPDES Industrial Stormwater General Permit (ISGP) WAR 002557. During the First Quarter, construction stormwater treatment using Chitosan Sand Enhanced Filtration (CESF) was utilized in January, February, and March.

Discharge Monitoring Reports (DMR's) were submitted to Ecology on a monthly (Construction Permit) and quarterly (Industrial Permit) basis. Copies of the First Quarter 2021 DMR's are included in Attachment I. No surface water benchmarks or water quality effluent limits were exceeded this quarter.

LEACHATE MONITORING

Leachate volumes were monitored using the automated PLC system and through direct measurements by LRI site personnel. A summary of daily volumes pumped and leachate sump level data is provided in Attachment H.

Collected leachate was truck-hauled to the pretreatment facility at the Hidden Valley Landfill where it was discharged to the Pierce County sewer system in accordance with Pierce County Utilities Department Industrial Discharge Permit Number PC03096, and to the City of Tacoma and City of Salem Wastewater Treatment Plants for proper disposal. A summary of year to date leachate volume data based on volumes truck-hauled off site is provided on Exhibit 2.

Exhibit 2. 2021 Leachate Volume Data

Month	Leachate Trucked Offsite for Proper Disposal (gallons)	Monthly Rainfall (inches)
January	4,295,910	7.04
February	2,909,325	4.14
March	3,093,766	1.67
Totals	10,299,001	12.85
Notes: Leachate was trucked off-site for proper disposal. Leachate volumes were determined by trucking records kept on a daily basis.		

LANDFILL GAS MONITORING

Monthly monitoring of the landfill gas performance probes was conducted on January 16, February 20, and March 8 using a Landtec GEM2000 portable gas monitor. Methane measurements were less than the lower explosive limit (LEL) of five percent by volume during the First Quarter except at performance probes GP-10P and GP-12 (see Exhibit 3). Previous barhole monitoring surveys, such as the survey conducted on December 18, 2019 along the base of the perimeter berm adjacent to gas probe GP-2, have shown that similar methane levels at these probes do not result in the migration of landfill gas to the property line.

Exhibit 3. 2021 Landfill Gas Probe Monitoring Summary (Percent Methane)

Monitoring Date	GP-1	GP-2	GP-3	GP-4	GP-9	GP-10	GP-10P	GP-11	GP-12	GP-13	GP-14	GP-15	GP-16
January 16	3.0	3.0	0.0	0.0	0.0	0.0	**13.1**	0.0	**23.5**	0.2	0.0	0.0	0.0
February 20	1.2	2.1	0.0	0.0	0.0	0.1	**9.3**	0.0	**27.6**	0.0	0.0	0.0	0.0
March 8	1.8	2.0	0.0	0.0	0.0	1.6	**14.8**	0.0	3.6	0.0	0.0	0.0	0.0
Notes: All values are reported as percent methane by volume. Methane measurements at or above the lower explosive limit of 5.0% by volume are shown in **bold**.													

Indoor air was tested for the presence of methane on March 4. The office, maintenance building, scale house, and work shed located next to the stormwater treatment ponds were tested with a portable flame ionization detector (MicroFID). Low levels of methane were indicated, but attributed to air fresheners and/or cleaners.

Field records for gas probe and indoor air monitoring are included in Attachment J.

LANDFILL GAS EXTRACTION WELL CONSTRUCTION

Thirteen (13) new landfill gas extraction wells were installed between March 10 and March 16, 2021. A copy of the Well Installation Report is included in Attachment J.

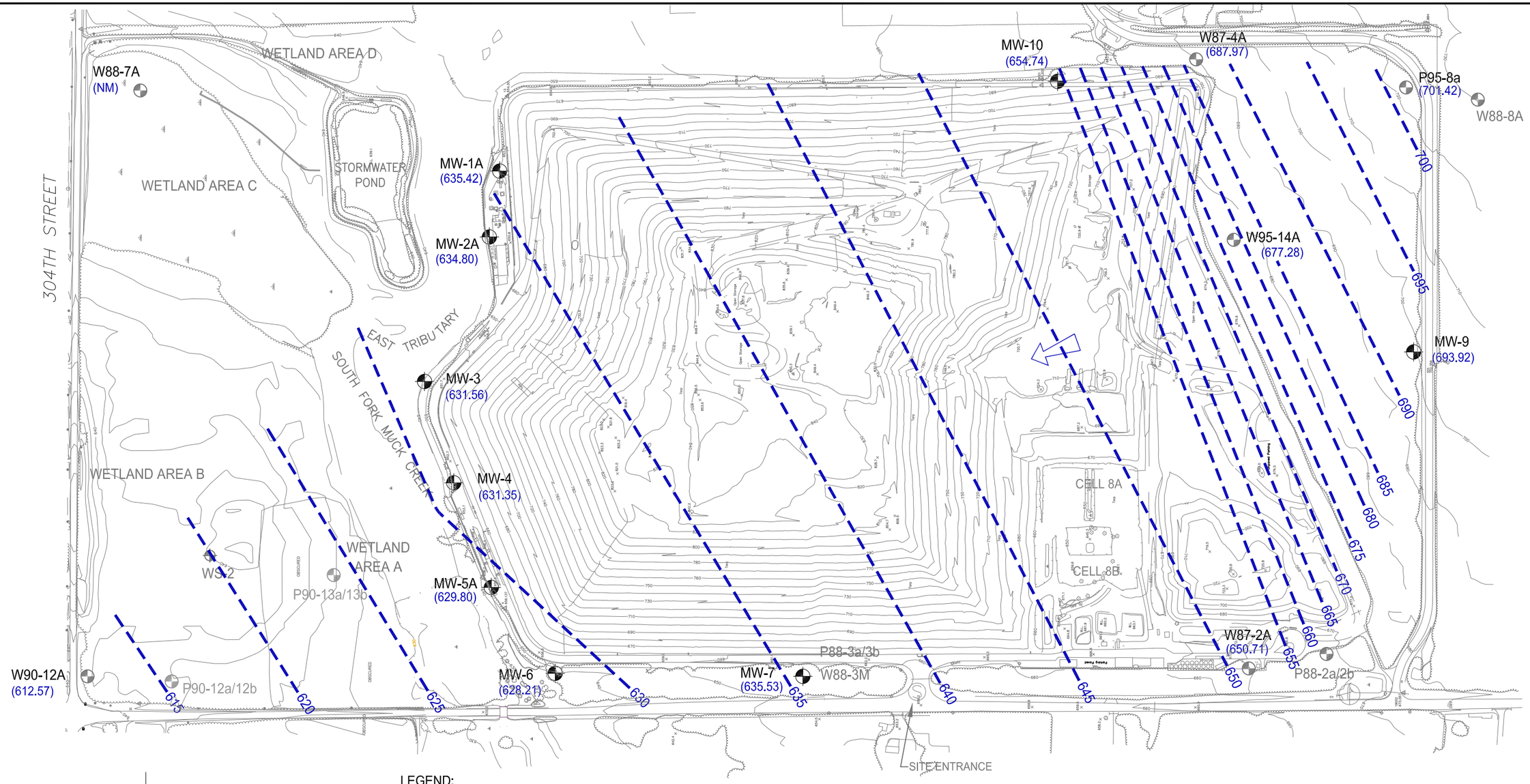
No other construction activity related to the landfill gas extraction wells was performed during this quarter.

GROUNDWATER MONITORING WELL CONSTRUCTION AND MAINTENANCE

No well construction or significant well maintenance activities were performed this quarter.

Attachment A

Groundwater Flow Map



NOTES:

VERTICAL DATUM - BASED ON PIERCE COUNTY BENCH NO. 112-28, ELEVATION 660.29 NGVD29

LEGEND:

MW-1A	MONITORING WELL
W87-2A	CHARACTERIZATION WELL/ PIEZOMETER
(650.71)	GROUNDWATER ELEVATION (IN FEET ABOVE MSL)
	INFERRED GROUNDWATER FLOW DIRECTION
(NM)	NOT MEASURED

0 400 800

SCALE (ft)

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

PROJECT NO. 04221001.02	DES BY SG	POTENTIOMETRIC SURFACE CONTOUR MAP MARCH 9, 2021	DATE JUNE 2021
SCALE AS SHOWN	CHK BY KGL	LRI LANDFILL 30919 MERIDIAN STREET E. GRAHAM, WASHINGTON	FIGURE 1
CAD FILE FIGURE 1	APP BY KGL		

Attachment B

Groundwater Data Summary Tables

Table 1. Groundwater Level Elevations
March 9, 2021
LRI Landfill, Pierce County, Washington

Location	Well Casing Elevation (ft)	Depth to Water (ft)	Water Level Elevation (ft, NGVD29)
Wells			
W87-2A	664.01	13.30	650.71
W87-4A	693.29	5.32	687.97
W88-3M	658.11	11.52	646.59
W88-7A	632.51	NM*	--
W88-8M	721.05	38.60	682.45
W90-12A	640.84	28.27	612.57
W95-14A	680.49	3.21	677.28
MW-1A[a]	652.57	17.15	635.42
MW-2A[a]	651.93	17.13	634.80
MW-3[a]	637.41	5.85	631.56
MW-4	652.37	21.02	631.35
MW-5A[a]	655.55	25.75	629.80
MW-6[a]	635.71	7.50	628.21
MW-7	656.03	20.50	635.53
MW-9	701.77	7.85	693.92
MW-10	678.37	23.63	654.74
Piezometers			
P13-14A	665.96	21.20	644.76
P88-2A	663.96	NM*	--
P88-2B	663.48	NM*	--
P88-3A	656.20	11.00	645.20
P88-3B	655.98	14.55	641.43
P95-8A	722.07	20.65	701.42
P90-12A	640.79	3.96	636.83
P90-12B	640.73	2.68	638.05
P90-13A	645.19	NM*	--
P90-13B	643.63	NM*	--
GP-1P[b]	652.00	16.20	635.80
GP-2P[b]	658.61	15.12	643.49
GP-3P[b]	658.51	7.50	651.01
GP-4P[b]	662.01	9.25	652.76
GP-9P[b]	674.03	11.05	662.98
GP-16[b]	689.51	19.00	670.51
South Creek			
SWSC-1	632.68	0.50	632.18
SWSC-2	629.98	6.15	623.83
Leak Detection System			
LDCS-1[a]	657.26	25.75	631.51
LDCS-2A[a]	659.24	28.56	630.68
LDCS-2B[a]	661.70	27.20	634.50

Notes:

NM= not measured

-- = not applicable

Measurements taken on 3/9/2021 unless otherwise noted

a = measurements taken on 3/8/2021

b = Gas probe measurements taken on 3/8/2021

* = Water level wells W88-7A, P88-2A, P88-2B, P90-13A, and P90-13B cannot be located

Table 2. Field Parameters
First Quarter 2021
LRI Landfill, Pierce County, Washington

Location	Sample Number	Sample Date	Sampling Method	pH	Conductivity	Temperature
Units				(SU)	(µS/cm)	(°C)
WAC 173-200 Criteria				6.5-8.5	700[b]	—
Monitoring Wells						
MW-1A	304-030821-01	3/8/2021	DP	7.27	177	13.0
MW-2A	304-030821-03	3/8/2021	DP	7.33	240	12.7
MW-3	304-030821-05	3/8/2021	DP	7.08	427	9.9
MW-4	304-030921-14	3/9/2021	SP	7.39	338	12.7
MW-5A	304-030821-07	3/8/2021	DP	7.54	406	12.1
MW-6	304-030821-11	3/8/2021	DP	7.45	325	10.4
MW-7	304-030921-15	3/9/2021	DP	7.31	367	10.5
MW-9	304-030921-13	3/9/2021	DP	6.82	130	9.9
MW-10	304-030921-17	3/9/2021	DP	7.02	255	11.1
Leak Detection System						
LDCS-1	304-030821-10	3/8/2021	DB	5.99	428	22.1
LDCS-2A	304-030821-08	3/8/2021	DB	6.44	869	21.2
LDCS-2B	304-030821-06	3/8/2021	DB	6.16	757	20.4
LDCS-3A	304-030821-04	3/8/2021	DP	6.22	900	20.2
LDCS-4A^ (1/5/21)	304-010521-01	1/5/2021	DP	6.49	1420	15.2
LDCS-4A^ (1/15/21)	304-011521-01	1/15/2021	DP	5.95	610	18.1
LDCS-4A^ (1/21/21)	304-012121-01	1/21/2021	DP	6.06	687	17.5
LDCS-4A^ (1/28/21)	304-012821-01	1/28/2021	DP	6.21	806	16.4
LDCS-4A	304-030821-12	3/8/2021	DP	6.17	769	20.5
LDCS-4B	304-030921-16	3/9/2021	DP	6.20	824	27.9
LDCS-5	304-030921-22	3/9/2021	DP	6.36	898	20.4
LDCS-6	304-030921-18	3/9/2021	DP	6.65	879	14.8
LDCS-7	304-030821-02	3/8/2021	DP	6.04	1,076	15.9
LDCS-8A	304-030921-19	3/9/2021	PP	7.11	1,323	14.3
Leachate Collection System						
Leachate, Cell 8A	304-030921-21	3/9/2021	PP	6.70	10,622	13.0

Notes:

Groundwater (monitoring well) concentrations greater than the WAC 173-200 criteria are shown in **bold**

b = Secondary Drinking Water Standard

°C = degrees celcius

DB = disposable bailer

DP = dedicated pump

GB = grab sample

PP = peristaltic pump

SP = submersible pump

SU = standard units

µS/cm = microsiemens per centimeter

^ = Additional samples collected from LDCS-4A serve as confirmation water quality data

Table 3. Inorganic Parameters
First Quarter 2021
LRI Landfill, Pierce County, Washington

Parameter	Alkalinity, Total	Ammonia	Chloride	Nitrate	Sulfate	Total Dissolved Solids	Total Organic Carbon	Total Suspended Solids
MRL	10	0.10	0.2-1.2	0.50	0.2-1.0	10	1.0	4.0
WAC 173-200 Criteria	—	—	250	10	250	500	—	—
Prediction Limit	—	—	—	6.4	—	—	—	—
Monitoring Wells								
MW-1A	98	*	1.8	*	2.7	140	*	*
MW-2A	120	*	2.7	*	5.8	150	*	*
MW-3	200	0.12	3.3	*	26	260	1.2	*
MW-4	170	0.15	3.1	*	11	220	*	*
MW-5A	190	0.14	3.4	*	20	230	1.0	*
MW-6	160	0.11	4.9	*	6.8	200	*	*
MW-7	200	0.19	2.9	*	2.9	*	*	*
(BG) MW-9	68	*	1.4	*	1.4	130	*	*
(BG) MW-10	110	*	6.9	3.2	6.1	210	*	12
Leak Detection System								
LDCS-1	200	0.10	4.4	*	5.3	240	3.7	—
LDCS-2A	430	*	4.8	*	27	490	2.8	—
LDCS-2B	340	0.12	7.1	*	49	460	3.8	—
LDCS-3A	410	*	4.4	*	61	530	2.7	—
LDCS-4A^ (1/5/21)	510	36	120	0.24	36	640	—	—
LDCS-4A^ (1/15/21)	240	6.5	19	2.2 H	38	280	9.9	—
LDCS-4A^ (1/21/21)	300	7.0	18	2.0	49	400	6.0	—
LDCS-4A^ (1/28/21)	280	4.7	27	1.4	49	400	4.8	—
LDCS-4A	320	1.20	22	0.63	47	440	4.3	—
LDCS-4B	340	0.32	29	*	49	490	2.2	—
LDCS-5	390	1.2	32	*	46	540	4.1	—
LDCS-6	420	*	4.5	*	45	610	2.1	—
LDCS-7	530	0.11	18	*	36	620	3.6	—
LDCS-8A	630	*	26	*	100	830	8.8	—
Leachate Collection System								
Leachate, Cell 8A	3,500	380	870	*	450	11,000	5,800	—

Notes:

All sample units are milligrams per liter (mg/L)

Groundwater (monitoring well) concentrations greater than prediction limits or WAC 173-200 criteria are shown in **bold**

Analyses performed by Eurofins TestAmerica of Denver, Colorado and Tacoma, Washington

Method Reporting Limit (MRL) is typical and may be elevated for some samples

^ = Additional samples collected from LDCS-4A serve as confirmation water quality data

* = Sample result was not reported at or above the MRL

— = Not applicable or not performed

BG = Background

H = Sample was prepped or analyzed beyond the specified holding time

Table 4. WAC 173-351 Appendix I Metals
First Quarter 2021
LRI Landfill, Pierce County, Washington

Parameter	Antimony-D	Antimony-T	Arsenic-D	Arsenic-T	Barium-D	Barium-T	Beryllium-D	Beryllium-T	Cadmium-D	Cadmium-T	Chromium-D	Chromium-T	Cobalt-D	Cobalt-T	Copper-D	Copper-T	Lead-D	Lead-T	Nickel-D	Nickel-T	Selenium-D	Selenium-T	Silver-D	Silver-T	Thallium-D	Thallium-T	Vanadium-D	Vanadium-T	Zinc-D	Zinc-T
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL	0.05	0.05	0.005	0.005	0.005	0.005	0.001	0.001	0.001	0.001	0.005	0.005	0.001	0.001	0.01	0.01	0.002	0.002	0.02	0.02	0.005	0.005	0.005	0.005	0.005	0.005	0.005-0.02	0.005	0.01	0.01
WAC 173-200 Criteria	—	—	—	0.00005	—	1.0	—	—	—	0.01	—	0.05	—	—	—	1.0	—	0.05	—	—	—	0.01	—	0.05	—	—	—	—	—	5.0
Prediction Limit	—	0.05	—	0.011	—	0.091	—	0.005	—	0.005	—	0.011	—	0.01	—	0.063	—	0.042	—	0.020	—	0.005	—	0.01	—	0.005	—	0.016	—	0.290
Monitoring Wells																														
MW-1A	—	*	—	*	—	0.019	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
MW-2A	—	*	—	*	—	0.012	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
MW-3	—	*	—	*	—	0.016	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
MW-4	—	*	—	**0.0098**	—	0.016	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	0.014
MW-5A	—	*	—	**0.0058**	—	0.014	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
MW-6	—	*	—	**0.0074**	—	0.021	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
MW-7	—	*	—	**0.0053**	—	0.016	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
(BG) MW-9	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	0.015	—	*
(BG) MW-10	—	*	—	*	—	0.015	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
Leak Detection System																														
LDCS-1	*	—	0.0096	—	0.020	—	—	—	—	—	*	—	0.0011	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-2A	*	—	0.0050	—	0.017	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-2B	*	—	0.0130	—	0.029	—	—	—	—	—	*	—	0.0043	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-3A	*	—	0.0083	—	0.021	—	—	—	—	—	*	—	0.0053	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-4A^ (1/5/21)	0.00088 J	—	0.0130	—	0.051	—	—	—	—	—	0.016	—	0.0061	—	0.018	—	0.00069 J	—	0.025	—	—	—	—	—	—	—	0.01 J	—	0.0098 J	—
LDCS-4A^ (1/15/21)	0.00044 J	—	0.0032	—	0.029	—	—	—	—	—	0.0032	—	0.0024	—	0.010	—	*	—	0.0073	—	—	—	—	—	—	—	0.0024 J	—	0.0032 J	—
LDCS-4A^ (1/21/21)	*	—	*	—	0.028	—	—	—	—	—	*	—	0.0025	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-4A^ (1/28/21)	*	—	*	—	0.026	—	—	—	—	—	*	—	0.0022	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-4A	*	—	*	—	0.024	—	—	—	—	—	*	—	0.0022	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-4B	*	—	0.0160	—	0.029	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	*	—	*	—
LDCS-5	*	—	0.0097	—	0.056	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—
LDCS-6	*	—	0.0072	—	0.018	—	*	—	*	—	*	—	0.0018	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—
LDCS-7	*	—	*	—	0.036	—	*	—	*	—	*	—	0.0035	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—
LDCS-8A	*	—	*	—	0.051	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—
Leachate Collection System																														
Leachate, Cell 8A	—	*	—	0.028	—	0.83	—	*	—	*	—	0.11	—	0.23	—	0.038	—	0.015	—	0.49	—	*	—	*	—	*	—	0.055	—	4.7

Notes:

All sample units are milligrams per liter (mg/L)

WAC 173-200-040 Table 1 Groundwater Quality Criteria are for total metals

Groundwater (monitoring well) concentrations greater than prediction limits or WAC 173-200 criteria are shown in **bold**

Parameter concentrations for monitoring wells are total (T) metals

Parameter concentrations for LDCS sumps are dissolved (D) metals

Parameter concentrations for leachate samples are total (T) metals

Analyses performed by Eurofins TestAmerica of Denver, Colorado and Tacoma, Washington

Method Reporting Limit (MRL) is typical and may be elevated for some samples

^ = Additional samples collected from LDCS-4A serve as confirmation water quality data

* = sample result was not reported at or above the MRL

— = not applicable or not performed

BG = Background

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 5. WAC 173-351 Appendix II Metals (Dissolved)
First Quarter 2021
LRI Landfill, Pierce County, Washington

Parameter	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MRL	0.20	0.10	0.10	0.005	2.0	1.0
WAC 173-200 Criteria	—	0.30	—	0.050	—	—
Monitoring Wells						
MW-1A	15	**1.5**	9.6	**0.24**	3.6	11
MW-2A	20	**0.49**	11	**0.28**	2.8	14
MW-3	45	*	20	**0.42**	4.2	15
MW-4	32	*	17	**0.23**	5.5	12
MW-5A	30	*	12	**0.19**	4.4	43
MW-6	34	*	15	**0.18**	4.8	10
MW-7	33	0.19	21	**0.25**	5.3	12
(BG) MW-9	10	*	6.5	*	2.0	7.2
(BG) MW-10	25	*	10	*	2.1	12
Leak Detection System						
LDCS-1	43	2.5	18	1.7	5.0	18
LDCS-2A	97	*	37	0.40	9.0	29
LDCS-2B	85	1.5	33	2.3	7.4	20
LDCS-3A	100	0.37	42	7.1	6.3	24
LDCS-4A^ (1/5/21)	61	0.71	27	0.84	26	130
LDCS-4A^ (1/15/21)	54	*	26	0.59	8.7	32
LDCS-4A^ (1/21/21)	65	*	26	0.75	9.8	29
LDCS-4A^ (1/28/21)	65	*	27	0.78	9.2	28
LDCS-4A	76	0.54	42	1.2	6.8	22
LDCS-4B	93	3.1	39	1.1	6.0	21
LDCS-5	85	0.75	52	1.9	8.6	25
LDCS-6	120	0.20	41	1.5	3.9	25
LDCS-7	140	0.24	44	2.4	3.6	36
LDCS-8A	140	*	79	0.90	5.5	48
Leachate Collection System**						
Leachate, Cell 8A	1200	130	250	29	310	830

Notes:

All sample units are milligrams per liter (mg/L)

WAC 173-200-040 Table 1 Groundwater Quality Criteria are for total metals

Groundwater (monitoring well) concentrations greater than WAC 173-200 criteria are shown in **bold**

Analyses performed by Eurofins TestAmerica of Denver, Colorado and Tacoma, Washington

Method Reporting Limit (MRL) is typical and may be elevated for some samples

^ = Additional samples collected from LDCS-4A serve as confirmation water quality data

* = sample result was not reported at or above the MRL

** = Reported concentrations for leachate are total metals

— = not applicable or not performed

BG = Background

Table 6. Volatile Organic Compounds (µg/L)
First Quarter 2021
LRI Landfill, Pierce County, Washington

Parameter	1,1-Dichloroethane	1,2-Dichloroethane	1,4-Dichlorobenzene	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Ethylbenzene	Methylene Chloride	m-Xylene & p-Xylene	o-Xylene	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MRL	0.50	0.50	0.50	6.00	5.00	10	0.5	0.5-0.84	0.50	1.00	2.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50
WAC 173-200 Criteria	1.0	0.50	4.0	—	—	—	1.0	—	—	—	5.0	—	—	—	0.8	—	3.0	—
Monitoring Wells																		
MW-1A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-2A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-5A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW-7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
(BG) MW-9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
(BG) MW-10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Leak Detection System																		
LDCS-1	*	*	0.73	*	*	*	0.60	*	*	*	*	*	*	*	*	*	*	*
LDCS-2A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-2B	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4A^ (1/5/21)	*	*	*	*	*	3.5 J	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4A^ (1/15/21)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4A^ (1/21/21)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4A^ (1/28/21)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-4B	*	*	*	6.9	*	12	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LDCS-7	*	*	*	*	*	*	*	9.5	*	*	*	*	*	*	*	*	*	*
LDCS-8A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Leachate Collection System																		
Leachate, Cell 8A	11	61	*	6,000	200	4,400	12	11	15	21	380	68	33	13	11	210	5.0	8.7
Quality Control Samples																		
Field Blank	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes:
All sample units are milligrams per liter (µg/L)
Analyses performed by Eurofins TestAmerica of Denver, Colorado and Tacoma, Washingtor
Groundwater (monitoring well) concentrations greater than WAC 173-200 criteria are shown ir**bold**
Method Reporting Limit (MRL) is typical and may be elevated for some sample
^ = Additional samples collected from LDCS-4A serve as confirmation water quality datc
* = sample result was not reported at or above the MRL
— = not applicable or not performed
BG = Background
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value

Table 7. Cation-Anion Balance
First Quarter 2021
LRI 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-1A	15	9.6	3.6	11	39.2	0.75	0.79	0.08	0.48	2.10	27	36	38
MW-2A	20	11	2.8	14	47.8	1.00	0.91	0.06	0.61	2.58	26	39	35
MW-3	45	20	4.2	15	84.2	2.25	1.65	0.09	0.65	4.64	16	48	35
MW-4	32	17	5.5	12	66.5	1.60	1.40	0.12	0.52	3.64	18	44	38
MW-5A	30	12	4.4	43	89.4	1.50	0.99	0.10	1.87	4.45	44	34	22
MW-6	34	15	4.8	10	63.8	1.70	1.23	0.11	0.44	3.47	16	49	36
MW-7	33	21	5.3	12	71.3	1.65	1.73	0.12	0.52	4.02	16	41	43
MW-9	10.0	6.5	2.0	7.2	25.7	0.50	0.53	0.05	0.31	1.39	26	36	38
MW-10	25	10	2.1	12	49.1	1.25	0.82	0.05	0.52	2.64	22	47	31
LDCS-1	43	18	5.0	18	84	2.15	1.48	0.11	0.78	4.52	20	47	33
LDCS-2A	97	37	9.0	29	172.0	4.84	3.05	0.20	1.26	9.35	16	52	33
LDCS-2B	85	33	7.4	20	145.4	4.24	2.72	0.17	0.87	7.99	13	53	34
LDCS-3A	100	42	6.3	24	172.3	4.99	3.46	0.14	1.04	9.63	12	52	36
LDCS-4A^ (1/5/21)	61	27	26	130	244	3.04	2.22	0.59	5.66	11.51	54	26	19
LDCS-4A^ (1/15/21)	54	26	8.7	32	120.7	2.69	2.14	0.20	1.39	6.42	25	42	33
LDCS-4A^ (1/21/21)	65	26	9.8	29	129.8	3.24	2.14	0.22	1.26	6.87	22	47	31
LDCS-4A^ (1/28/21)	65	27	9.2	28	129.2	3.24	2.22	0.21	1.22	6.89	21	47	32
LDCS-4A	76	42	6.8	22	146.8	3.79	3.46	0.15	0.96	8.36	13	45	41
LDCS-4B	93	39	6.0	21	159.0	4.64	3.21	0.14	0.91	8.90	12	52	36
LDCS-5	85	52	8.6	25	170.6	4.24	4.28	0.19	1.09	9.80	13	43	44
LDCS-6	120	41	3.9	25	189.9	5.99	3.37	0.09	1.09	10.54	11	57	32
LDCS-7	140	44	3.6	36	223.6	6.99	3.62	0.08	1.57	12.25	13	57	30
LDCS-8A	140	79	5.5	48	272.5	6.99	6.50	0.12	2.09	15.70	14	44	41
Leachate, Cell 8A	1200	250	310	830	2,590	59.88	20.58	7.00	36.11	123.56	35	48	17

Anions	mg/L					meq/L					% of Total			Total Ions	Cation - Anion	Applicable	Ratio
	Alk	Cl	NO_3	SO_4	Total	Alk	Cl	NO_3	SO_4	Total	Cl	Alk	SO_4	(meq/L)	Balance	Ratio (%)	Exceedance
MW-1A	117.6	1.8	0.5	2.7	122.6	1.93	0.05	0.008	0.06	2.04	2	94	3	4.14	1.3	10	O
MW-2A	144	2.7	0.5	5.8	153	2.36	0.08	0.008	0.12	2.57	3	92	5	5.14	0.2	5	O
MW-3	240	3.3	0.5	26	269.8	3.94	0.09	0.008	0.54	4.58	2	86	12	9.22	0.7	5	O
MW-4	204	3.1	0.5	11	218.6	3.35	0.09	0.008	0.23	3.67	2	91	6	7.31	0.4	5	O
MW-5A	228	3.4	0.5	20	251.9	3.74	0.10	0.008	0.42	4.26	2	88	10	8.71	2.2	5	O
MW-6	192	4.9	0.5	6.8	204.2	3.15	0.14	0.008	0.14	3.44	4	92	4	6.91	0.6	5	O
MW-7	240	2.9	0.5	2.9	246.3	3.94	0.08	0.008	0.06	4.09	2	96	1	8.10	0.9	5	O
MW-9	81.6	1.4	0.5	1.4	84.9	1.34	0.04	0.008	0.03	1.41	3	95	2	2.81	0.8	10	O
MW-10	132	6.9	3.2	6.1	148.2	2.16	0.19	0.052	0.13	2.54	8	85	5	5.18	2.0	5	O
LDCS-1	240	4.4	0.5	5.3	250.2	3.94	0.12	0.008	0.11	4.18	3	94	3	8.70	4.0	5	O
LDCS-2A	516	4.8	0.5	27	548.3	8.46	0.14	0.008	0.56	9.17	1	92	6	18.52	1.0	5	O
LDCS-2B	408	7.1	0.5	49	464.6	6.69	0.20	0.008	1.02	7.92	3	84	13	15.91	0.5	5	O
LDCS-3A	492	4.4	0.5	61	557.9	8.07	0.12	0.008	1.27	9.47	1	85	13	19.10	0.9	5	O
LDCS-4A^ (1/5/21)	612	120	0.24	36	768	10.04	3.38	0.004	0.75	14.17	24	71	5	25.68	10.4	5	Exceeds
LDCS-4A^ (1/15/21)	288	19	2.2	38	347	4.72	0.54	0.035	0.79	6.08	9	78	13	12.51	2.7	5	O
LDCS-4A^ (1/21/21)	360	18	2.0	49	429	5.90	0.51	0.032	1.02	7.46	7	79	14	14.33	4.2	5	O
LDCS-4A^ (1/28/21)	336	27	1.4	49	413.4	5.51	0.76	0.023	1.02	7.31	10	75	14	14.20	3.0	5	O
LDCS-4A	384	22	0.63	47	454	6.30	0.62	0.010	0.98	7.91	8	80	12	16.27	2.8	5	O
LDCS-4B	408	29	0.5	49	487	6.69	0.82	0.008	1.02	8.54	10	78	12	17.44	2.1	5	O
LDCS-5	468	32	0.5	46	547	7.68	0.90	0.008	0.96	9.54	9	80	10	19.35	1.3	5	O
LDCS-6	504	4.5	0.5	45	554	8.27	0.13	0.008	0.94	9.34	1	89	10	19.87	6.0	5	Exceeds
LDCS-7	636	18	0.5	36	691	10.43	0.51	0.008	0.75	11.69	4	89	6	23.95	2.3	5	O
LDCS-8A	756	26	0.5	100	883	12.40	0.73	0.008	2.08	15.22	5	81	14	30.92	1.6	5	O
Leachate, Cell 8A	4,200	870	0.50	450	5,521	68.88	24.53	0.008	9.36	102.78	24	67	9	226.34	9.2	5	Exceeds

Notes:
mg/L = milligrams per liter
meq/L = milliequivalents per liter
Total alkalinity concentration, reported as calcium carbonate ($CaCO_3$), is converted to the bicarbonate (HCO_3^-) 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
^ = Additional samples collected from LDCS-4A serve as confirmation water quality data
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 8. Duplicate Sample Results
First Quarter 2021 Monitoring Report
LRI Landfill, Pierce County, Washington

Parameter	MRL	MW-5A	MW-5A (Duplicate)	RPD (%)
Volatile Organic Compunds (µg/L)				
No Detections	-	-	-	-
Inorganic Parameters (mg/L)				
Alkalinity	10	190	190	0.0
Ammonia	0.1	0.14	0.14	0.0
Chloride	0.2	3.4	3.4	0.0
Sulfate	0.2	20	20	0.0
Total Dissolved Solids	10	230	250	8.3
Total Organic Carbon	1.0	1.0	1.0	0.0
Dissolved Metals (mg/L)				
Calcium	0.2	30	29	3.4
Magnesium	0.1	12	12	0.0
Manganese	0.005	0.19	0.19	0.0
Potassium	2.0	4.4	4.3	2.3
Sodium	1.0	43	41	4.8
Total Metals (mg/L)				
Arsenic	0.005	0.0058	0.0060	3.4
Barium	0.005	0.014	0.015	6.9

Notes:
Analyses performed by Eurofins TestAmerica of Denver, Colorado and Tacoma, Washington
Parameters not listed were not present at concentrations exceeding the Method Reporting Limit (MRL)
RPD = relative percent difference
µg/L = micrograms per liter
mg/L = milligrams per liter

Attachment C

Field Sampling Documentation

March 10, 2021
File No. 04221001.02

Subject: **First Quarter 2021 Groundwater Monitoring Event**
LRI Landfill, Pierce County, Washington

NOTES/SAMPLE DECODING:

Event Dates: March 8 & 9, 2021
Field Staff: Sam Graber & Andres Lopez

- This event served as a quarterly monitoring event.
- Dedicated pumps were used for purging and sampling wells MW-1A, MW-2A, MW-3, MW-5A, MW-6, MW-7, MW-9, MW-10, and leak detection/collection system points LDCS-3A, LDCS-4A, LDCS-4B, LDCS-5, LDCS-6, and LDCS-7.
- Disposable bailers were used to sample leak detection/collection system points LDCS-1, LDCS-2A, and LDCS-2B.
- Additional samples were collected from LDCS-4A in January 2021. The samples served as confirmation samples due to the results reported at LDCS-4A during December of 2020.
- The sampling pump at LDCS-5 was redeployed on March 3, 2021, prior to the monitoring event. The pump was used to collect the first quarter sample.
- A non-dedicated Sample Pro pump was used for purging and sampling well MW-4.
- A round of water level measurements was completed on March 9, 2021.
- Multiparameter field meters were calibrated daily, prior to sampling.
- Source water for the field blank was lab-grade deionized water (VOC-free) provided by TestAmerica in Tacoma, Washington.

Sample Number	Well Number
304-030821-01	MW-1A
304-030821-02	LDCS-7
304-030821-03	MW-2A
304-030821-04	LDCS-3A
304-030821-05	MW-3
304-030821-06	LDCS-2B
304-030821-07	MW-5A
304-030821-08	LDCS-2A
304-030821-09	MW-5A (Duplicate)
304-030821-10	LDCS-1

304-030821-11	MW-6
304-030821-12	LDCS-4A
304-030921-13	MW-9
304-030921-14	MW-4
304-030921-15	MW-7
304-030921-16	LDCS-4B
304-030921-17	MW-10
304-030921-18	LDCS-6
304-030921-19	LDCS-8A
304-030921-20	Field Blank
304-030921-21	Leachate, Cell 8A
304-030921-22	LDCS-5

Additional Samples

Sample Number	Well Number
304-010521-01	LDCS-4A^
304-011521-01	LDCS-4A^
304-012121-01	LDCS-4A^
304-012821-01	LDCS-4A^

Notes:
^ = Additional sample collected as confirmation sample

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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-2A
Sample ID: 304-0308 20- 02
Date: 3/ 8 /21
Weather: Sunny

17.15' DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 40-30
Flow 100 mL/min

1 ft water = 0.62L 1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1015	18.85'	13.41	182	4.87	7.05	25.5	10.4	
1020		12.98	62	2.14	6.95	21.0		
1023		13.09	63	1.02	6.97	21.0		
1026		13.07	133	0.65	7.09	7.4		
1029	21.75'	13.05	165	0.44	7.19	-25.5	4.48	
1032		13.03	171	0.42	7.24	-33.7		
1035	22.25'	13.01	177	0.38	7.27	-44.5	1.88	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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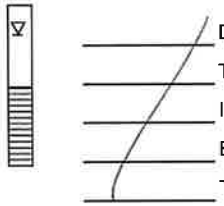
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDES-7
Sample ID: 304-0308 20-02
Date: 3/8/21
Weather: sunny



Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 11.5
Discharge 3.5
Pressure 40
Flow 150 mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

SPC panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1020		10.0	1061	0.50	6.33	224.9	2.65	
1025		12.3	1074	0.21	6.53	215.0	3.20	
1028		13.2	1079	0.19	6.57	206.1	3.40	
1031		13.9	1080	0.18	6.60	201.2		
1034		15.0	1081	0.18	6.62	196.7	3.59	
1037		15.3	1078	0.12	6.26	82.3	3.52	
1040		15.9	1078	0.08	6.07	51.9	3.51	
1043		15.9	1075	0.09	6.05	62.8	2.59	
1046		15.9	1076	0.10	6.04	71.9	2.31	769
1050		Sample time.						

Notes / Observations (color, odor, anomalies, etc):

level at 11.3, water right away.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-2A
Sample ID: 304-0308 20-03
Date: 3/8/21
Weather: Sunny

17.13' DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 40-30
Flow 400 mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1113	18.07'	13.17	261	0.30	7.21	-18.1	11.3	
1118		12.79	243	0.25	7.18	-14.8		
1121		12.76	241	0.35	7.25	-26.7		
1124		12.75	240	0.20	7.29	-34.4		
1127	18.52'	12.73	240	0.14	7.31	-39.4	3.96	
1130		12.75	241	0.14	7.32	-42.0		
1133	18.52'	12.74	240	0.12	7.33	-43.1	2.00	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS-3
Sample ID: 304-03 08 20- 04
Date: 3/ 8 /21
Weather: cloudy

DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 (YSI)

CONTROL SETTINGS:

Refill: 12
Discharge: 3
Pressure: 40
Flow: 150 mL/min

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters):
Total Volume Bailed (liters):
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

SpC panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q Vol.
1155		14.0	882	1.55	6.38	117.4	2.37	748
1200		17.5	884	0.11	6.29	125.5	10.27	
1203		18.7	891	0.09	6.25	101.8		
1206		19.8	897	0.07	6.22	56.0	4.18	
1209		20.0	898	0.06	6.22	43.7	3.81	
1212		20.1	899	0.06	6.22	32.0	3.41	751
1215		20.2	900	0.05	6.22	27.1	3.50	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-3
Sample ID: 304-0308 20-05
Date: 3/8/21
Weather: MOSHY Sunny

5.85' DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated / 1.75" QED SamplePro / Bail / Peristaltic / Grab / Other

Meter: MP-20 / YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 30
Flow 200 ml/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly
500 ml HNO3 x2
125 ml NaOH
500 ml Poly
500 ml H2SO4 x2
250 ml Poly
40 ml VOA x3 x6
125 ml Poly
1000 ml Amber

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1217	6.20'	9.38	357	0.17	7.28	-4.9	2.16	
1222		10.09	361	0.11	6.85	19.4		
1225		10.12	364	0.10	6.81	27.4		
1228		10.10	367	0.10	6.79	29.6		
1231		9.96	375	0.09	6.80	27.3		
1234	5.95'	9.11	402	0.10	6.80	21.4	1.45	
1237	6.15'	9.63	414	0.26	6.88	19.4	1.73	
1240		9.79	423	0.13	7.00	12.3		
~~1243~~								
1243	6.25'	9.85	427	0.09	7.08	5.5	1.60	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS-2B
Sample ID: 304-03 08 20-06
Date: 3/ 8 /21
Weather: Cloudy

27.20 DTW
TOS
Intake
BOS
Total Depth

Sampling Method : Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other :
Flow Setting :

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

spc panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q Vol.
1315		20.4	757	1.23	6.16	28.3	8.99	714

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-5A
Sample ID: 304-030820-07
Date: 3/8/21
Weather: Mostly Sunny

25.75' DTW
___ TOS
___ Intake
___ BOS
___ Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure ~~40~~ 35
Flow 250 mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1332	26.35'	11.85	306	0.04	7.18	-23.6	53.2	
1337		11.92	413	0.05	7.37	-30.8		
1340		12.08	415	0.06	7.50	-45.0		
1343		12.08	413	0.06	7.53	-52.7		
1346	27.05'	12.08	410	0.06	7.54	-56.3	9.61	
1349		12.06	408	0.10	7.55	-56.4		
1352	27.10'	12.08	407	0.06	7.57	-58.0	5.83	
1355	27.10'	12.08	406	0.08	7.54	-55.8	6.18	

Notes / Observations (color, odor, anomalies, etc):

304-030821-09 1420
DUP taken @ MW-5A

No flow if pressure <35

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS - 2A
Sample ID: 304-03 08 20- 08
Date: 3/ 8 /21
Weather: cloudy

28.56 DTW
TOS
Intake
BOS
Total Depth

Sampling Method : Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 YSI
CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other :
Flow Setting :

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

Spc pump

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	~~Q~~/Vol.
1345		21.2	869	2.22	6.44	77.7	2.76	789

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Gruber
Printed Name

Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS-1
Sample ID: 304-0308 20-10
Date: 3/8/21
Weather: Cloudy

25.75 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 YSI
CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

SpC pump

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1430		22.1	428	2.21	5.99	50.7	8.52	336

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-6
Sample ID: 304-0308 20- 11
Date: 3/ 8 /21
Weather: Cloudy

7.50' DTW
/ TOS
/ Intake
/ BOS
Total Depth

Sampling Method: Dedicated / 1.75" QED SamplePro / Bail / Peristaltic / Grab / Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 25-30
Flow

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? (Y) N
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1452	8.10'	10.35	341	0.08	6.95	-28.8	4.42	
1457		10.37	330	0.07	7.34	-22.3		
1500		10.40	327	0.06	7.41	-27.6		
1503		10.36	326	0.07	7.41	-31.0	5.05	
1506	8.55'	10.43	326	0.06	7.43	-32.5	4.10	
1509		10.43	326	0.14	7.45	-30.4		
1512	8.65'	10.43	325	0.08	7.45	-29.3	2.51	

Notes / Observations (color, odor, anomalies, etc):

little to no flow @ ≤25 pressure
Put new lock on MW-6
visibly turbid

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: GDCS-4A
Sample ID: 304-0308 20-12
Date: 3/08/21
Weather: Cloudy

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
1 ft water = 0.62L
1L = 0.26 gallons

Refill 16.5
Discharge 3.5
Pressure 35
Flow 250 mL/min

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y (N)
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

spc panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1450		13.9	688	2.27	6.36	63.7	3.74	
1455		18.7	733	0.31	6.17	56.7	21.22	
1458		19.5	746	0.18	6.16	69.8	12.69	
1501		20.1	751	0.09	6.16	78.8	6.59	
1504		20.4	760	0.08	6.16	79.7	4.63	
1507		20.5	765	0.07	6.17	77.9	5.12	
1510		20.5	769	0.06	6.17	76.5	5.66	1499

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-9
Sample ID: 304-0309 20-13
Date: 3/9/21
Weather: Mostly Sunny

7.85' DTW
TOS
Intake
BOS
Total Depth

Sampling Method: (Dedicated) | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 40
Flow 200 mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
946	7.95'	9.25	131	0.02	6.63	41.8	2.10	
951		9.75	130	0.03	6.66	26.4		
954		9.79	131	0.05	6.75	23.3		
957		9.94	130	0.02	6.76	22.1		
1000	8.00'	9.92	130	0.04	6.79	21.0	1.37	
1003		9.88	130	0.03	6.81	18.3		
1006	8.00'	9.89	130	0.04	6.82	16.9	1.39	

Notes / Observations (color, odor, anomalies, etc):
DO was not calibrated

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-4
Sample ID: 304-03092020-141
Date: 3/9/21
Weather: Cloudy

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

21.02 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.26 gallons

Refill 4
Discharge 6
Pressure 50
Flow 250 mL/min

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N) *
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1000		begin purge						
		12.7	333	0.98	7.04	206.2	19.18	
1010		12.7	336	0.36	7.29	93.3	7.72	
1015		12.7	337	0.25	7.35	29.6	6.07	
1018		12.7	337	0.21	7.36	13.9	6.51	
1021		12.6	337	0.19	7.38	-2.0	6.78	
1024		12.7	338	0.17	7.39	-14.6	6.19	
1030		Sample time						

Notes / Observations (color, odor, anomalies, etc):

* Monument should be cleaned out.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-7
Sample ID: 304-03 09 20- 15
Date: 3/ 9 /21
Weather: Cloudy

20.50' DTW
/ TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 YSI

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.26 gallons
Refill 9
Discharge 6
Pressure 30
Flow 600 mL/min
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

Notes / Observations (color, odor, anomalies, etc):
Little to no flow if pressure 230

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1055	21.90'	9.49	342	0.35	7.02	-21.2	1.55	
1100		10.50	371	0.34	7.18	-15.1		
1103		10.52	370	0.32	7.29	-41.0		
1106		10.51	365	0.29	7.25	-42.8		
1109	24.50'	10.52	365	0.28	7.24	-46.1	2.15	
1112		10.52	366	0.28	7.30	-45.6		
1115	25.00'	10.52	367	0.32	7.31	-45.2	2.36	

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS-4B
Sample ID: 304-0309 20-16
Date: 3/9/21
Weather: Cloudy

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.26 gallons

Refill 11
Discharge 4
Pressure 45
Flow 250 mL/min

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
* Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	SpC panel Q / Vol.
1105	begun purge							
1120		23.9	807	0.48	6.21	34.8	4.80	611
1125		26.3	822	0.13	6.21	2.0	4.02	
1128		26.5	823	0.12	6.20	-1.9	3.91	
1131		26.8	823	0.11	6.20	-5.2	3.74	
1134		27.2	824	0.09	6.20	-10.5	3.96	
1137		27.3	824	0.07	6.20	-11.9	3.81	
1140		27.9	824	0.06	6.20	~~-12.6~~ -13.6	3.72	

Notes / Observations (color, odor, anomalies, etc):

* Leak at gas fitting.

12 minutes to set water.

LDCS level at 15 prior to sampling.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: MW-10
Sample ID: 304-03 0920-17
Date: 3/9/21
Weather: Sunny

23.63' DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 40
Flow 300mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
~~1227~~ 1227	24.60'	11.33	250	0.01	7.13	-1.7	4.42	
1232		11.27	258	0.02	6.76	-1.4		
1235		11.10	258	0.03	6.93	-6.7		
1238		11.06	255	0.03	7.01	-2.8		
1241		11.16	255	0.03	7.00	-3.4	8.70	
1244	27.49'	11.12	255	0.02	7.01	-5.0	8.98	
1247		11.12	255	0.08	7.04	-1.0	~~8.81~~	
1250	27.68'	11.13	255	0.04	7.02	0.8	8.36	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDCS-6
Sample ID: 304-0309 20-18
Date: 3/9/21
Weather: cloudy

DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 12
Discharge 3
Pressure 50
Flow 100 mL/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

SPC panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Vol.
1212		12.7	926	8.00	7.22	75.5	4.52	
1217		12.1	916	7.73	7.25	98.7	5.77	854
1220		12.5	904	7.41	7.15	103.6	5.61	
1223		12.7	899	7.18	7.08	110.3	5.55	
1226		13.1	891	6.98	6.97	117.5	5.54	955
1229		14.2	886	5.65	6.90	120.1		
1232		14.9	882	4.56	6.78	125.6		
1235		15.1	879	3.81	6.68	128.2	5.28	
1238		15.0	879	3.70	6.66	129.8		
1241		14.8	879	3.61	6.65	130.3	5.21	1053

Notes / Observations (color, odor, anomalies, etc):
water right away.
level at 23

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02 | Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Site: LRI 304th | DTW | Meter: | CONTROL SETTINGS: | 1 ft water = 0.62L | 1L = 0.26 gallons

Well ID: LDCS-8 | TOS | MP-20 | Refill | One Well Volume (liters) | Other:

Sample ID: 304-03 09 20-19 | Intake | YSI | Discharge | Flow Setting:

Date: 3/9/21 | BOS | Pressure | Total Volume Bailed (liters)

Weather: ~~Mostly~~ Sunny | Total Depth | Flow

Filtered? (Y) N | Locked? Y (N) | Water in Protector? Y N (N/A) | Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
~~1417~~		~~13.06~~	~~1309~~	~~0.05~~	~~7.05~~	~~204~~	~~2.36~~	
~~1422~~								
~~1425~~								
~~1428~~								
~~1431~~								
~~1434~~								
~~1437~~								
1422		14.29	1323	0.03	7.11	2.8	2.18	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: Field blank
Sample ID: 304-0309 20-20
Date: 3/9/21
Weather: sunny

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | (Other)

Meter: MP-20 (YSI)

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y N (NA)
Water in Protector? Y N (NA)
Damage? Y N (NA)

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1300		20.1	2	7.02	7.26	89.1	0.11	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Gruber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Sampling Method :	Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other

Project #: 04221001.02
Site: LRI 304th
Well ID: Leachate Cell 8
Sample ID: 304-03 09 20-21
Date: 3/ 9 /21
Weather: ~~Mostly~~ Sunny

DTW
TOS
Intake
BOS
Total Depth

Meter: MP-20 YSI

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.26 gallons

Refill
Discharge
Pressure
Flow

One Well Volume (liters)
Total Volume Bailed (liters)
Other :
Flow Setting :

Filtered? Y (N)
Locked? Y (N)
Water in Protector? Y N (N/A)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1505		13.01	10,622	0.03	6.70	-20.5	4.79	

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04221001.02
Site: LRI 304th
Well ID: LDC5-5
Sample ID: 304-03 09 20- 22
Date: 3/ 9 /21
Weather: cloudy

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 (YSI)

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 11.5
Discharge 3.5
Pressure 40
Flow 150 mL/min

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

Spec panel

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / ~~Vol.~~
1330		begin purge.						
1340		15.7	863	2.96	6.41	164.7	7.67	
1410		19.3	900	0.12	6.39	401	27.6	1000
1415		19.6	900	0.11	6.37	40.4	27.41	
1418		19.9	900	0.10	6.37	40.8		
1421		20.0	899	0.09	6.37	41.0		
1424		20.2	898	0.09	6.37	41.3	27.14	
1427		20.5	898	0.09	6.36	40.8	27.25	
1430		20.4	898	0.09	6.36	40.6	27.24	1000

Notes / Observations (color, odor, anomalies, etc):

bring something to tie tubing.

level at 12.4, water right away.

extended purge performed.

First sample using re-deployed pump.

slightly yellow color to sample, no odor

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04220001.02
Site: LRI304
Well ID: LOCS-4A
Sample ID: 304-010521-01
Date: 1/5/20
Weather: raining

DTW: ____
TOS: ____
Intake: ____
BOS: ____
Total Depth: ____

Sampling Method: (Dedicated) | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 (YSI) new
CONTROL SETTINGS:
Refill: 12
Discharge: 3
Pressure: 40
Flow: 200 ml/min

1 ft water = 0.62L
1L = 0.26 gallons
One Well Volume (liters): ____
Total Volume Bailed (liters): ____
Other: ____
Flow Setting: ____

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	~~Q / Vol~~ (pump)
1254		11.7	893	0.42	6.38	246.7	2.71	
1259		12.8	915	0.38	6.38	242.6	2.30	
1302		13.2	920	0.52	6.35	239.7	2.53	
1305		13.5	925	0.64	6.32	228.4	2.81	893.1
1308		14.2	1231	0.40	6.33	58.7	37.1	
1311		14.8	1434	0.36	6.49	56.1	9.80	
1314		14.8	1391	0.40	6.50	71.5	6.14	911.2
1317		14.8	1420	0.31	6.48	73.7	5.79	
1320		14.8	1421	0.29	6.48	73.2	6.12	
1323		15.1	1420	0.25	6.48	71.7	5.49	
1326		15.2	1420	0.21	6.49	69.8	5.46	926.1

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

Notes / Observations (color, odor, anomalies, etc):

LOCS Level = 7.34 on Arrival

Conductivity split @ 1311
- Sample still appears clear
- LOCS level = 11.51

LOCS level @ sample = 11.12

Yellow tint @ sample

SAMPLER: Travis Bemdahl
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: ~~04220~~ 042210001.02
Site: LRI 304
Well ID: LDCS-4A
Sample ID: 304-011521-01
Date: 1/15/21
Weather: Sunny

Sampling Method: (Dedicated) | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.26 gallons

Refill 12
Discharge 3
Pressure 40
Flow 150mL/min

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly		500 ml Poly		250 ml Poly		125 ml Poly	
500 ml HNO3	x2	500 ml H2SO4	x2	40 ml VOA	x3 x6	1000 ml Amber	
125 ml NaOH							

Notes / Observations (color, odor, anomalies, etc):

LDCS @ 21.80' on arrival

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
			1447					
1530		12.1	~~1450~~ 1454	0.43	6.34	237.0	3.10	
1535		14.4	1454	0.21	6.35	234.0	2.33	
1538		15.6	1456	0.13	6.31	219.9	2.38	
1541		16.3	1465	0.07	6.27	67.1	2.82	
1544		16.6	1440	0.06	6.25	22.0	4.38	
1547		16.8	1108	0.05	6.12	13.7	4.34	
1550		17.1	872	0.05	6.01	28.8	3.03	
1553		17.7	~~755.7~~ 638	0.05	5.96	45.3	3.62	
1556		17.9	613 ~~615~~	0.04	6.12	53.8	2.68	
1559		18.1	610	0.04	5.95	53.8	2.99	

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: ~~04207033.13~~ 04221001.03
Site ~~CSWF~~ LRI 304
Well ID: LDCS-4A
Sample ID: ~~1020~~ 304-012121-01
Date: ~~10/~~ ~~/2020~~ 1/21/21
Weather: Cloudy

DTW
TOS
Intake
BOS
Total Depth

Sampling Method : Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 YSI
CONTROL SETTINGS:
Refill 12
Discharge 3
Pressure 40
Flow

1 ft water = 0.62L 1L = 0.26 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other :
Flow Setting :

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
913		9.7	580	1.42	5.92	248.9	2.69	
~~914~~ 918		14.4	596	0.18	5.93	234.3	2.46	
921		14.6	598	0.16	5.94	232.6	2.54	
924		15.3	603	0.14	5.95	228.0	2.48	
927		15.8	607	0.11	5.97	223.0	10.33	
930		16.2	622	0.09	6.00	212.3	12.80	
933		16.0	673	0.08	6.05	199.6	9.10	
936		17.2	684	0.07	6.05	193.6	5.35	
939		17.5	687	0.06	6.06	187.6	6.49	

Notes / Observations (color, odor, anomalies, etc):

Dissolved metals not filtered, to be filtered in lab

LDCS 4A @ 21.99 upon arrival

Turbidity measured @ 2.80 NTU from source

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04221001.
Site: LRI 304
Well ID: LDCS-4A
Sample ID: ~~S~~ 304-012821-01
Date: 1/28/21
Weather: Cloudy

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | ~~Grab~~ | Other

DTW
TOS
Intake
BOS
Total Depth

Meter: MP-20 YSI

CONTROL SETTINGS:
Refill 12
Discharge 3
Pressure 40
Flow 200 mL/min

1 ft water = 0.62L
1L = 0.26 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond. mS/cm	DO ~~%~~ mg/L	pH	Eh	Turbidity	Q / Vol.
820		7.5	0.771	1.64 0.4	5.83	240.8	2.16	
825		12.0	0.769	~~0.46~~	5.84	257.5		
828		13.2	~~0.33~~ 0.781	0.35	5.88	260.5		
831		14.1	0.788	0.26	5.93	261.5		
834		14.6	0.794	0.24	5.96	261.5	1.80	
837		15.0	0.798	0.21	5.99	260.5	3.82	
840		15.4	0.804	0.18	6.06	257.4		
843		15.9	~~0.17~~ 0.803	0.17	6.11	254.4		
846		16.3	0.804	0.15	6.17	251.0		
849		16.4	0.806	0.15	6.21	248.8	~~3.~~ 2.69	

Notes / Observations (color, odor, anomalies, etc):

LDCS-4A @ 23.43 UPON ARRIVAL

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Andres Lopez
Printed Name

Signature

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/8/21					
Time	915					
Weather (sky or precip, temp)	Sunny					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, ≤0.1	
Pre-Cal Reading	1372	4.18	6.81			
Post Cal Reading	1413	4.01	7.00	8.5		
Descrepancy	No					
Calib. Successful?	Yes					
Calibration by	SEB					
Instrument Type, ID	MP20 / YSI 556 DDS				MicoTPW / HACH2000	
Calibration Location	South					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/8/21					
Time	915					
Weather (sky or precip, temp)	partly sunny					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1381	4.23	5.55			
Post Cal Reading	1413	4.01	7.00	8.5		
Descrepancy	~~No~~ only 1 point calibration + 7.00					
Calib. Successful?	yes					
Calibration by	SEB					
Instrument Type, ID	MP20 / YSI 556				MicoTPW / HACH2000	
Calibration Location	304th					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/9/21					
Time	800					
Weather (sky or precip, temp)	cloudy					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1440	4.10	7.05			
Post Cal Reading	1413	4.01	7.00	8.5		
Descrepancy	No					
Calib. Successful?	Yes					
Calibration by	SEG					
Instrument Type, ID	MP20 / YSI 556 (DO)				MicoTPW / HACH2000	
Calibration Location	South					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/9/21					
Time	822					
Weather (sky or precip, temp)	Mostly Sunny					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1437	—	7.16	—	—	Only 2-point pH cal.
Post Cal Reading	1413	—	7.06	—	—	DO not calibrated
Descrepancy	No					
Calib. Successful?	Yes					
Calibration by	AEL					
Instrument Type, ID	MP20 / YSI 556				MicroTPW / HACH2000	
Calibration Location	Bus stop behind Cell 7					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1-5-20					
Time	1238					
Weather (sky or precip, temp)	Rainy					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1470	3.94	6.88	98		
Post Cal Reading	1413	4.01	7.02	100		
Descrepancy	No					
Calib. Successful?	Yes					
Calibration by	TAB					
Instrument Type, ID	MP20 / YSI 556 New YSI				~~MicroTPW / HACH2000~~	
Calibration Location	LRL 304					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1/15/22					
Time	1445					
Weather (sky or precip, temp)	clear					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1458	4.12	7.19	8.11	—	
Post Cal Reading	1413	4.01	7.00	8.50	—	
Descrepancy	—					
Calib. Successful?	Yes					
Calibration by	AEL					
Instrument Type, ID	MP20 / YSI 556				MicoTPW / HACH2000	
Calibration Location	@ LDCS - 4A					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1/21/21					
Time	830					
Weather (sky or precip, temp)	Cloudy					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1432	3.92	6.98	8.63	—	
Post Cal Reading	1413	4.01	7.00	8.50	—	
Descrepancy	—					
Calib. Successful?	Yes					
Calibration by	AEL					
Instrument Type, ID	MP20 / YSI 556				MicoTPW / HACH2000	
Calibration Location	LRI 304					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1/28/21					
Time	745					
Weather (sky or precip, temp)	Cloudy					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	1413	4.00 ~~4.01~~	7.00	100% or ~8.5	1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	1.274	3.89	7.00	10.78	—	
Post Cal Reading	1.413	4.00	7.00	8.5	—	
Descrepancy	—					
Calib. Successful?	Yes					
Calibration by	AE2					
Instrument Type, ID	MP20 / YSI 556				~~MicoTPW / HACH2000~~	
Calibration Location	LRI 304					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

Attachment D

Statistical Calculations

Groundwater Prediction Limits (mg/L)
Appendix I Parameters, First Quarter 2021
LRI Landfill, Pierce County, Washington

	MRL (typical)	Prediction Limit	MW-1/ MW-1A	MW-2/ MW-2A	MW-3	MW-4	MW-5/ MW-5A	MW-6	MW-7	MW-9	MW-10
Antimony	0.050	**0.050 L**	**0.050 L**	0.050 L	0.050 L	0.050 L	0.050 L	0.050 L	0.050 L	0.050 L	0.050 L
Arsenic	0.005	**0.011**	0.005 L	0.005 L	0.005 L	**0.011**	0.008	0.008	0.006	0.005 L	0.005 L
Barium	0.005	**0.091**	0.030	0.018	0.015	**0.091**	0.036	0.014	0.016	0.0057	0.016
Beryllium	0.005	**0.005 L**	**0.005 L**	0.005 L	0.005 L	0.005 L	0.005 L	0.001 L	0.005 L	0.001 L	0.005 L
Cadmium	0.005	**0.005 L**	**0.005 L**	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L
Chromium	0.005	**0.011**	0.005 L	0.005 L	0.005 L	**0.011**	0.005	0.005 L	0.005 L	0.005 L	0.005 L
Cobalt	0.010	**0.010 L**	**0.010 L**	0.010 L	0.010 L	0.004	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L
Copper	0.010	**0.063**	0.010 L	0.010 L	0.010 L	**0.063**	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L
Lead	0.002	**0.042**	0.002 L	0.002 L	0.002 L	**0.042**	0.002 L	0.002 L	0.002 L	0.002 L	0.002 L
Nickel	0.020	**0.020 L**	**0.020 L**	0.020 L	0.020 L	0.020 L	0.020 L	0.020 L	0.020 L	0.020 L	0.020 L
Selenium	0.005	**0.005 L**	**0.005 L**	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L
Silver	0.010	**0.010 L**	**0.010 L**	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L	0.010 L
Thallium	0.005	**0.005 L**	**0.005 L**	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L	0.005 L
Vanadium	0.010	**0.016**	0.010 L	0.010 L	0.010 L	0.014	0.010 L	0.010 L	0.010 L	**0.016**	0.010 L
Zinc	0.01	**0.290**	0.032	0.010 L	0.010 L	**0.290**	0.010	0.010 L	0.010 L	0.043	0.034
Nitrate as Nitrogen	0.50	**6.40**	0.500 L	0.500 L	0.500 L	0.500 L	0.500 L	0.500 L	0.500 L	0.500 L	**6.40**

Notes:

Prediction Limits are shown in bold.

Prediction Limits for metals are for total metals.

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

mg/L = milligrams per liter.

Statistical Summary of Total Metals and Nitrate Groundwater Data
Appendix I Parameters, First Quarter 2021
LRI Landfill, Pierce County, Washington

Location ID	Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Nickel (Ni)		Selenium (Se)		Silver (Ag)		Thallium (Tl)		Vanadium (V)		Zinc (Zn)		Nitrate (NO_3)	
Monitoring Date	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-1																																
3/24/2014	0.002	L 0.001	0.005	L 0.0025	0.022	0.022	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/24/2014	0.002	L 0.001	0.005	L 0.0025	0.02	0.02	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/17/2014	0.05	L 0.025	0.005	L 0.0025	0.024	0.024	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.02	0.02	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.005	L 0.0025	0.03	0.03	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.032	0.032	0.5	L 0.25
3/23/2015	0.05	L 0.025	0.005	L 0.0025	0.02	0.02	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/8/2015	0.05	L 0.025	0.005	L 0.0025	0.022	0.022	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/16/2015	0.05	L 0.025	0.005	L 0.0025	0.021	0.021	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/14/2015	0.05	L 0.025	0.005	L 0.0025	0.024	0.024	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		0		8		0		0		0		0		0		0		0		0		0		0		0		2		0	
Minimum Concentration		0.001		0.0025		0.02		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.0025		0.03		0.0025		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.032		0.25
Average Concentration		NC		NC		0.02288		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		NC		1.1E-05		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		NC		0.0033		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		NC		14.2974		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		NC		0.00116		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
MW-2																																
3/24/2014	0.002	L 0.001	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/26/2014	0.002	L 0.001	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/16/2014	0.05	L 0.025	0.005	L 0.0025	0.018	0.018	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/23/2015	0.05	L 0.025	0.005	L 0.0025	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/8/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/16/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/14/2015	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		0		8		0		0		0		0		0		0		0		0		0		0		0		0		0	
Minimum Concentration		0.001		0.0025		0.012		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.0025		0.018		0.0025		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.005		0.25
Average Concentration		NC		NC		0.01413		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		NC		3.3E-06		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		NC		0.00181		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		NC		12.798		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		NC		0.00064		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
MW-3																																
3/26/2014	0.002	L 0.001	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/25/2014	0.002	L 0.001	0.005	L 0.0025	0.011	0.011	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/17/2014	0.05	L 0.025	0.005	L 0.0025	0.01	0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.005	L 0.0025	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/26/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/9/2015	0.05	L 0.025	0.005	L 0.0025	0.011	0.011	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/16/2015	0.05	L 0.025	0.005	L 0.0025	0.01	0.01	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/14/2015	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		0		8		0		0		0		0		0		0		0		0		0		0		0		0		0	
Minimum Concentration		0.001		0.0025		0.01		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.0025		0.015		0.0025		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.005		0.25
Average Concentration		NC		NC		0.012		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		NC		3.4E-06		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		NC		0.00185		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		NC		15.4303		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		NC		0.00065		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC

Statistical Summary of Total Metals and Nitrate Groundwater Data
Appendix I Parameters, First Quarter 2021
LRI Landfill, Pierce County, Washington

Location ID	Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Nickel (Ni)		Selenium (Se)		Silver (Ag)		Thallium (Tl)		Vanadium (V)		Zinc (Zn)		Nitrate (NO_3)	
Monitoring Date	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-4																																
3/24/2014	0.002	L 0.001	0.0074	0.0074	0.012	0.012	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/25/2014	0.002	L 0.001	0.0086	0.0086	0.012	0.012	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/17/2014	0.05	L 0.025	0.0099	0.0099	0.013	0.013	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.0076	0.0076	0.011	0.011	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/24/2015	0.05	L 0.025	0.0079	0.0079	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/9/2015	0.05	L 0.025	0.0094	0.0094	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/18/2015	0.05	L 0.025	0.0094	0.0094	0.017	0.017	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.5	L 0.25
12/15/2015	0.05	L 0.025	0.011	0.011	0.091	0.091	0.001	L 0.0005	0.001	L 0.0005	0.011	0.011	0.0039	0.0039	0.063	0.063	0.042	0.042	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.29	0.29	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		8		8		0		0		1		1		1		1		0		0		0		0		1		2		0	
Minimum Concentration		0.001		0.0074		0.011		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.011		0.091		0.0025		0.0025		0.011		0.005		0.063		0.042		0.01		0.0025		0.005		0.0025		0.014		0.29		0.25
Average Concentration		NC		0.0089		0.02275		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		1.6E-06		0.00076		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		0.00125		0.02763		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		14.0465		121.469		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		0.00044		0.00977		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
MW-5																																
3/24/2014	0.002	L 0.001	0.0072	0.0072	0.032	0.032	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/25/2014	0.002	L 0.001	0.0067	0.0067	0.033	0.033	0.001	L 0.0005	0.005	L 0.0025	0.0036	0.0036	0.01	L 0.005	0.0061	0.0061	0.001	L 0.0005	0.0043	0.0043	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/16/2014	0.05	L 0.025	0.0059	0.0059	0.036	0.036	0.005	L 0.0025	0.005	L 0.0025	0.0051	0.0051	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.01	0.01	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.0055	0.0055	0.022	0.022	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/23/2015	0.05	L 0.025	0.008	0.008	0.03	0.03	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/8/2015	0.05	L 0.025	0.0075	0.0075	0.02	0.02	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/18/2015	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/14/2015	0.05	L 0.025	0.0072	0.0072	0.021	0.021	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		7		8		0		0		2		0		1		0		1		0		0		0		0		1		0	
Minimum Concentration		0.001		0.0025		0.014		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.008		0.036		0.0025		0.0025		0.0051		0.005		0.0061		0.001		0.01		0.0025		0.005		0.0025		0.005		0.01		0.25
Average Concentration		NC		0.00631		0.026		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		3E-06		6E-05		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		0.00175		0.00776		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		27.6653		29.863		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		0.00062		0.00275		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
MW-6																																
3/26/2014	0.002	L 0.001	0.0075	0.0075	0.014	0.014	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/25/2014	0.002	L 0.001	0.0065	0.0065	0.011	0.011	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/18/2014	0.002	L 0.001	0.0078	0.0078	0.01	0.01	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
12/17/2014	0.05	L 0.025	0.0068	0.0068	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/26/2015	0.05	L 0.025	0.0068	0.0068	0.01	0.01	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/8/2015	0.05	L 0.025	0.0075	0.0075	0.01	0.01	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/17/2015	0.05	L 0.025	0.0069	0.0069	0.011	0.011	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/14/2015	0.05	L 0.025	0.0074	0.0074	0.011	0.011	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		8		8		0		0		0		0		0		0		0		0		0		0		0		0		0	
Minimum Concentration		0.001		0.0065		0.01		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.0078		0.014		0.0005		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.005		0.25
Average Concentration		NC		0.00715		0.01113		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		2.1E-07		1.8E-06		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		0.00046		0.00136		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		6.38736		12.1906		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		0.00016		0.00048		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
MW-7																																
3/26/2014	0.002	L 0.001	0.0054	0.0054	0.016	0.016	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
6/26/2014	0.002	L 0.001	0.0053	0.0053	0.016	0.016	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
9/17/2014	0.05	L 0.025	0.0052	0.0052	0.015	0.015	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.5	L 0.25
12/16/2014	0.05	L 0.025	0.005	0.005	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
3/24/2015	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
6/9/2015	0.05	L 0.025	0.0054	0.0054	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
9/17/2015	0.05	L 0.025	0.005	L 0.0025	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
12/15/2015	0.05	L 0.025	0.0055	0.0055	0.016	0.016	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.5	L 0.25
Number Analyzed	8		8		8		8		8		8		8		8		8		8		8		8		8		8		8		8	
Number Detected	0		6		8		0		0		0		0		0		0		0		0		0		0		0		0		0	
Minimum Concentration		0.001		0.0025		0.012		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.0025		0.005		0.25
Maximum Concentration		0.025		0.0055		0.016		0.0025		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.005		0.25
Average Concentration		NC		0.0046		0.01488		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Variance		NC		1.7E-06		1.8E-06		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Deviation		NC		0.0013		0.00136		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Coefficient of Variation (%)		NC		28.3682		9.11733		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC
Standard Error		NC		0.00046		0.00048		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC

Statistical Summary of Total Metals and Nitrate Groundwater Data
Appendix I Parameters, First Quarter 2021
LRI Landfill, Pierce County, Washington

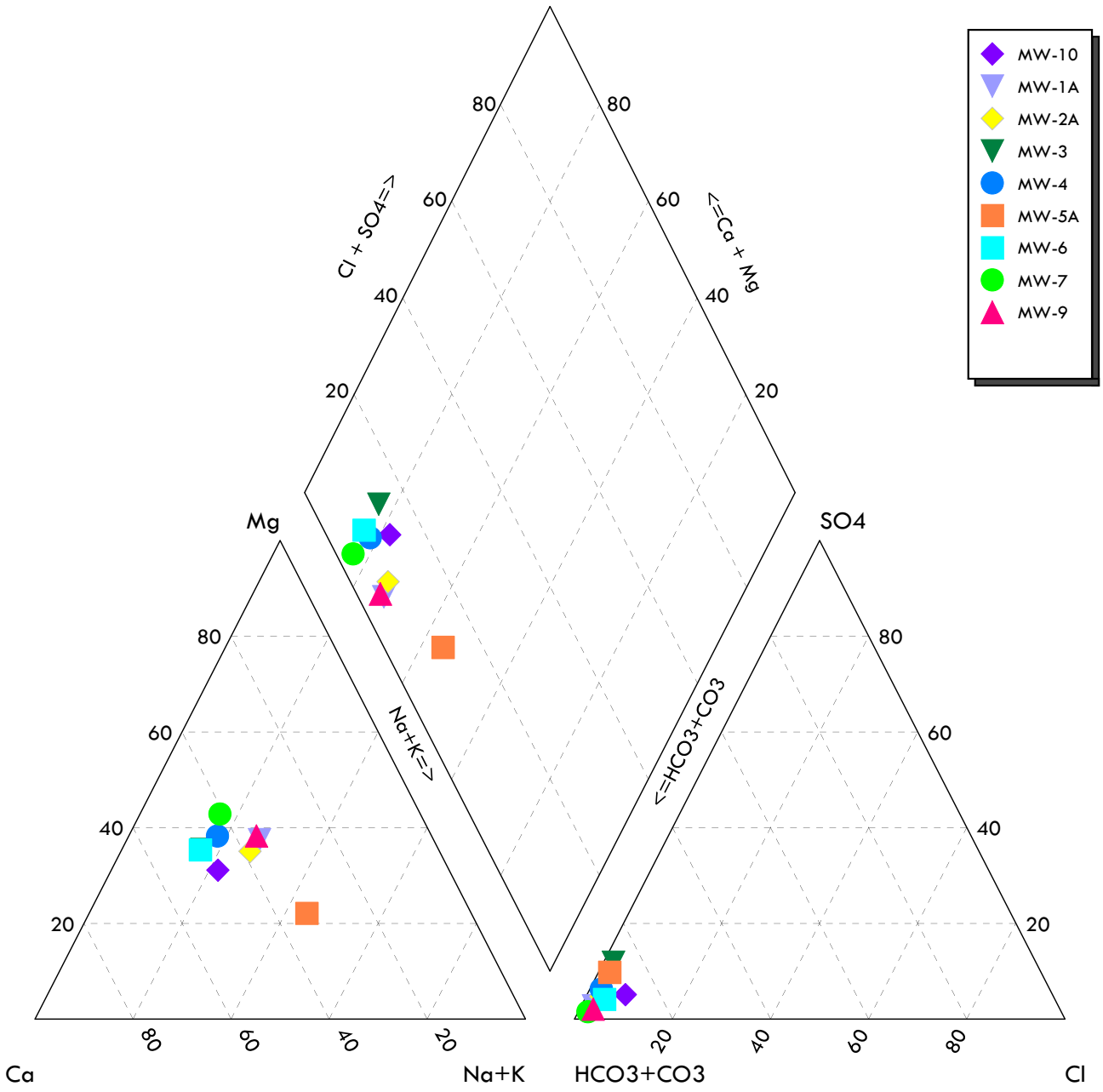
Location ID	Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Nickel (Ni)		Selenium (Se)		Silver (Ag)		Thallium (Tl)		Vanadium (V)		Zinc (Zn)		Nitrate (NO_3)	
Monitoring Date	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.
MW-9																																
3/25/2014	0.002	L 0.001	0.005	L 0.0025	0.0047	0.0047	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.016	0.016	0.01	0.01	0.5	L 0.25
6/24/2014	0.002	L 0.001	0.005	L 0.0025	0.0045	0.0045	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.016	0.016	0.01	L 0.005	0.5	L 0.25
9/18/2014	0.002	L 0.001	0.005	L 0.0025	0.0057	0.0057	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.014	0.014	0.014	0.014	0.5	L 0.25
12/17/2014	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
3/24/2015	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.013	0.013	0.01	L 0.005	0.5	L 0.25
6/9/2015	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
9/18/2015	0.05	L 0.025	0.005	L 0.0025	0.005	0.005	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
12/16/2015	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.042	0.042	0.5	L 0.25
3/22/2016	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.028	0.028	0.5	L 0.25
6/8/2016	0.05	L 0.025	0.005	L 0.0025	0.005	0.005	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.023	0.023	0.5	L 0.25
9/16/2016	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.015	0.015	0.043	0.043	0.5	L 0.25
12/6/2016	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
3/29/2017	0.05	L 0.025	0.005	L 0.0025	0.0056	0.0056	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
6/22/2017	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
9/26/2017	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.012	0.012	0.01	L 0.005	0.5	L 0.25
12/13/2017	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.013	0.013	0.01	L 0.005	0.5	L 0.25
3/21/2018	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.016	0.016	0.01	L 0.005	0.5	L 0.25
6/19/2018	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.013	0.013	0.01	L 0.005	0.5	L 0.25
9/19/2018	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.013	0.013	0.01	L 0.005	0.5	L 0.25
12/4/2018	0.05	L 0.025	0.005	L 0.0025	0.0051	0.0051	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
3/11/2019	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
6/19/2019	0.05	L 0.025	0.005	L 0.0025	0.0051	0.0051	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.013	0.013	0.01	L 0.005	0.5	L 0.25
9/26/2019	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
12/11/2019	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.016	0.016	0.01	L 0.005	0.5	L 0.25
3/17/2020	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.015	0.015	0.01	L 0.005	0.5	L 0.25
6/8/2020	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
9/22/2020	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.016	0.016	0.01	L 0.005	0.5	L 0.25
12/16/2020	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.014	0.014	0.01	L 0.005	0.5	L 0.25
3/9/2021	0.05	L 0.025	0.005	L 0.0025	0.005	L 0.0025	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.015	0.015	0.01	L 0.005	0.5	L 0.25
Number Analyzed	29		29		29		29		29		29		29		29		29		29		29		29		29		29		29		29	
Number Detected	0		0		8		0		0		0		0		0		0		0		0		0		29		6		0	
Minimum Concentration		0.001		0.0025		0.0025		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0005		0.012		0.005		0.25
Maximum Concentration		0.025		0.0025		0.0057		0.0005		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.016		0.043		0.25
Average Concentration		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.01421		NC		NC
Variance		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		1.1E-06		NC		NC
Standard Deviation		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.00105		NC		NC
Coefficient of Variation (%)		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		7.37743		NC		NC
Standard Error		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.00019		NC		NC
MW-10																																
3/25/2014	0.002	L 0.001	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	L 0.005	6.4	6.4
6/25/2014	0.002	L 0.001	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.005	L 0.0025	0.002	L 0.001	0.01	L 0.005	0.002	L 0.001	0.001	L 0.0005	0.002	L 0.001	0.005	L 0.0025	0.01	L 0.005	0.001	L 0.0005	0.01	L 0.005	0.01	0.01	5.8	5.8
9/16/2014	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.01	L 0.005	0.005	L 0.0025	0.01	L 0.005	0.011	0.011	5.4	5.4
12/17/2014	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.3	5.3
3/25/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.9	5.9
6/8/2015	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.7	5.7
9/15/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.1	5.1
12/16/2015	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.9	4.9
3/21/2016	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.9	5.9
6/6/2016	0.05	L 0.025	0.005	L 0.0025	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.9	5.9
9/15/2016	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.4	5.4
12/6/2016	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.2	5.2
3/29/2017	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.8	5.8
6/19/2017	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.5	5.5
9/26/2017	0.05	L 0.025	0.005	L 0.0025	0.012	0.012	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.2	5.2
12/12/2017	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.9	4.9
3/20/2018	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.3	5.3
6/18/2018	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	5.0	5.0
9/18/2018	0.05	L 0.025	0.005	L 0.0025	0.016	0.016	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.7	4.7
12/4/2018	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.3	4.3
3/12/2019	0.05	L 0.025	0.005	L 0.0025	0.013	0.013	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.4	4.4
6/17/2019	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.7	4.7
9/25/2019	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	4.2	4.2
12/11/2019	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	3.9	3.9
3/17/2020	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.034	0.034	3.7	3.7
6/9/2020	0.05	L 0.025	0.005	L 0.0025	0.016	0.016	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	3.7	3.7
9/22/2020	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.011	0.011	3.4	3.4
12/16/2020	0.05	L 0.025	0.005	L 0.0025	0.014	0.014	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	3.2	3.2
3/9/2021	0.05	L 0.025	0.005	L 0.0025	0.015	0.015	0.001	L 0.0005	0.001	L 0.0005	0.005	L 0.0025	0.001	L 0.0005	0.01	L 0.005	0.002	L 0.001	0.02	L 0.01	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.005	L 0.0025	0.01	L 0.005	3.2	3.2
Number Analyzed	29		29		29		29		29		29		29		29		29		29		29		29		29		29		29		29	
Number Detected	0		0		29		0		0		0		0		0		0		0		0		0		0		4		29			
Minimum Concentration		0.001		0.0025		0.012		0.0005		0.0005		0.001		0.0005		0.001		0.0005		0.001		0.0025		0.0025		0.0025		0.0025		0.005		3.2
Maximum Concentration		0.025		0.0025		0.016		0.0025		0.0025		0.0025		0.005		0.005		0.001		0.01		0.0025		0.005		0.0025		0.005		0.034		6.4
Average Concentration		NC		NC		0.01372		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		4.896552
Variance		NC		NC		1.1E-06		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.786059
Standard Deviation		NC		NC		0.00107		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.8866
Coefficient of Variation (%)		NC		NC		7.7643		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		18.10661
Standard Error		NC		NC		0.0002		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		0.164637

Notes: Metals results are for total metals.
mg/L = milligrams per liter.
L = not reported at or above the MRL (Method Reporting Limit).
One-half the MRL value used for statistical calculations when concentrations not reported at or above the MRL.
NC = not calculated due to insufficient number of reported detections.

Attachment E

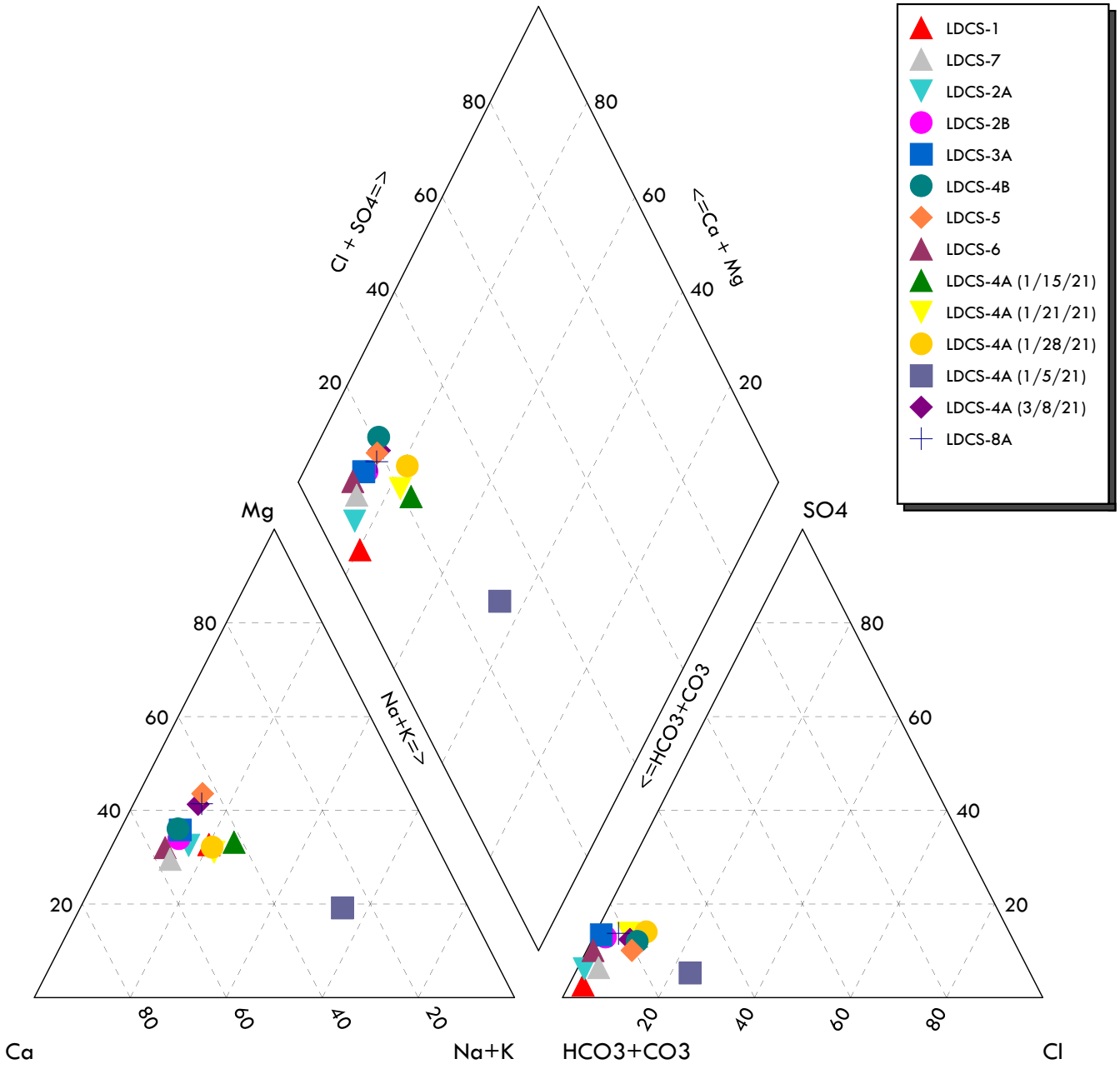
Trilinear Diagrams

First Quarter 2021, Groundwater Monitoring Wells



DESCRIPTION: Piper Diagram - 1Q21 Groundwater		
	PROJECT: LRI Landfill	PROJECT NO: 04221001.02
	CLIENT: LRI, Inc.	DATE: June 2021

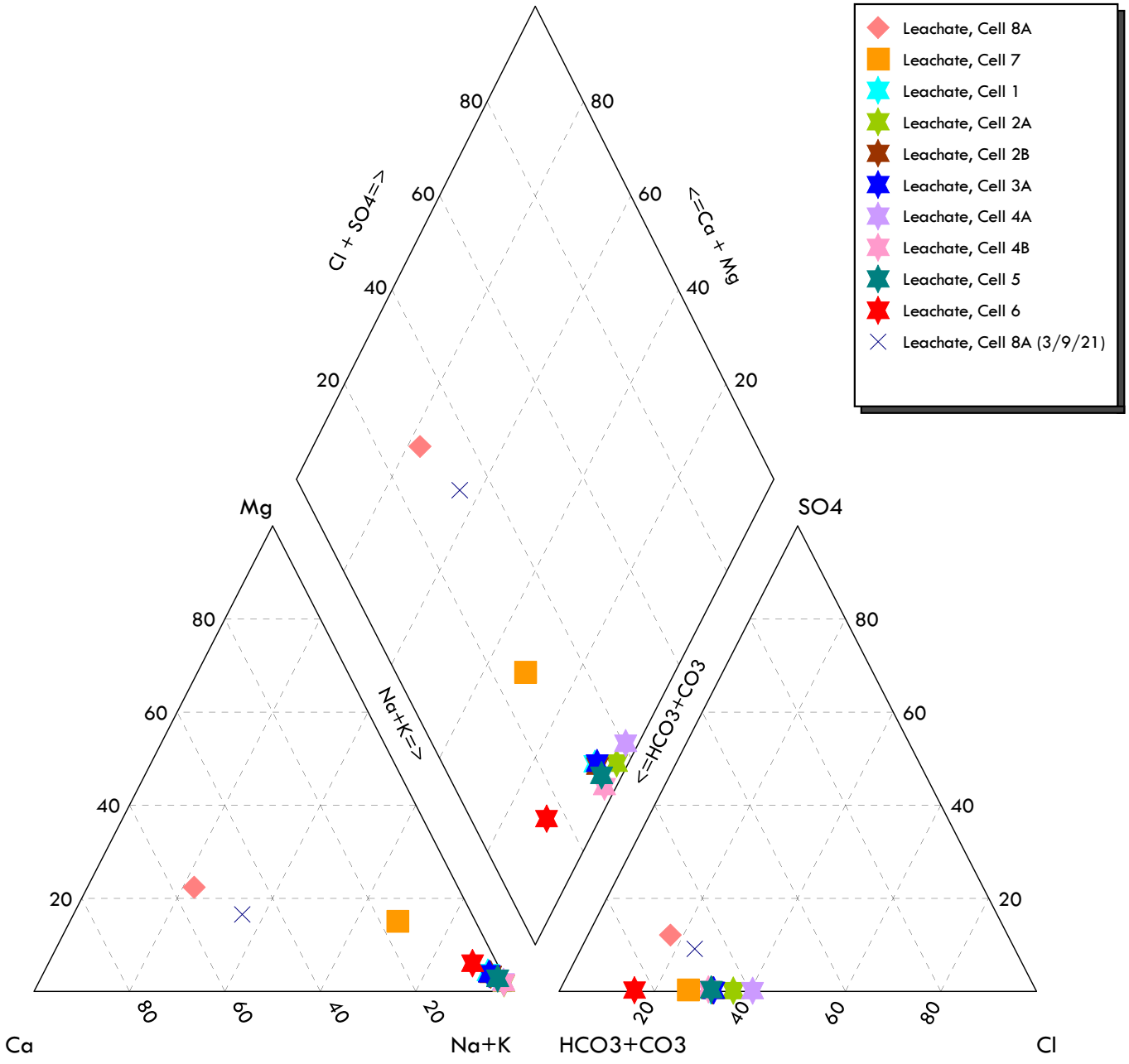
First Quarter 2021, Leak Detection Collection Recovery System



DESCRIPTION: Piper Diagram - 1Q21 LDCRS

	PROJECT: LRI Landfill	PROJECT NO: 04221001.02
	CLIENT: LRI, Inc.	DATE: June 2021

Fourth Quarter 2020, Leachate



DESCRIPTION: Piper Diagram - 4Q20 Leachate		
	PROJECT: LRI Landfill	PROJECT NO: 04221001.02
	CLIENT: LRI, Inc.	DATE: June 2021

Attachment F

Analytical Data Validation Report

FIRST QTR. 2021 DATA VALIDATION REPORT – LRI LANDFILL

Project Details

Project No.	04221001.02	**Site Name**	LRI 304th Street LF
Data Validator	Andres Lopez	**Data Level**	Level 2
Date	6/9/2021	**DV Tier**	Tier 1
QA Document	LRI Landfill Groundwater Monitoring Plan, March 10, 2014		

Sample Login Summary

Sample Group	Sample Login Comments	Analytical Lab (Primary)
280-146172-1	No comments.	TestAmerica, Denver, CO
280-146103-1	No comments.	TestAmerica, Denver, CO
280-146106-1	No comments.	TestAmerica, Denver, CO
280-146170-1	No comments.	TestAmerica, Denver, CO
280-146171-1	No comments.	TestAmerica, Denver, CO
580-100263-1	No comments.	TestAmerica, Seattle, WA
580-100536-1	No comments.	TestAmerica, Seattle, WA

Analytical Summary

Sample Group	Analyses					
	TDS/Alk/NO3	Metals	NH3/TOC	VOCs	Anions	TSS
280-146172-1	X	X[1]	X	X	X	--
280-146103-1	X	X[1]	X	X	X	--
280-146106-1	X	X[2]	X	X	X	X
280-146170-1	X	X[2]	X	X	X	X
280-146171-1	X	X[3]	X	X	X	--
580-100263-1	X	X[1]	X	X	X	--
580-100536-1	X	X[1]	X	X	X	--

Notes:

1. Dissolved metals analysis performed (field filtered)
2. Dissolved and Total metals analysis performed
3. Total Metals analysis performed

Laboratory Quality Assurance Samples

Lab QA Samples	Results	Comments
Method Blank	Acceptable.	See case narratives.
LCS/LCSD	Acceptable.	See case narratives.
MS/MSD	Acceptable.	See case narratives.
Metals	Acceptable.	See case narratives.
Duplicates	Acceptable.	See case narratives.
Organics	Acceptable.	See case narratives.
General Chemistry	Acceptable.	Method 8260B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-347739 recovered outside control limits for the following analytes: 1,1-Dichloroethene, Chloromethane, Iodomethane and Trichlorofluoromethane (580-100263-1). Method 8260B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-348232 recovered outside control limits for the following analytes: Carbon disulfide, Vinyl chloride, Chloromethane, 2,2-Dichloropropane, 1,1,1,2-Tetrachloroethane, 1,1-Dichloroethane, 4-Isopropyltoluene and cis-1,2-Dichloroethene (580-100536-1). The laboratory had insufficient time remaining to perform the nitrate analysis within holding time on sample 304-011521-01 (580-100536-1).
General Comments	Acceptable.	See case narratives.

Field Quality Assurance Samples

Field QA Samples	Sample Group	Analytes	Notes
QC-FB	280-146170-1	Total Dissolved Solids (13 mg/L)	
QC-TB	280-146103-1	None.	
QC-TB	280-146172-1	None.	
QC-TB	280-146106-1	None.	
QC-TB	280-146170-1	None.	
QC-TB	280-146171-1	None.	

Lab Quality Flags

Flag	Sample Groups	Comments
4	280-146172-1, 280-146103-1, 280-146106-1, 280-146170-1, 280-146171-1	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	280-146172-1, 280-146103-1, 280-146171-1	Result exceeded calibration range.
F1	280-146103-1, 280-146170-1, 280-146171-1, 580-100263-1, 580-100536-1	MS and/or MSD recovery exceeds the control limits.
F2	280-146103-1, 280-146171-1	MS/MSD RPD exceeds control limits.
F3	280-146172-1, 580-100536-1	Duplicate RPD exceeds the control limit.
F5	580-100536-1	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL.
H	580-100536-1	Sample was prepped or analyzed beyond the specified holding time.
J	280-146172-1, 280-146103-1, 280-146106-1, 280-146170-1, 280-146171-1, 580-100263-1, 580-100536-1	Result is less than RL but greater than or equal to the MDL and concentration is an approximate value.
^+	280-146171-1	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased
^2	280-146172-1, 280-146106-1, 280-146170-1	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
*+	580-100263-1, 580-100536-1	LCS and/or LCSD is outside acceptance limits, high biased.
*1	580-100263-1, 580-100536-1	LCS/LCSD RPD exceeds control limits.

Duplicate Evaluation

Analyte	Units	MW-5A (304-030821-07)	MW-5A DUP (304-030821-09)	RPD (%)
Alkalinity, Total	mg/L	190	190	0.00
Ammonia	mg/L	0.14	0.14	0.00
Arsenic, Total	mg/L	0.0058	0.006	3.39
Barium, Total	mg/L	0.014	0.015	6.90
Calcium, Dissolved	mg/L	30	29	3.39
Chloride	mg/L	3.4	3.4	0.00
Magnesium, Dissolved	mg/L	12	12	0.00
Manganese, Dissolved	mg/L	0.19	0.19	0.00
Potassium, Dissolved	mg/L	4.4	4.3	2.30
Sodium, Dissolved	mg/L	43	41	4.76

Analyte	Units	MW-5A (304-030821-07)	MW-5A DUP (304-030821-09)	RPD (%)
Sulfate	mg/L	20	20	0.00
Total Dissolved Solids	mg/L	230	250	8.33
Total Organic Carbon	mg/L	1	1	0.00

U = Non-detection. Reporting limit (RL) used for calculation of RPD when necessary.

Additional Data Flags

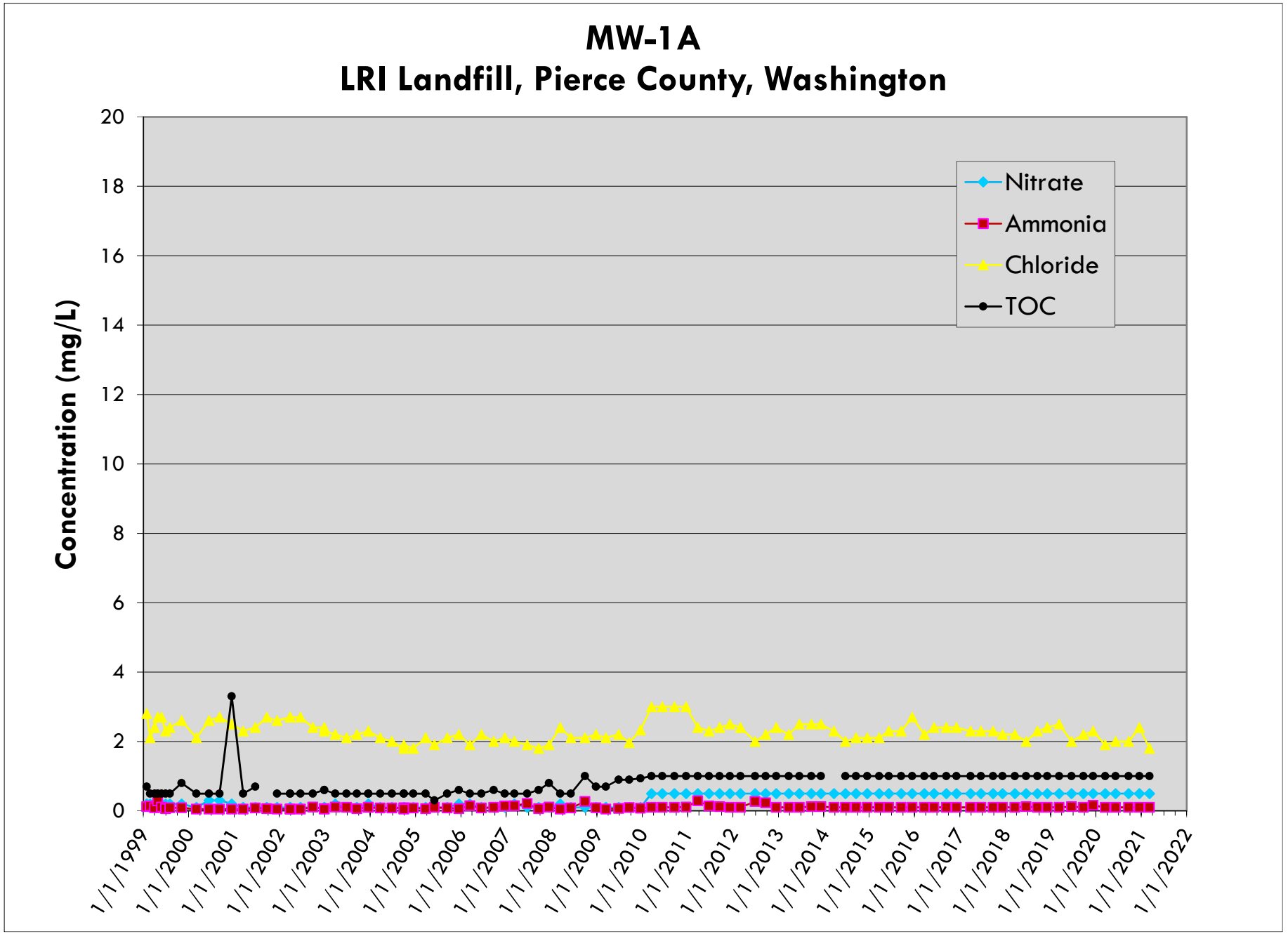
Flag	Description
U	Not detected above the method reporting limit.

Qualified Data and Usability

Lab qualifiers are noted. All data, as qualified, are acceptable for use.

Attachment G

Groundwater and LDCS Time Trend Plots


MW-1A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
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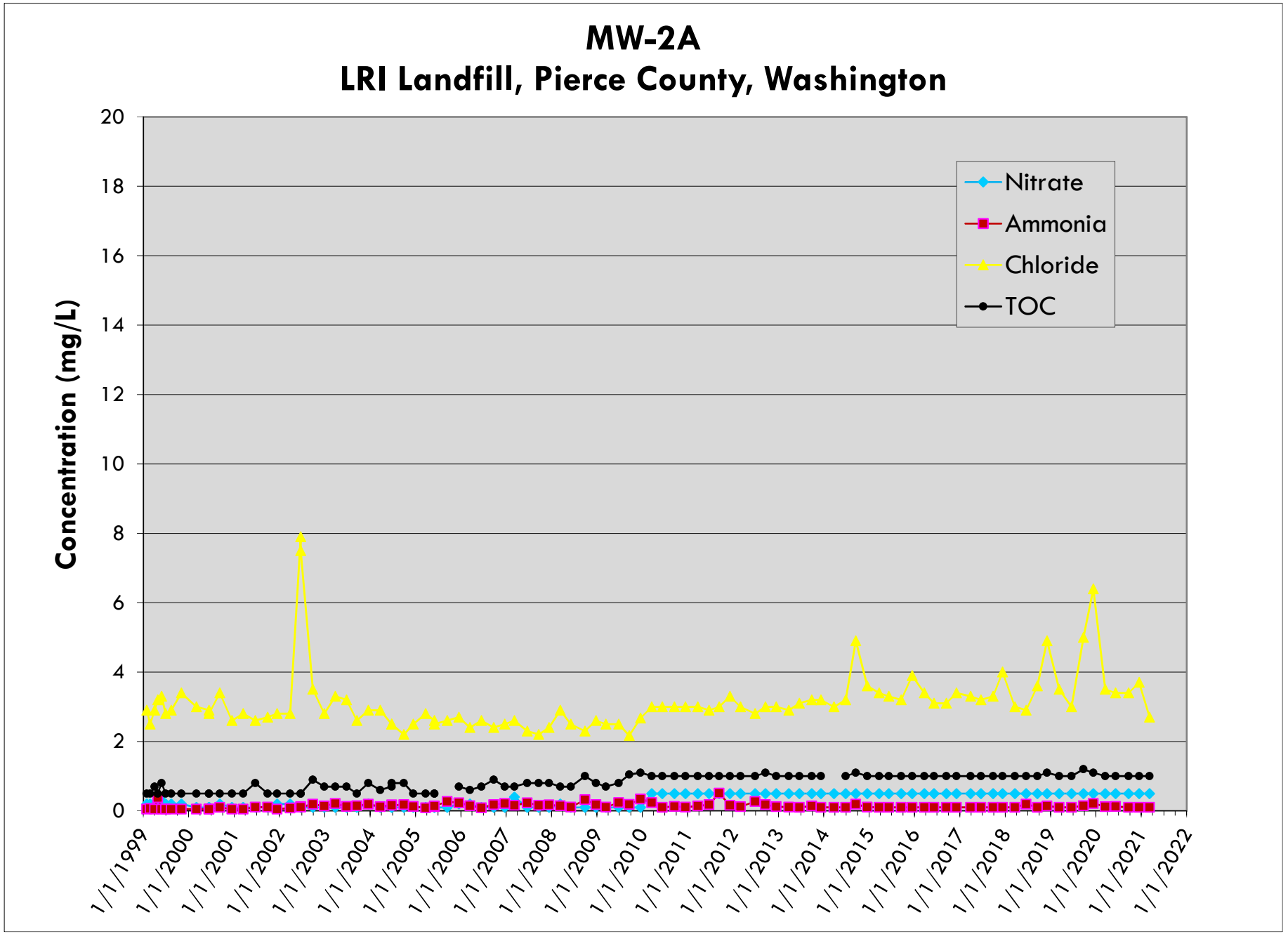
1/1/2021
1/1/2022


MW-2A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
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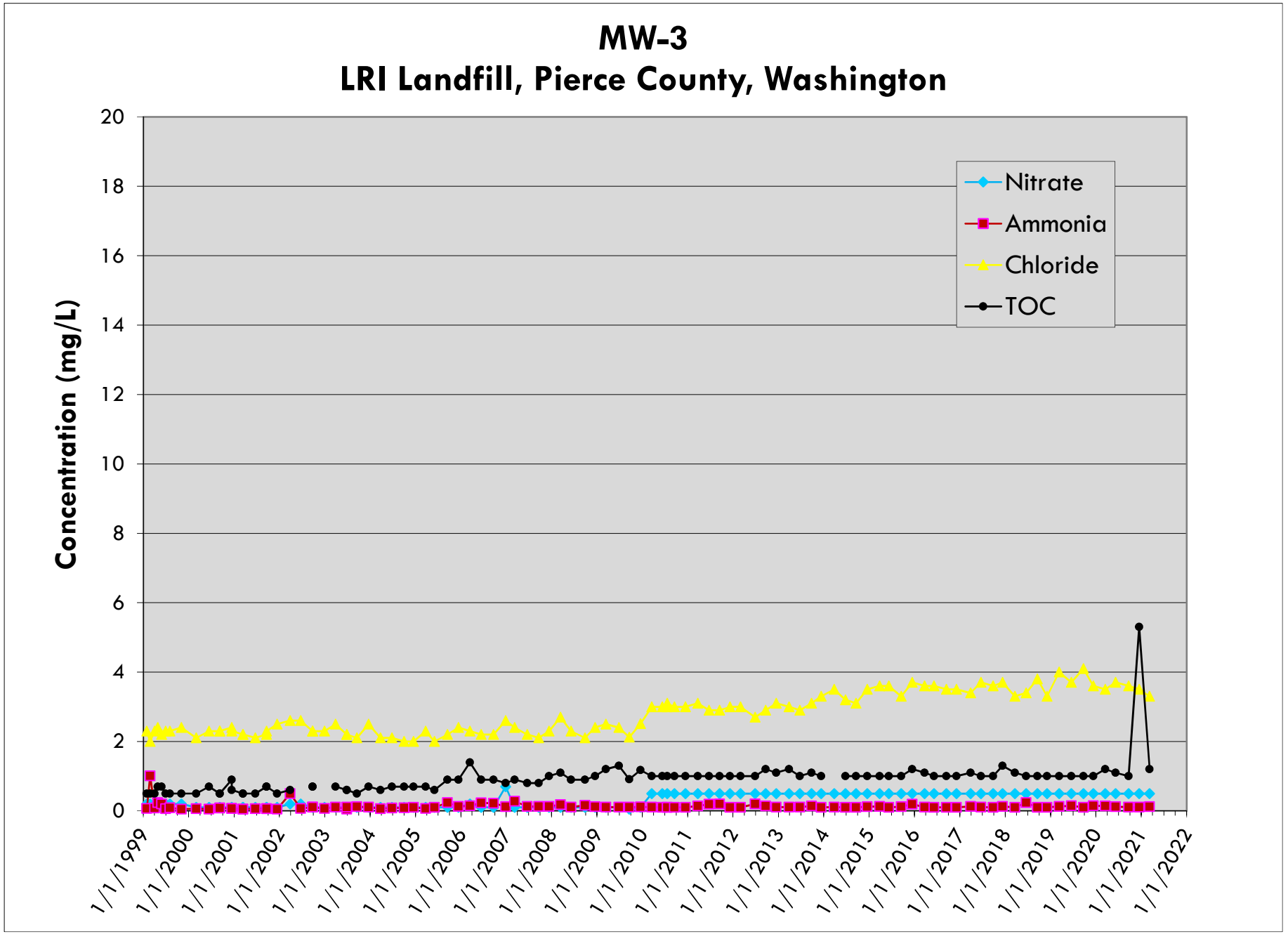
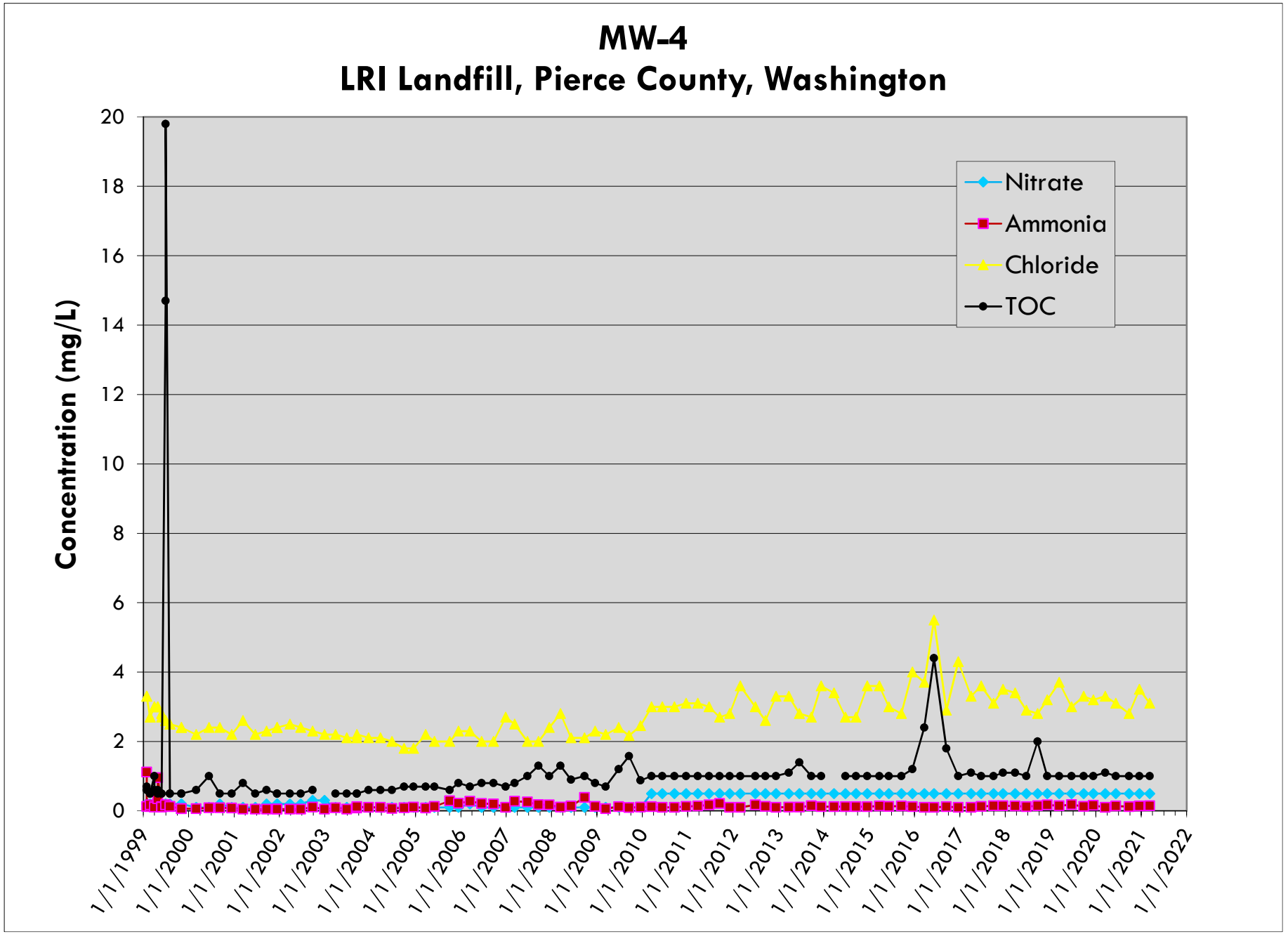
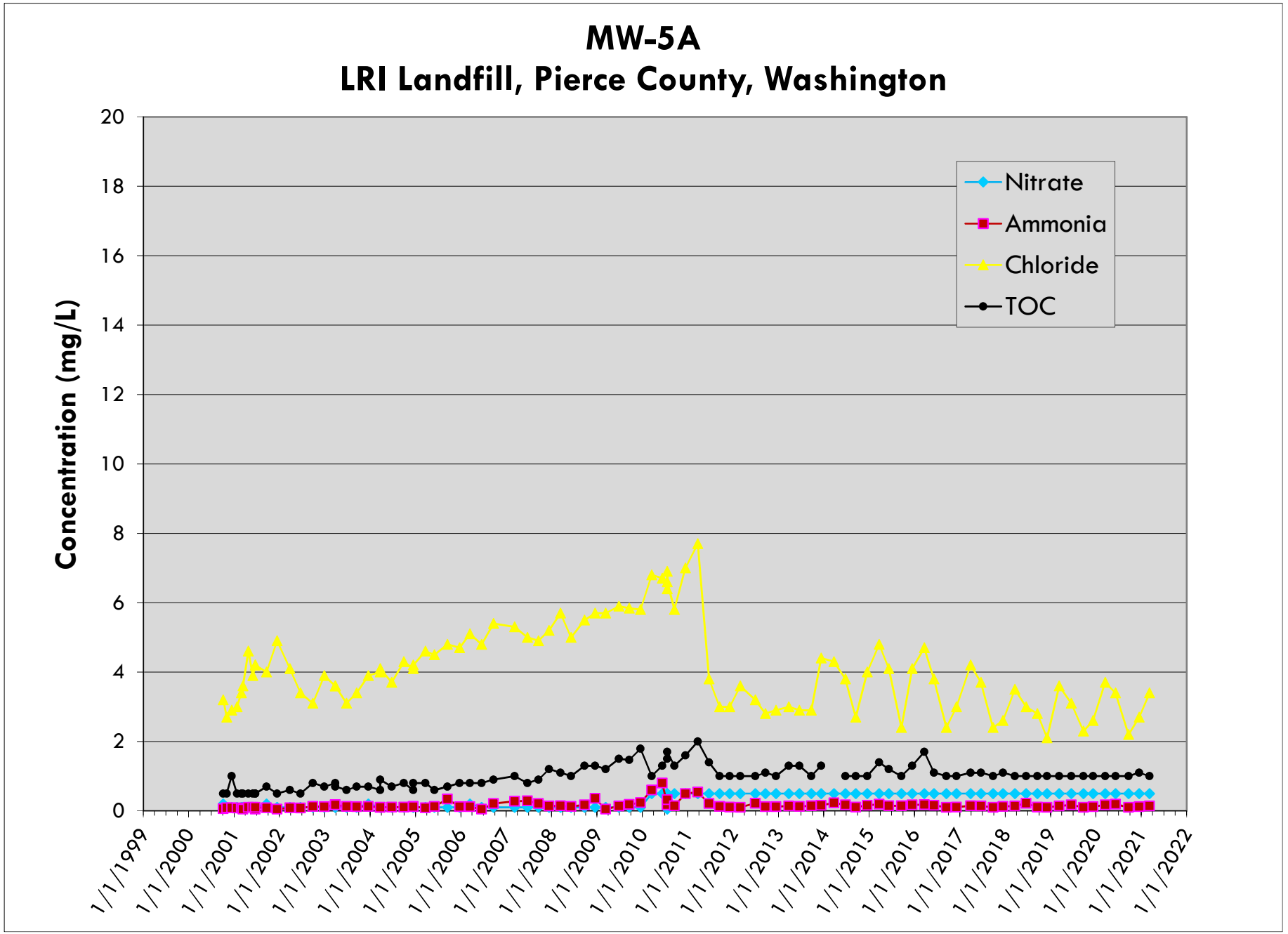
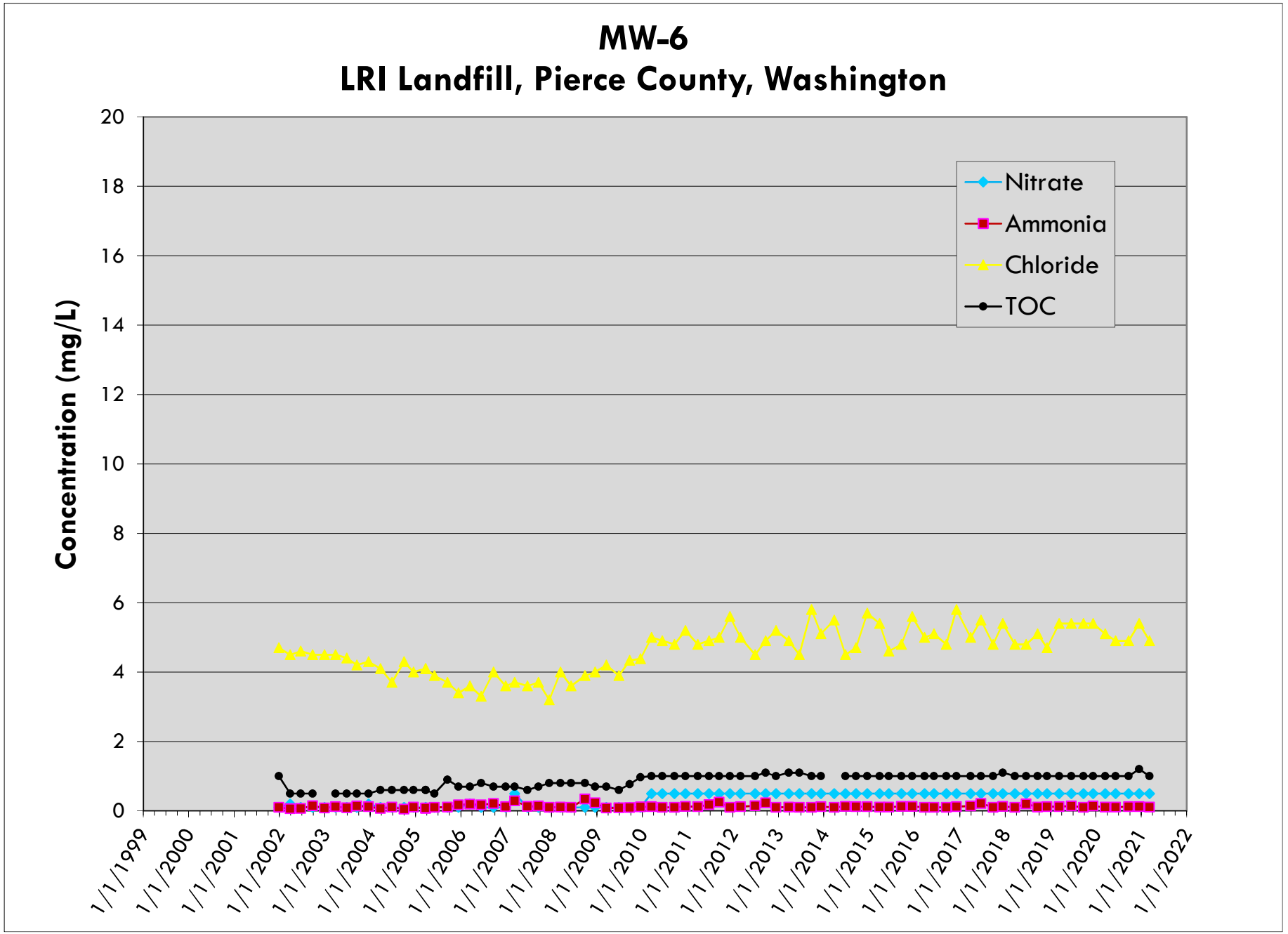
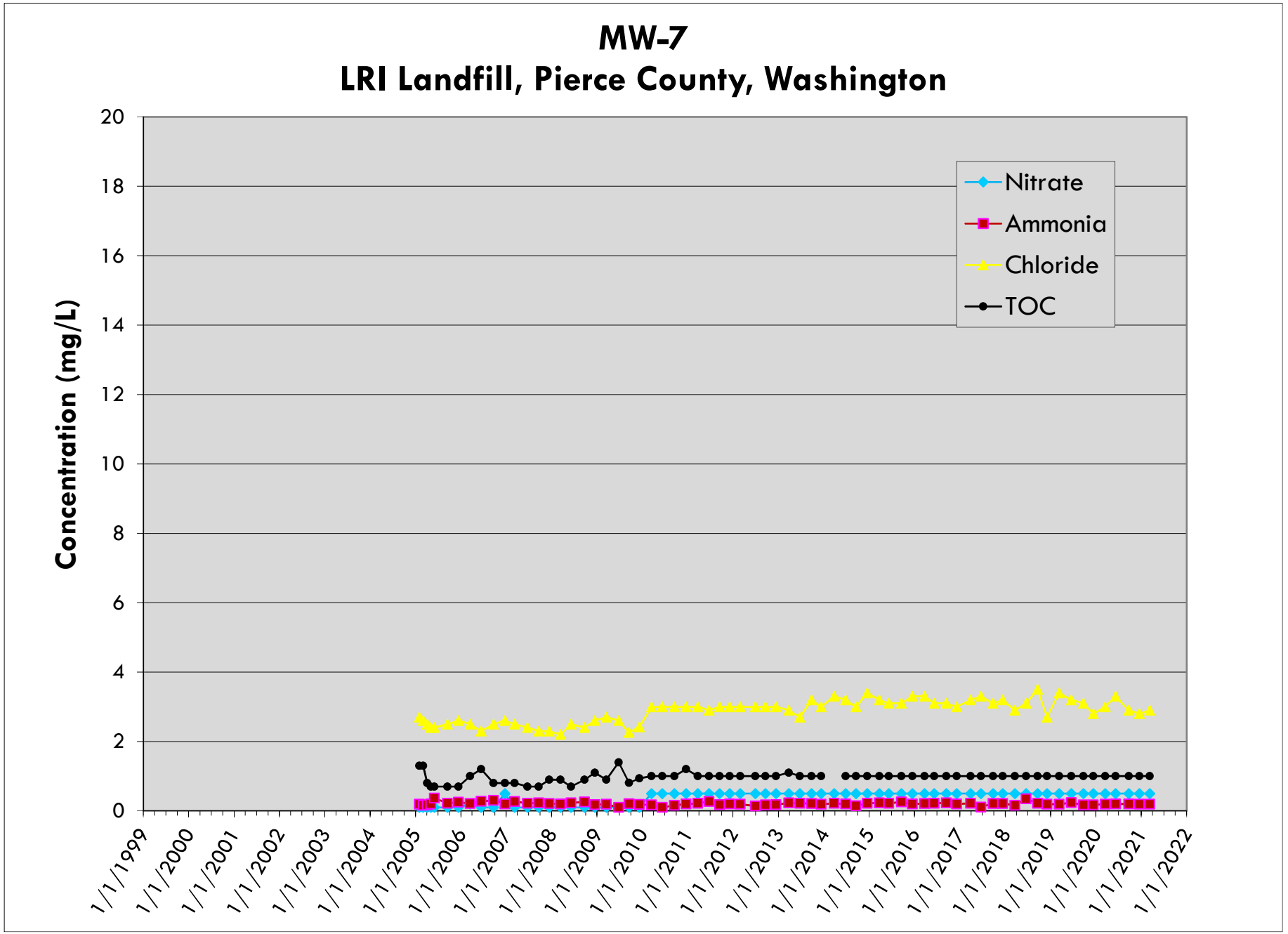
1/1/2022

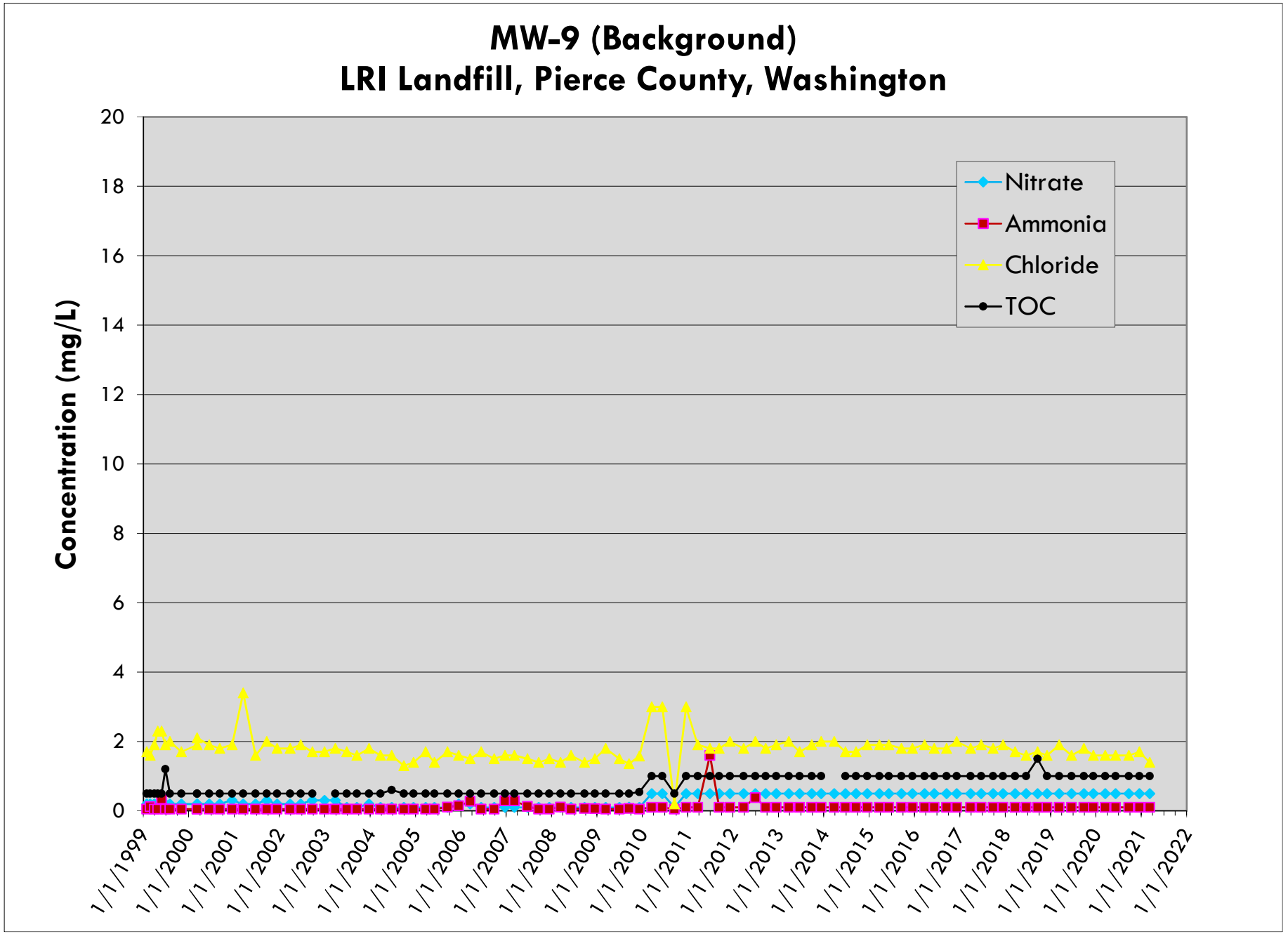

MW-3
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

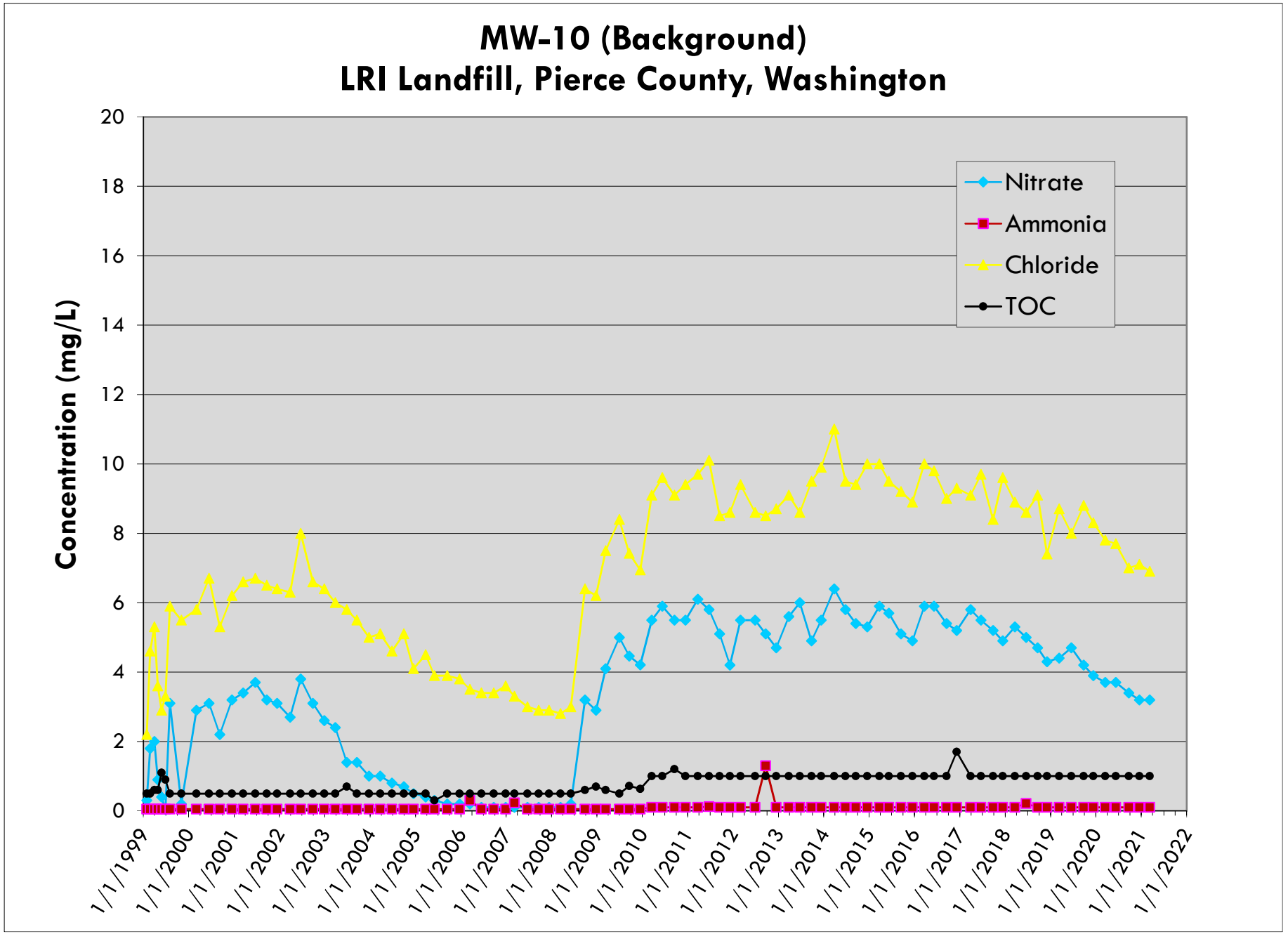

MW-4
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

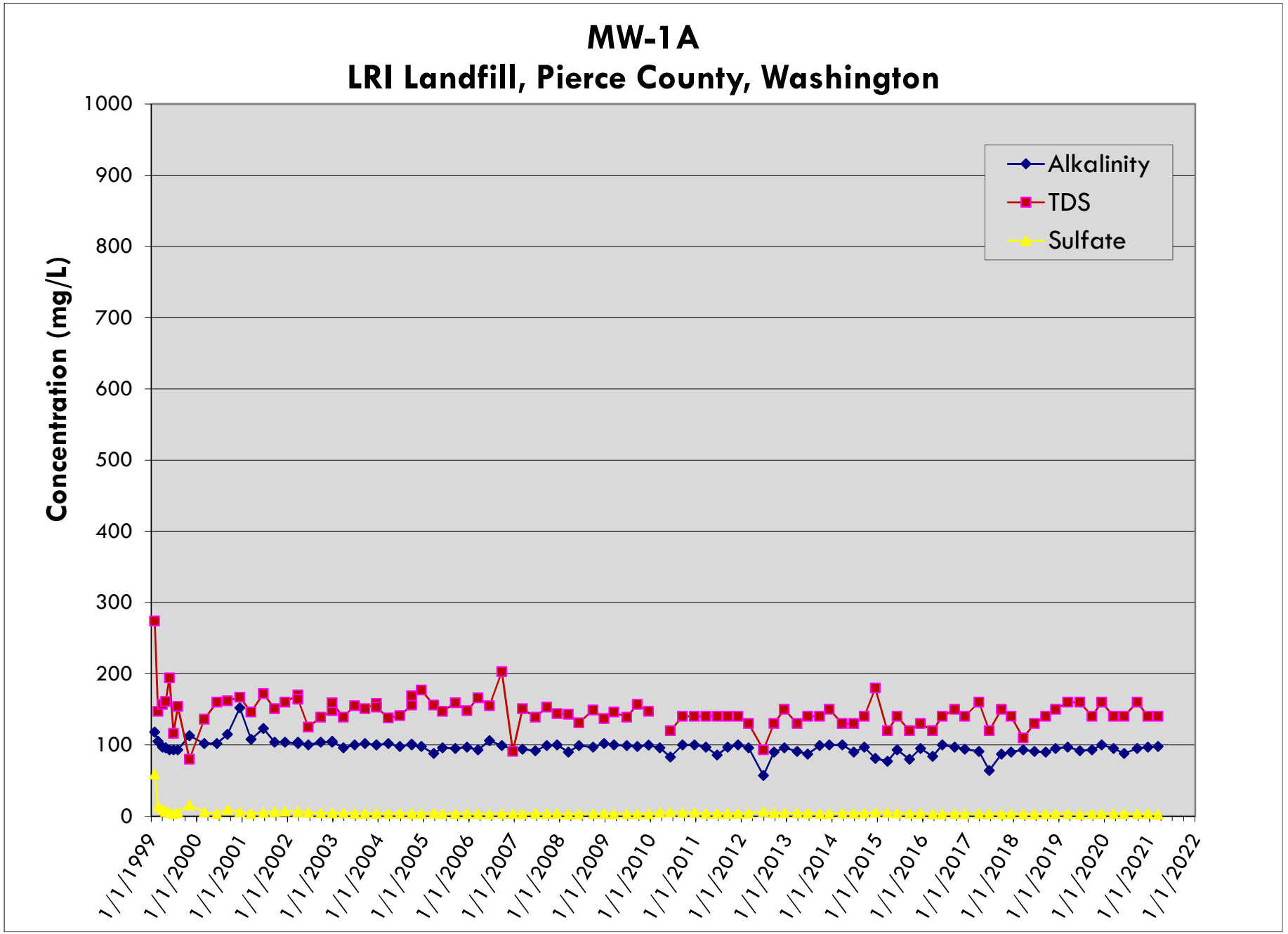

MW-5A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

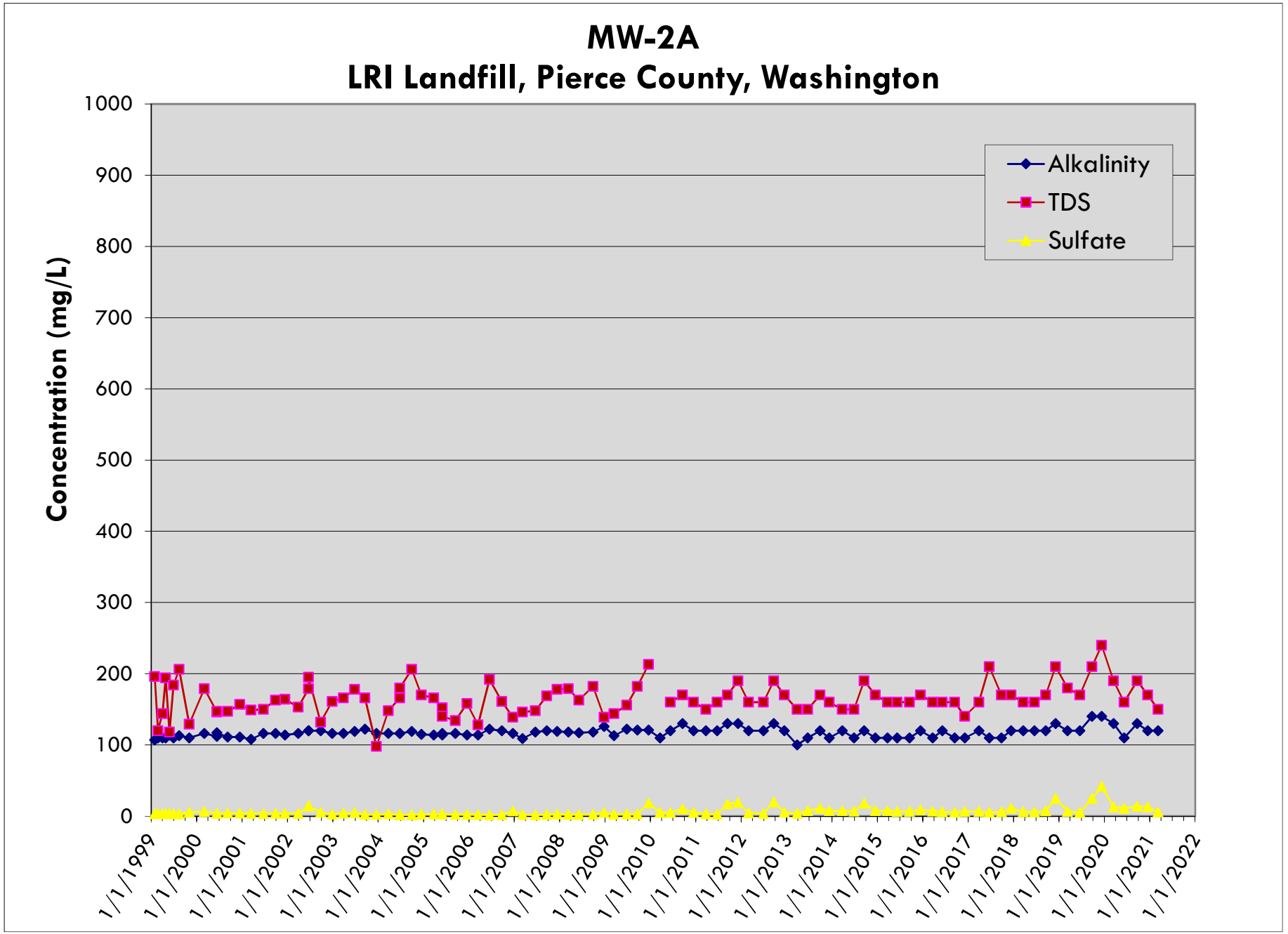

MW-6
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

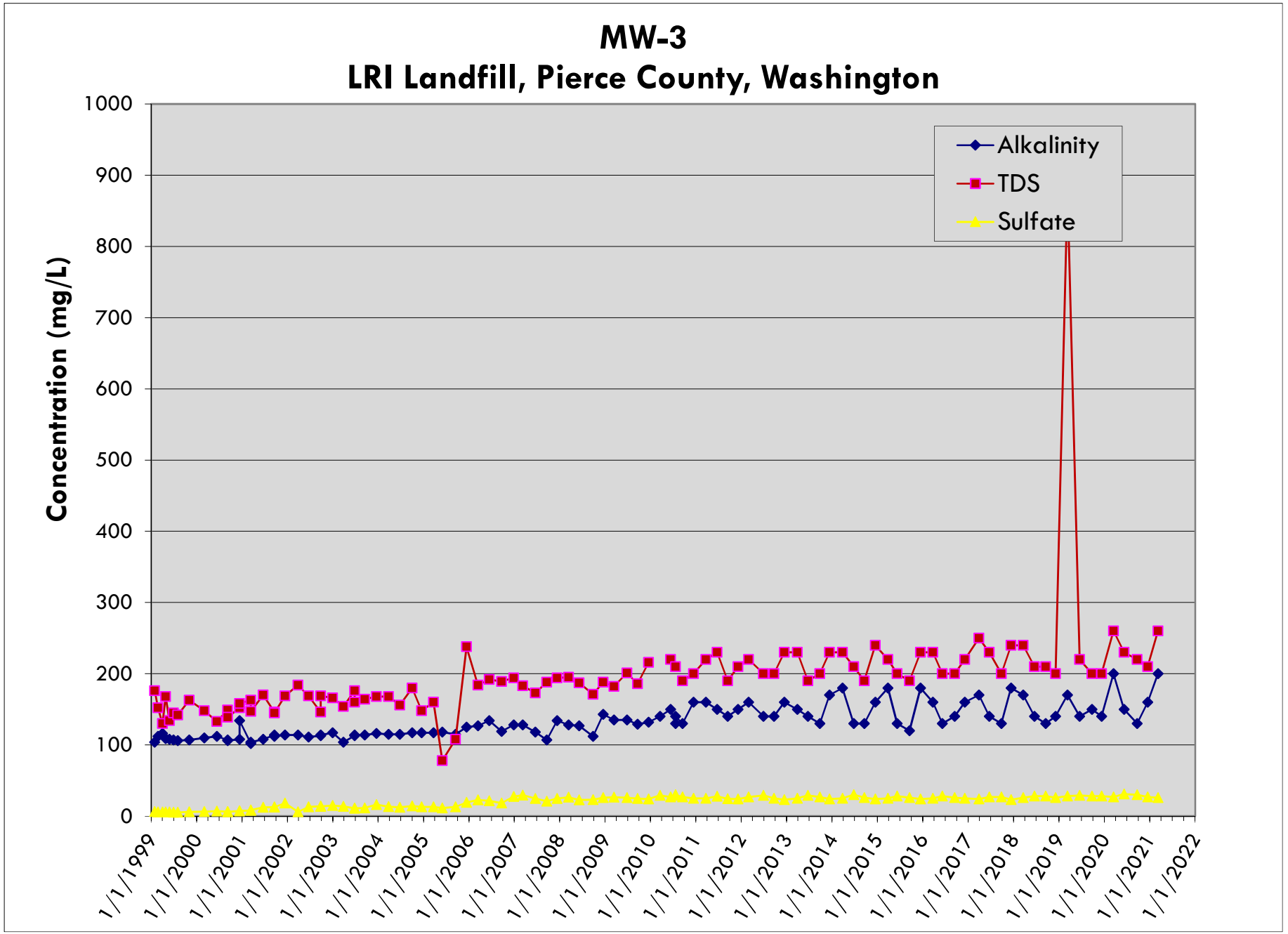

MW-7
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

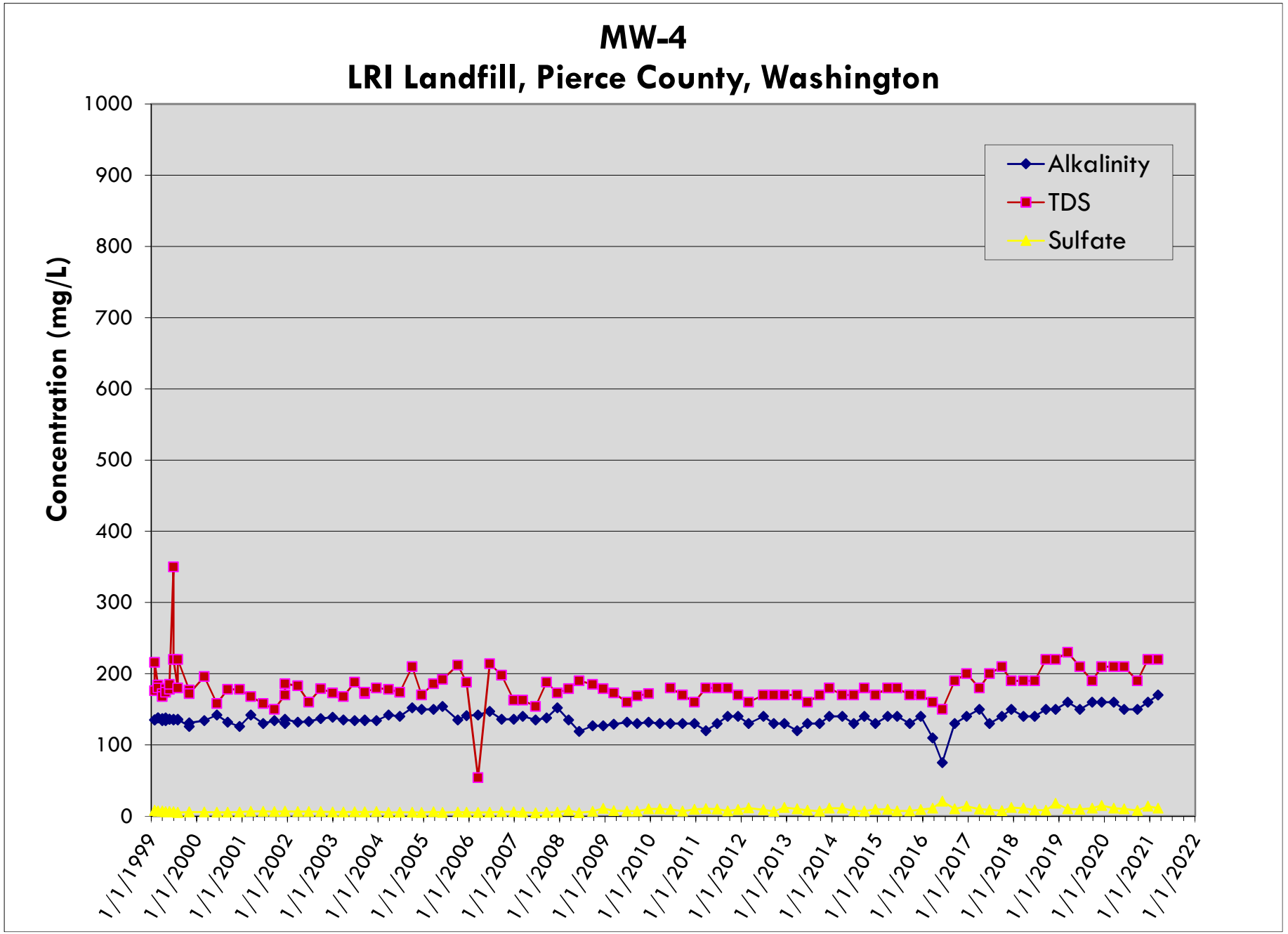

MW-9 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

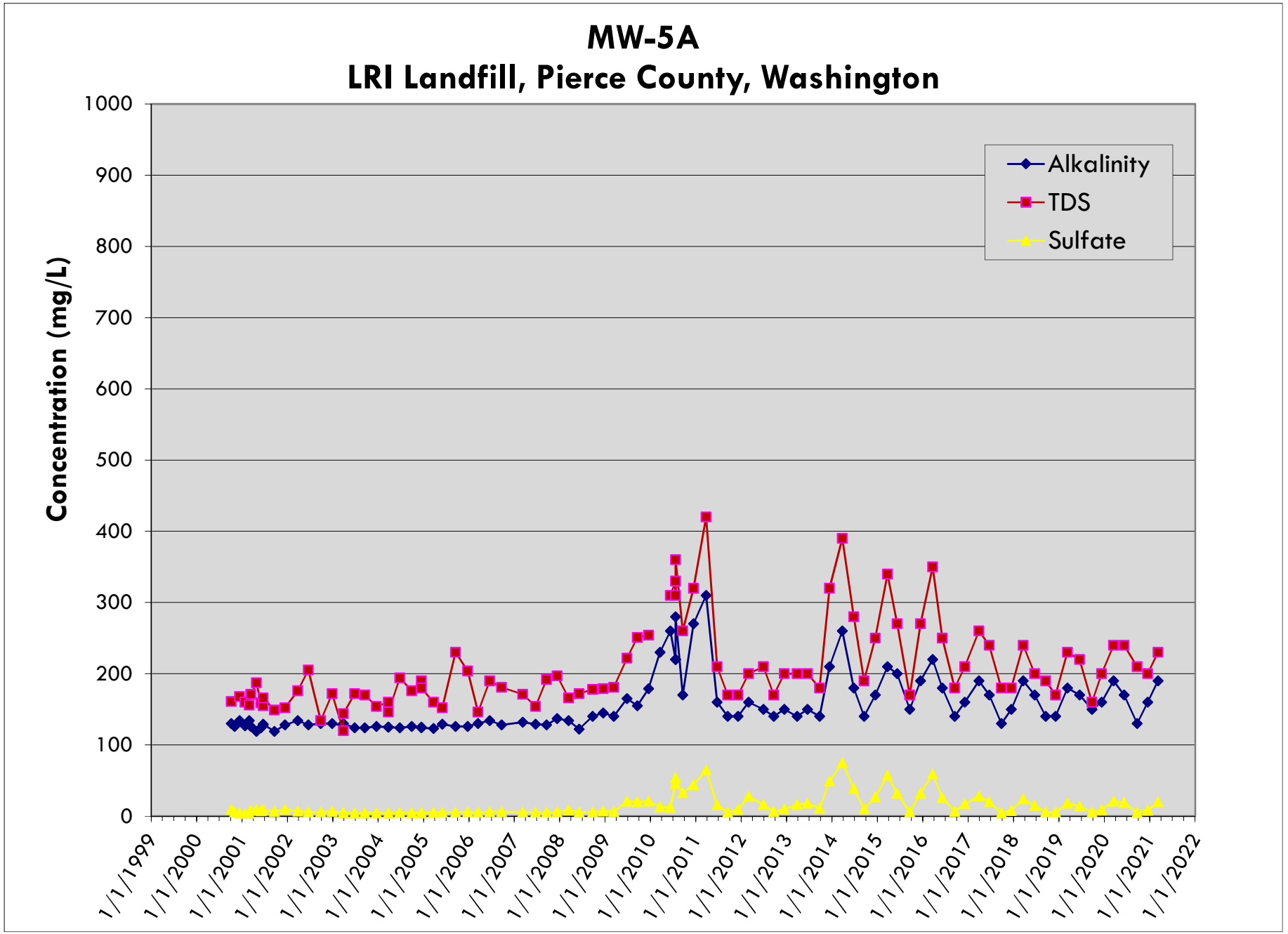

MW-10 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

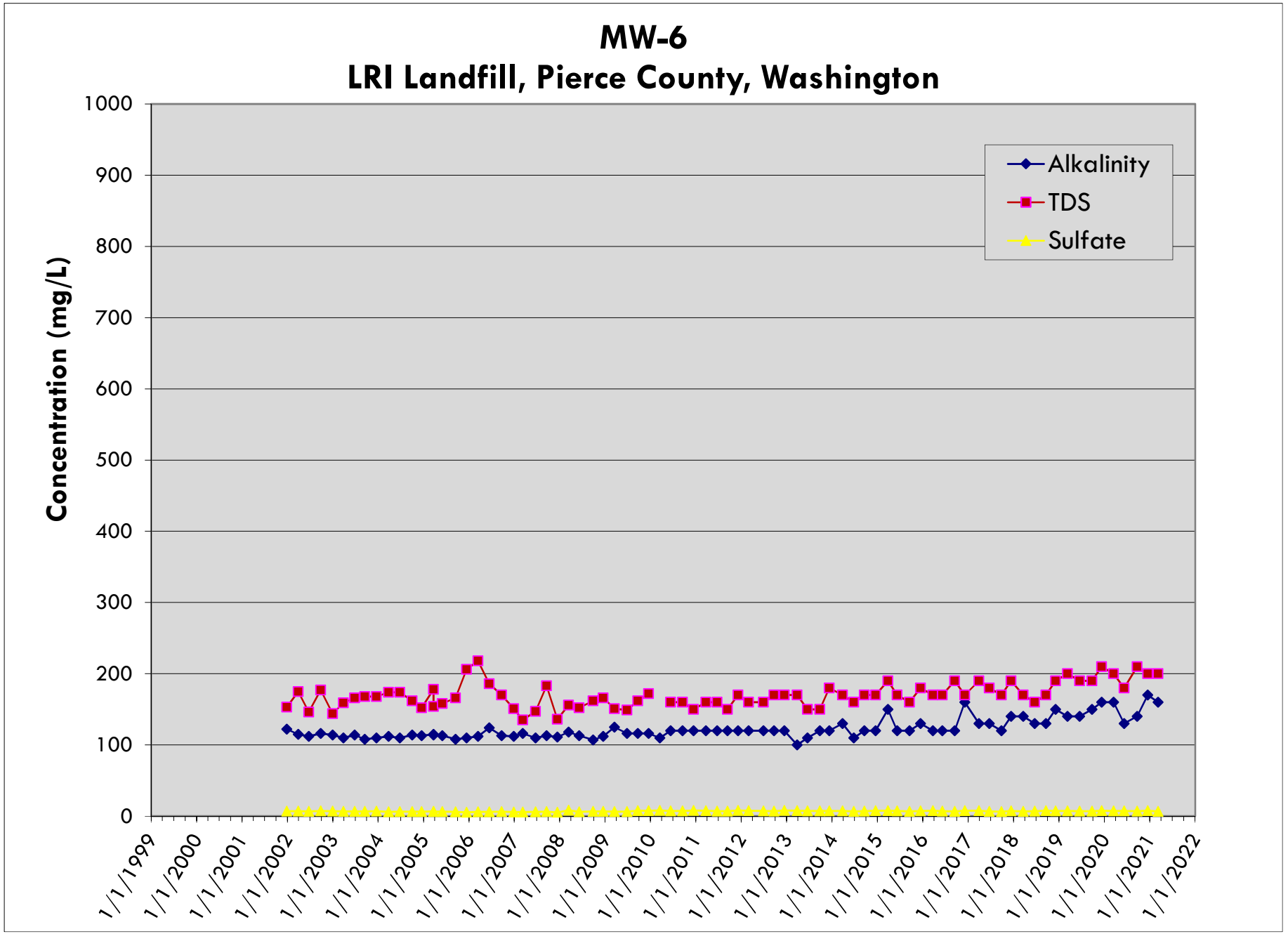

MW-1A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

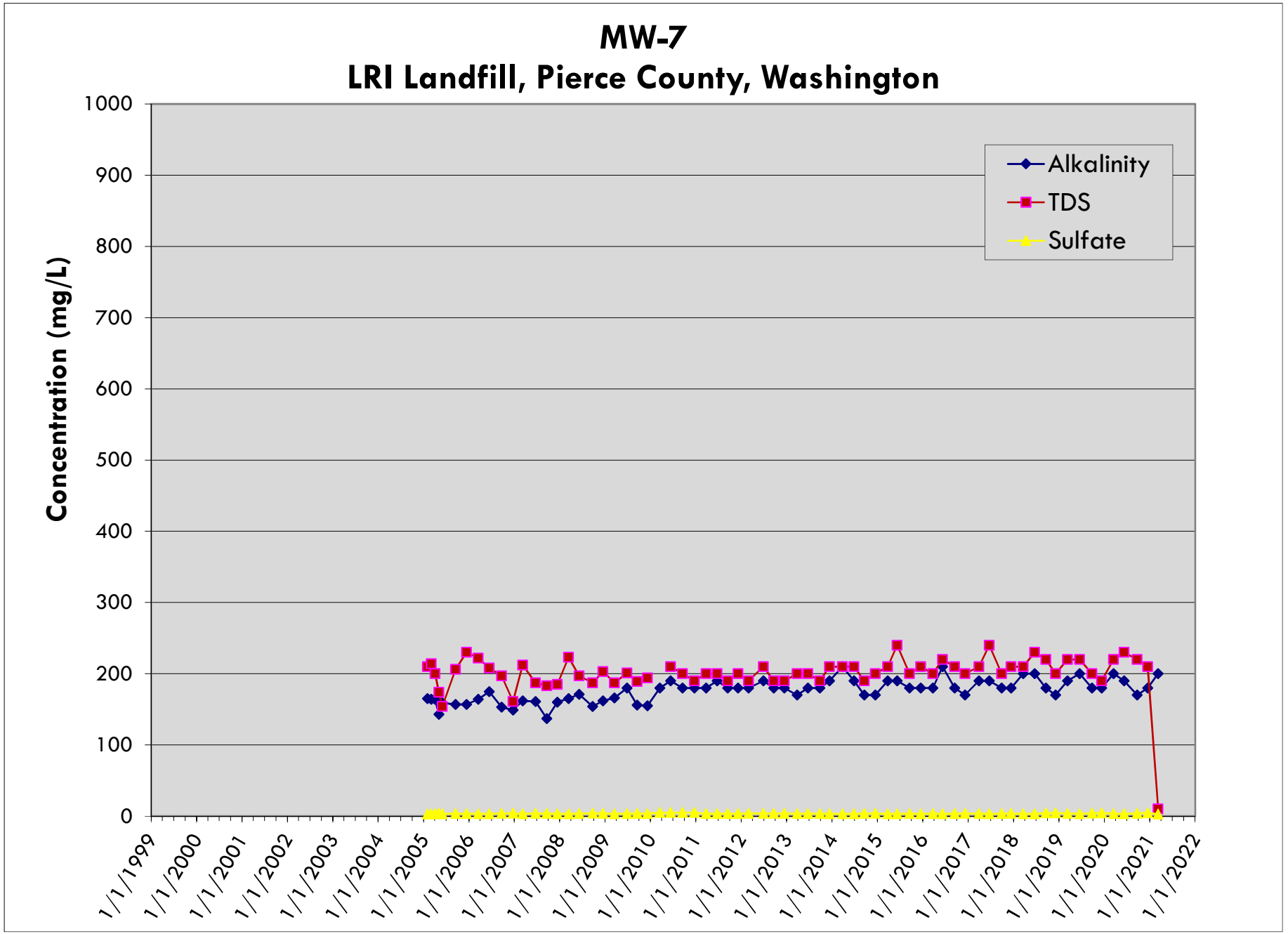

MW-2A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

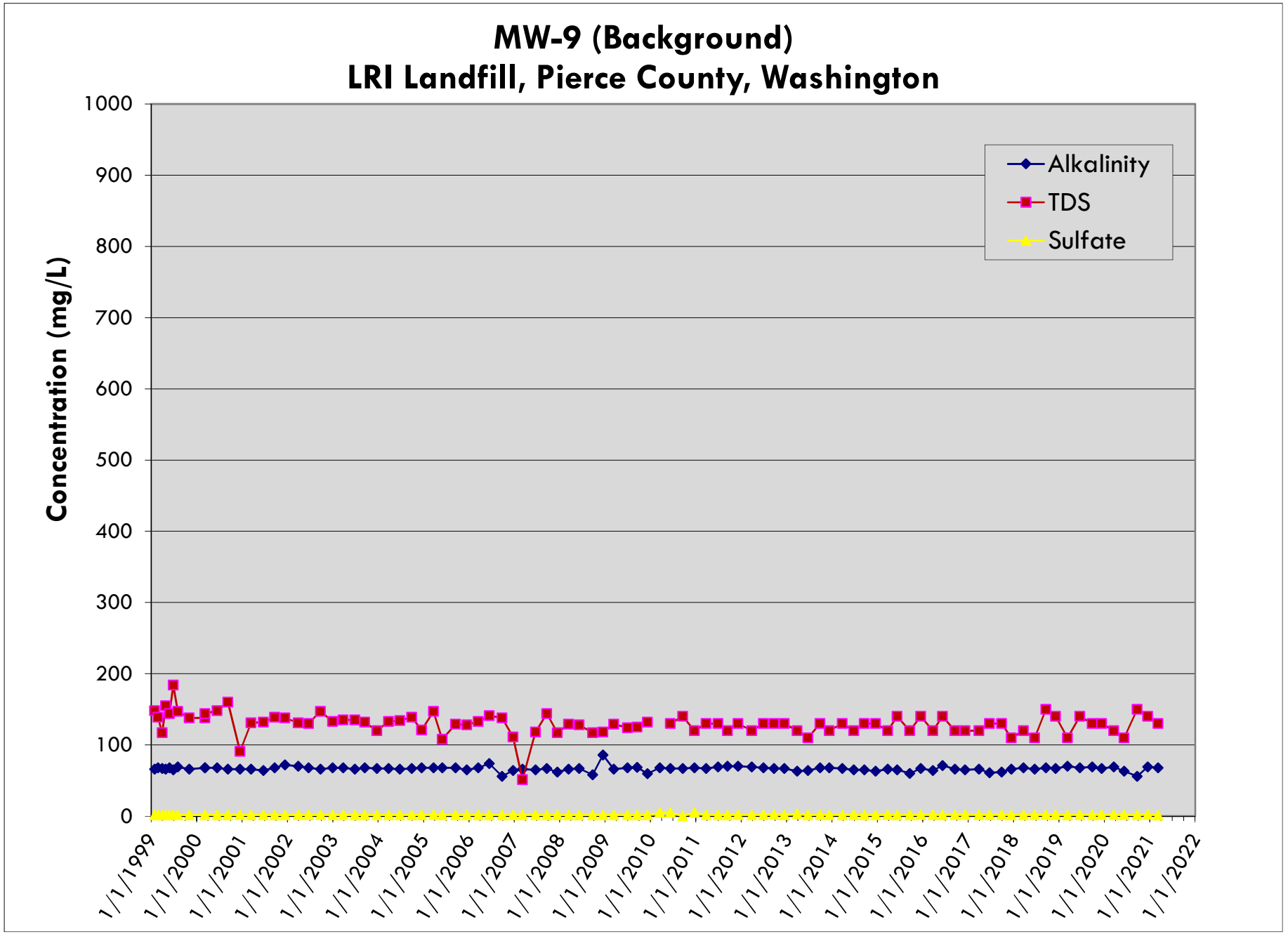

MW-3
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

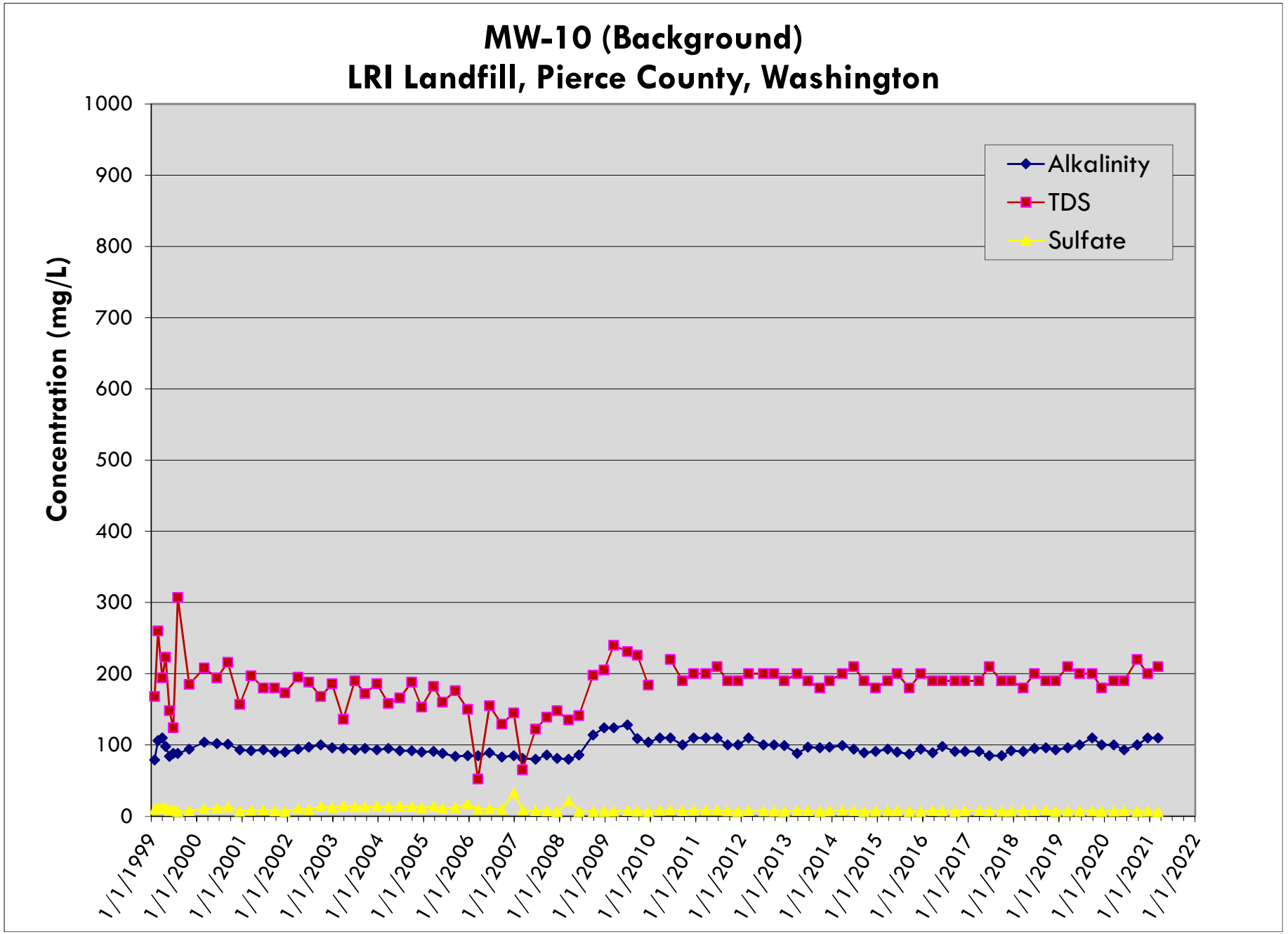

MW-4
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

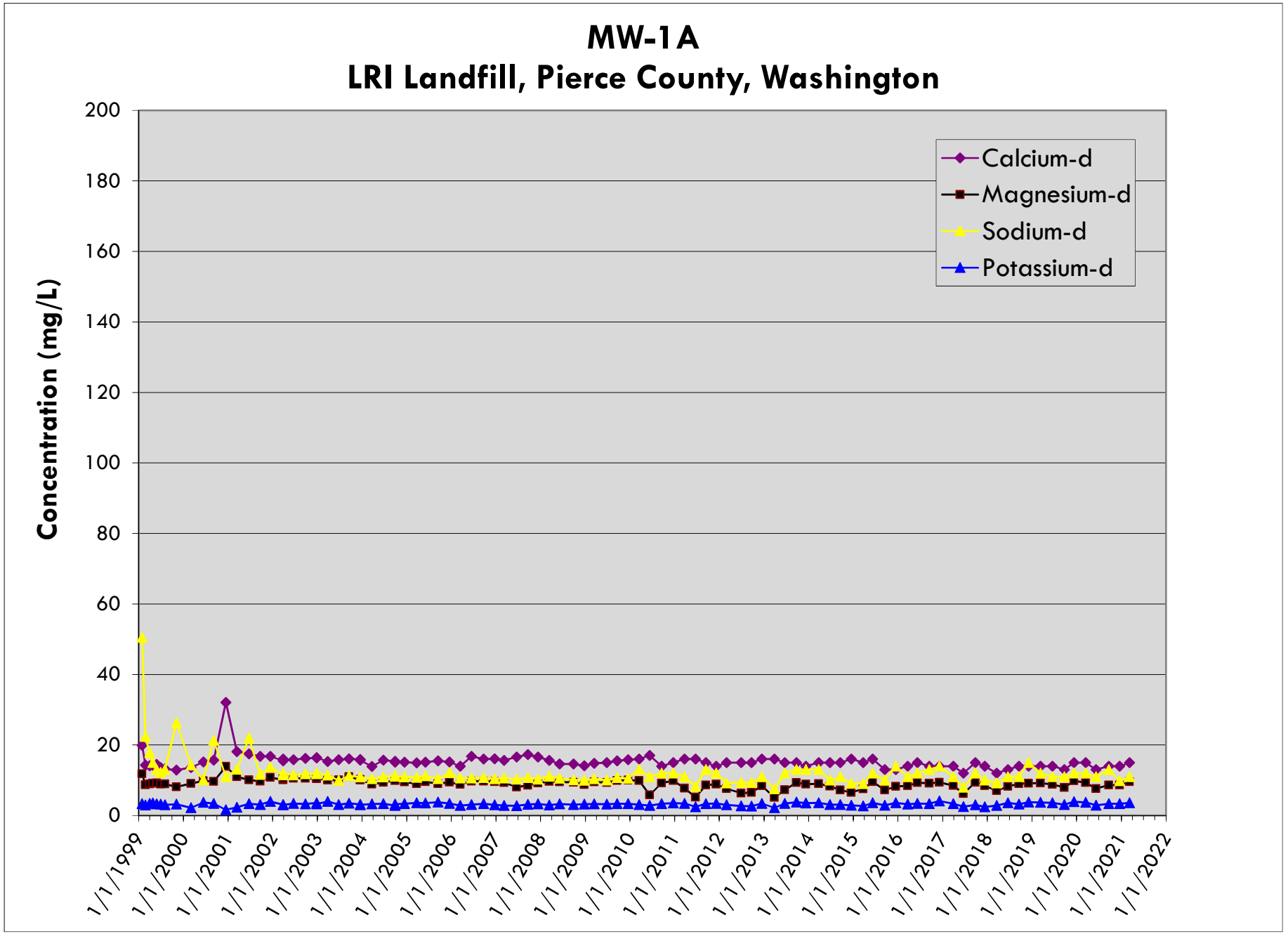

MW-5A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

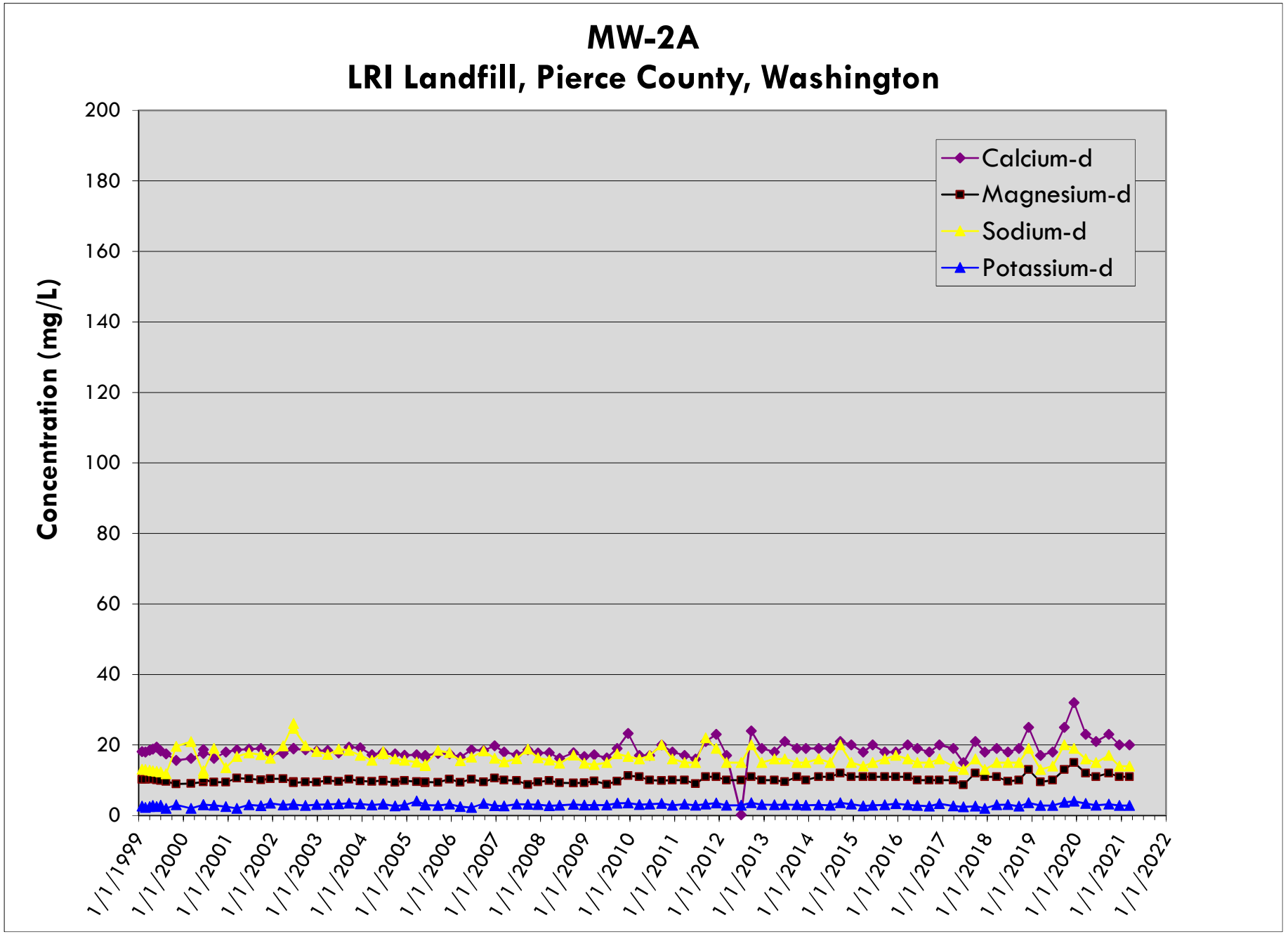

MW-6
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

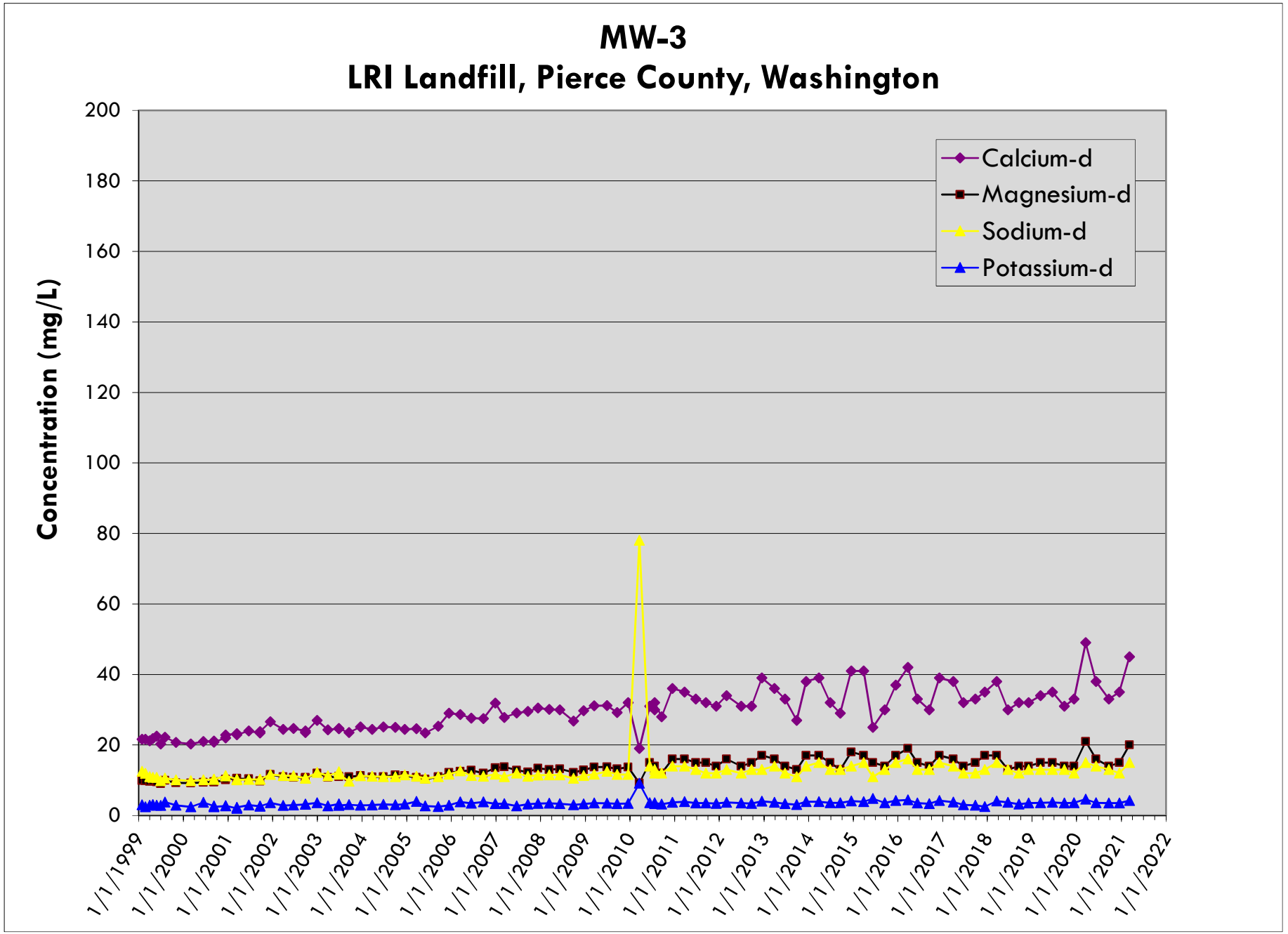

MW-7
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

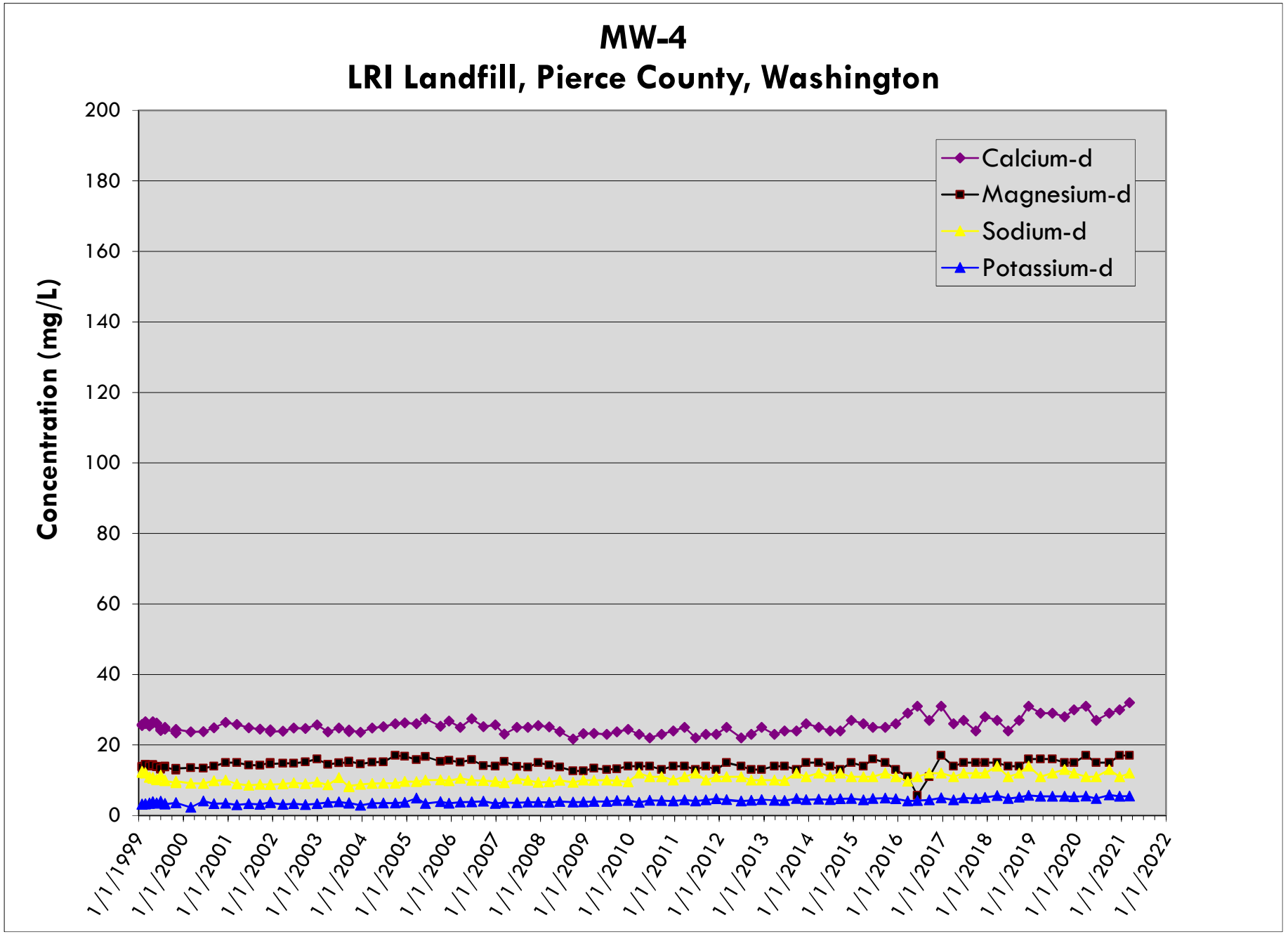

MW-9 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

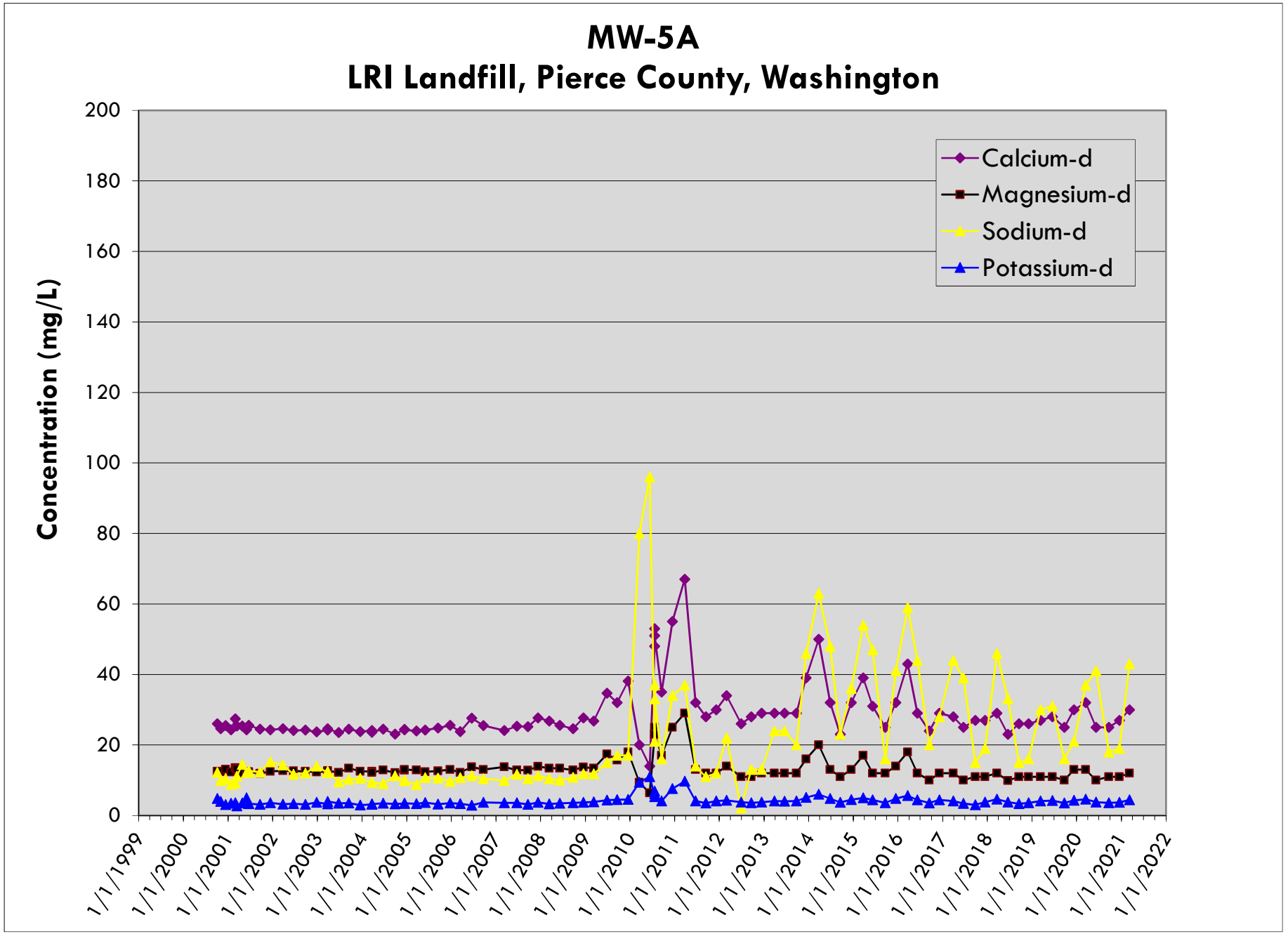

MW-10 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

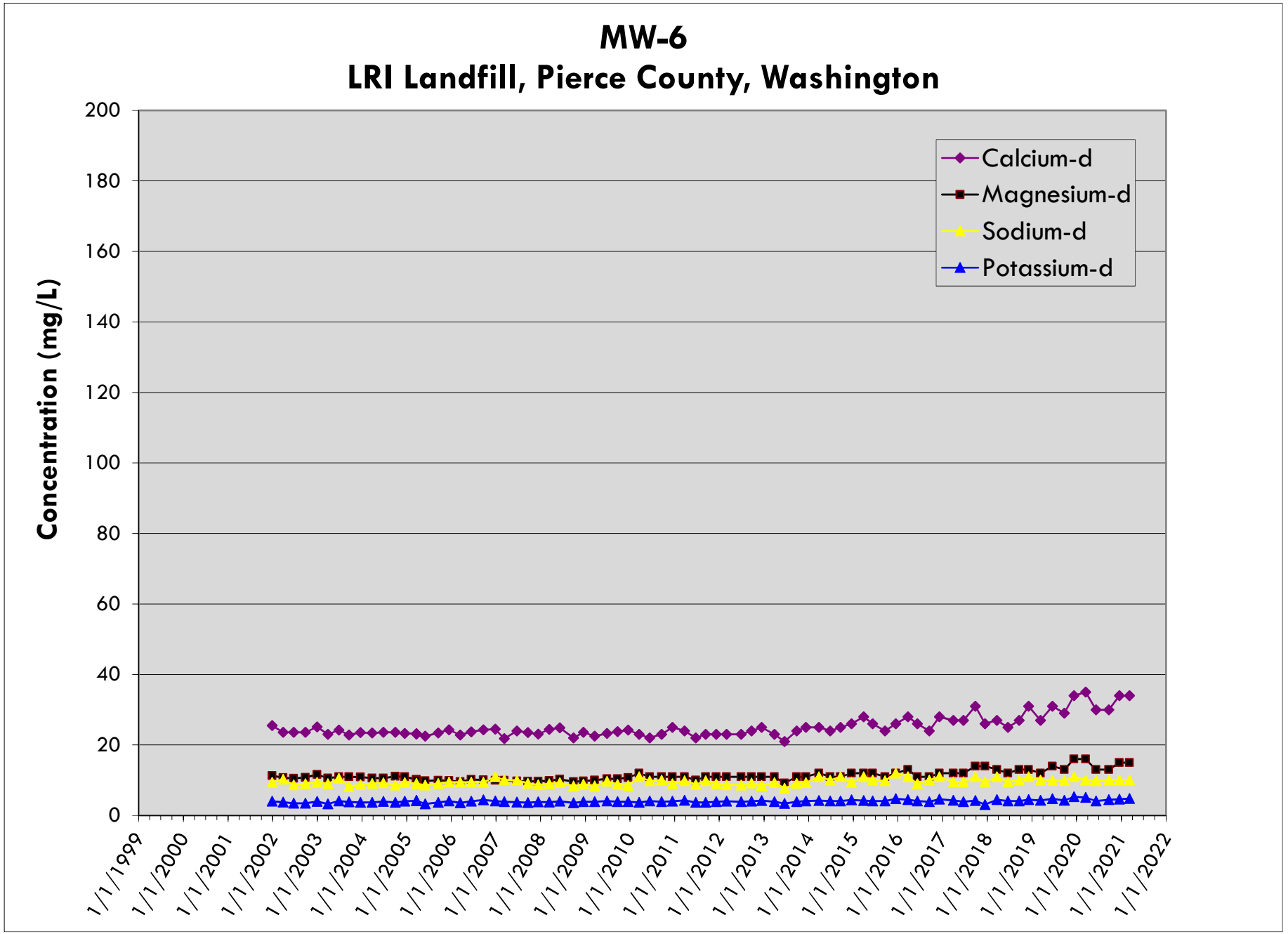

MW-1A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

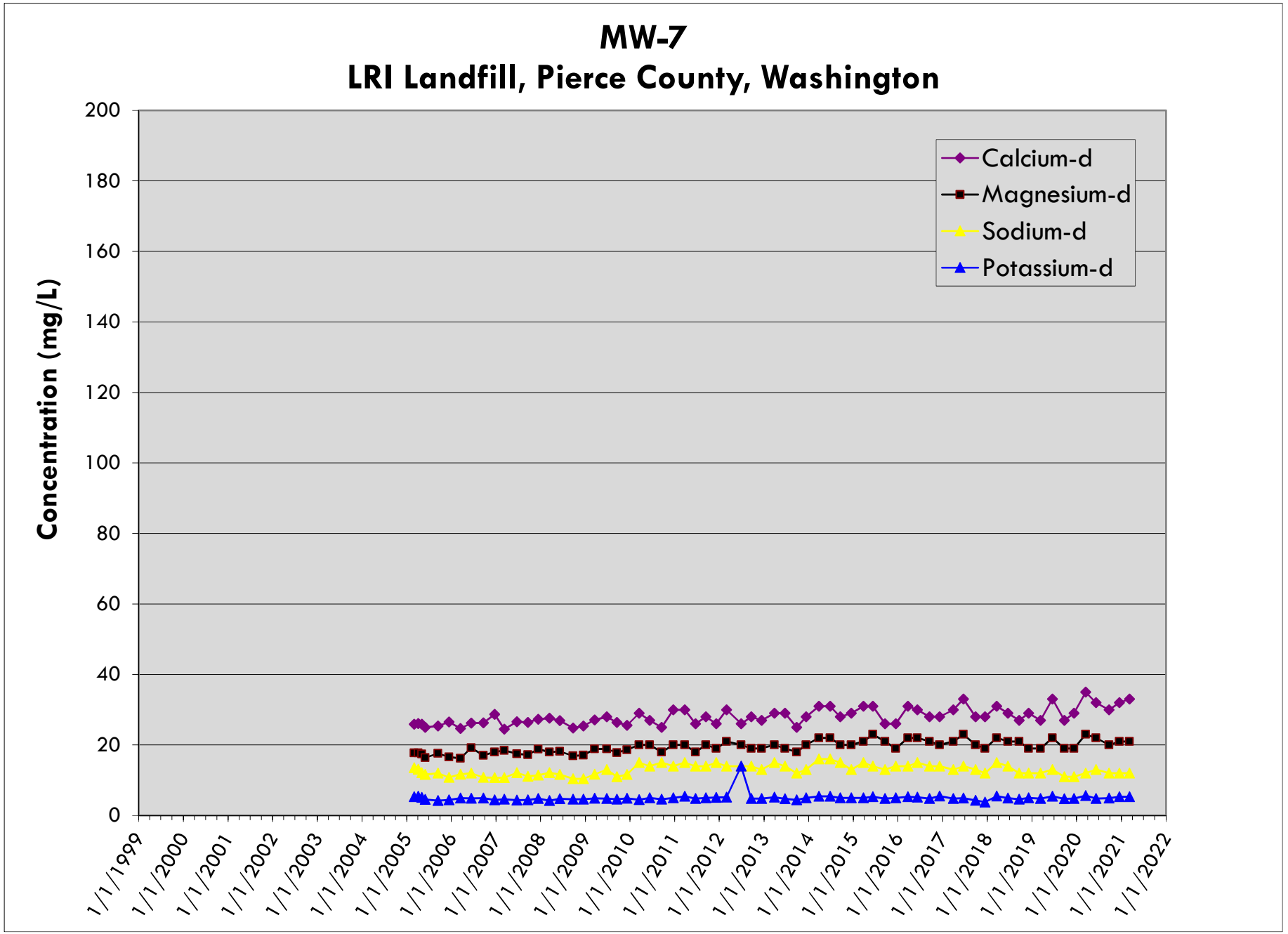

MW-2A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

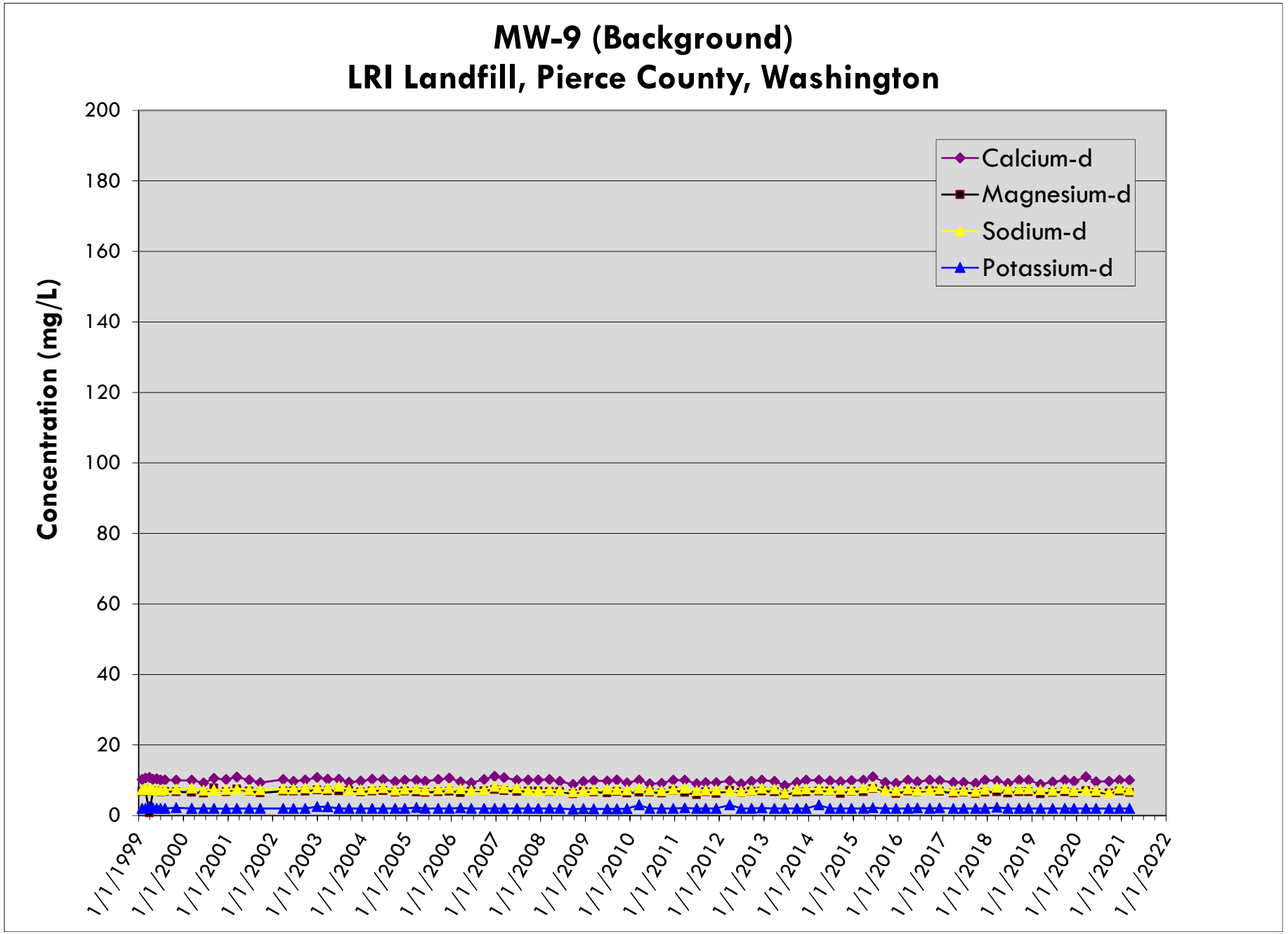

MW-3
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

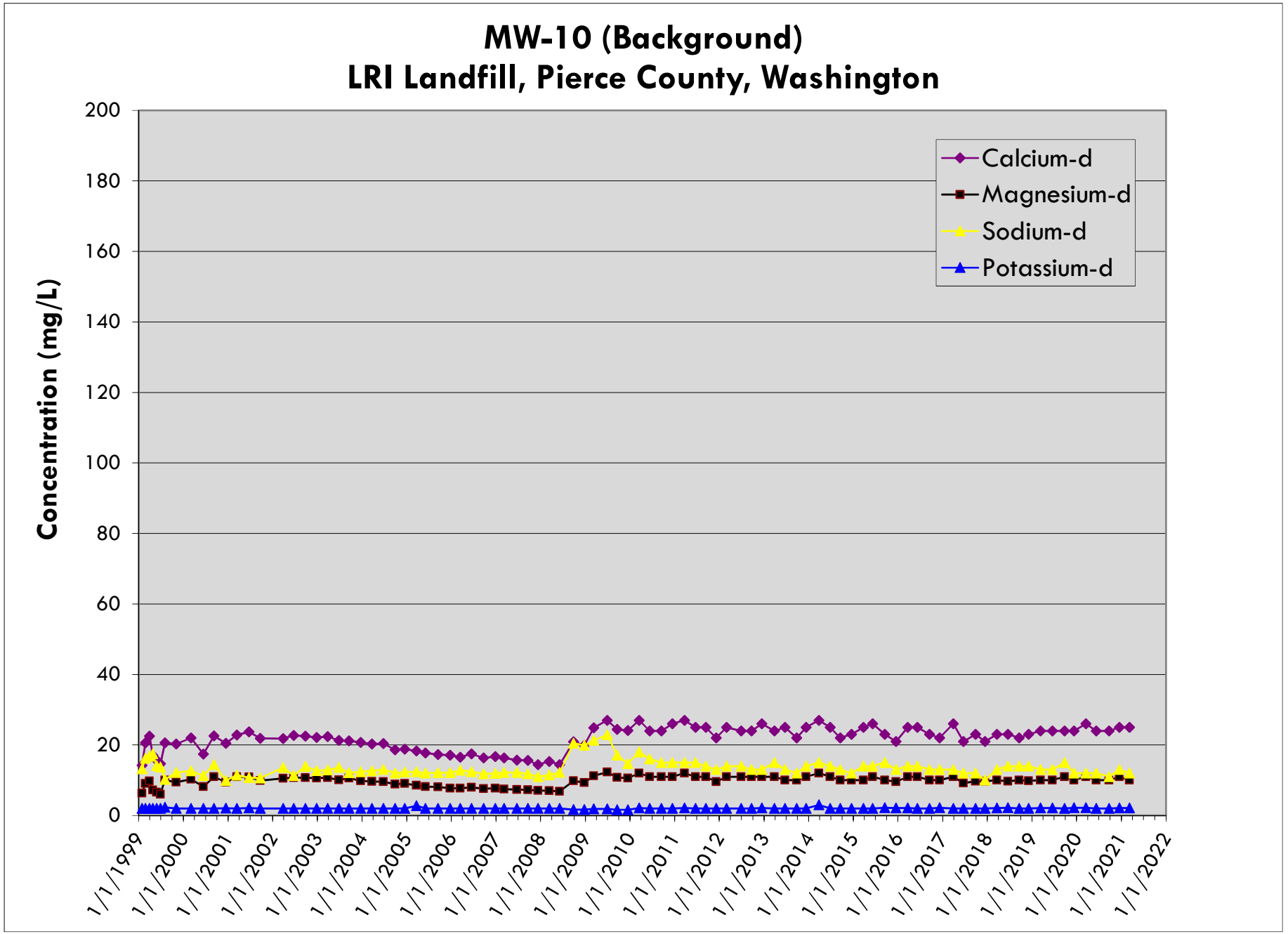

MW-4
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


MW-5A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

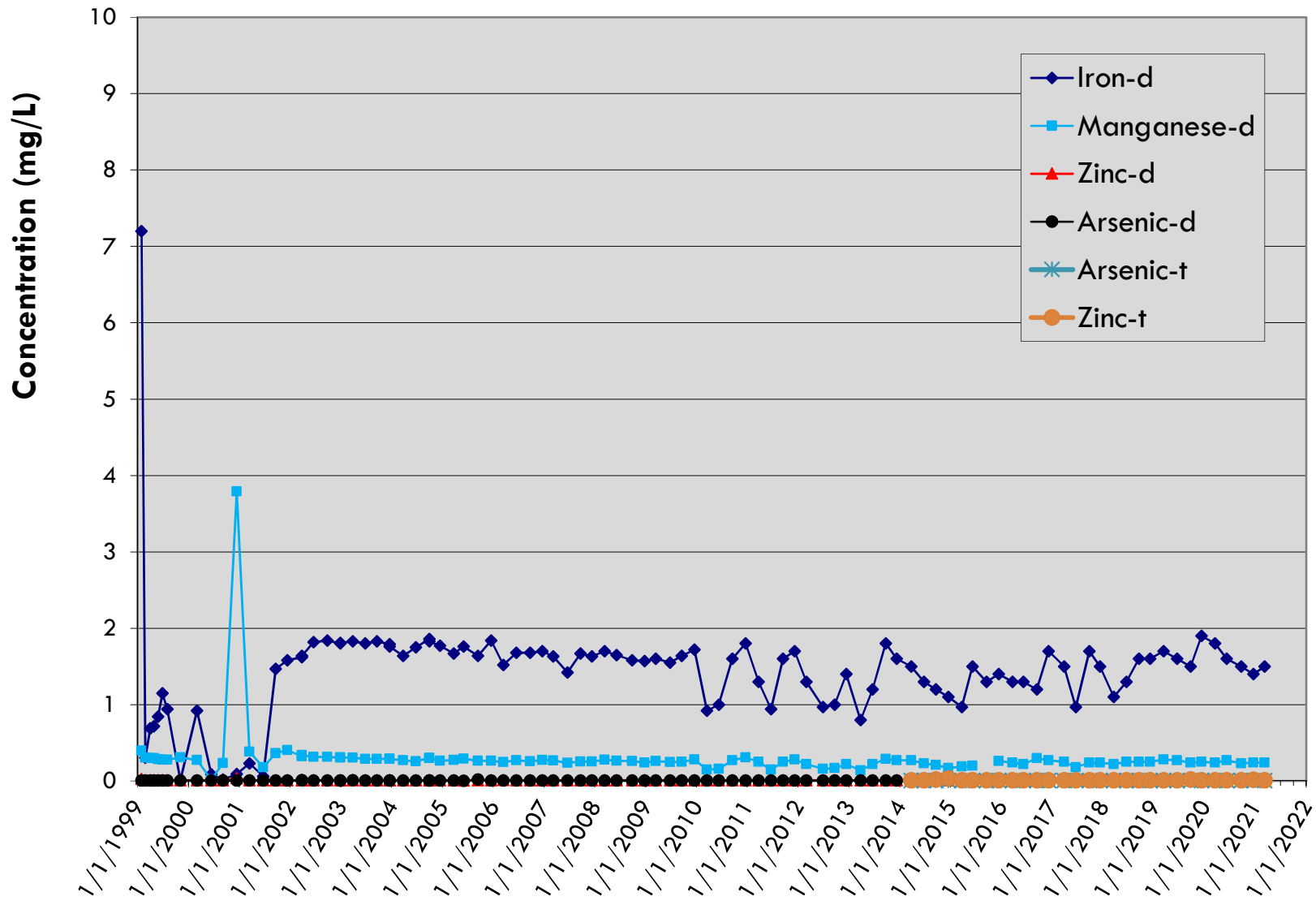

MW-6
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


MW-7
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

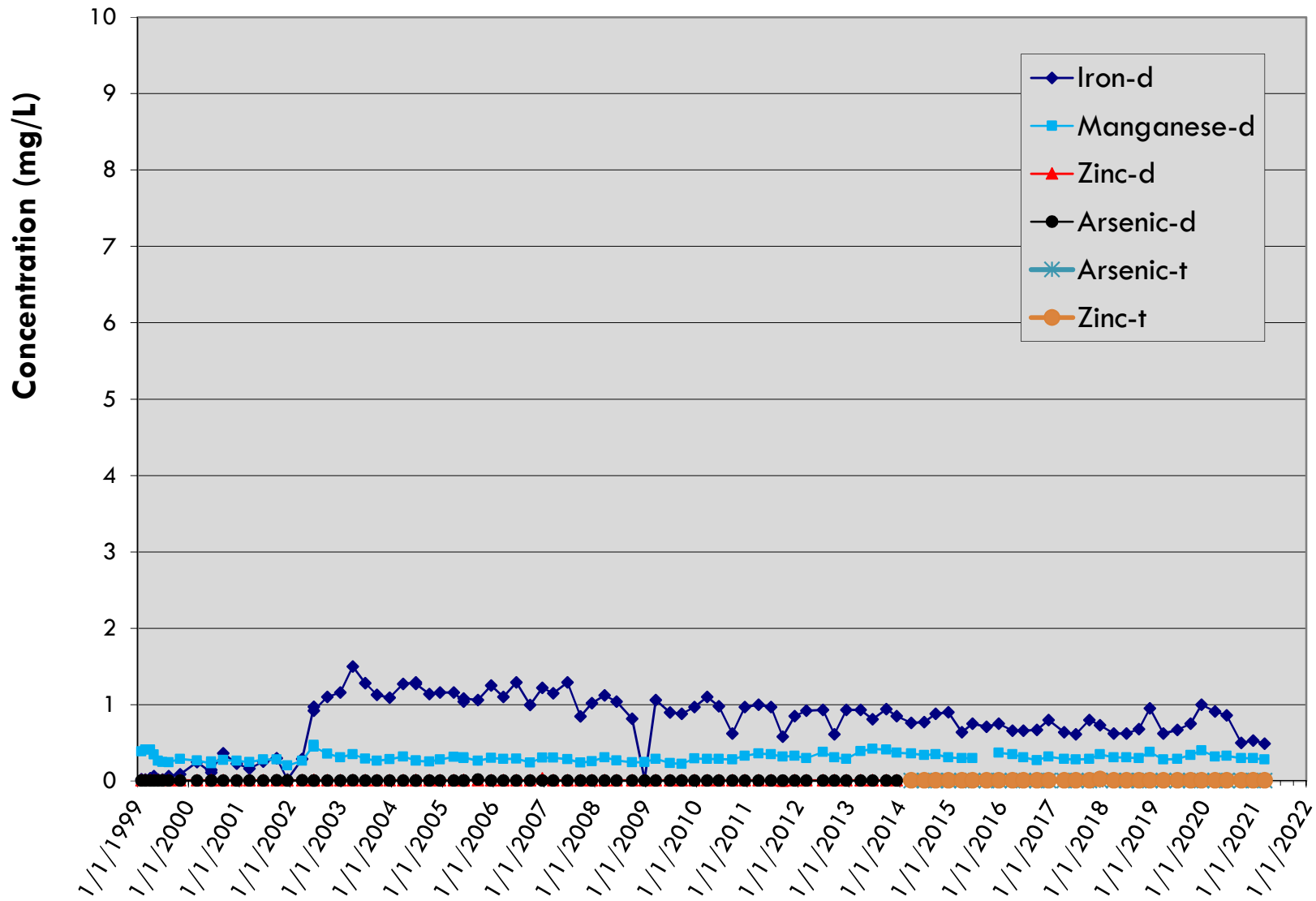

MW-9 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


MW-10 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Calcium-d
Magnesium-d
Sodium-d
Potassium-d
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

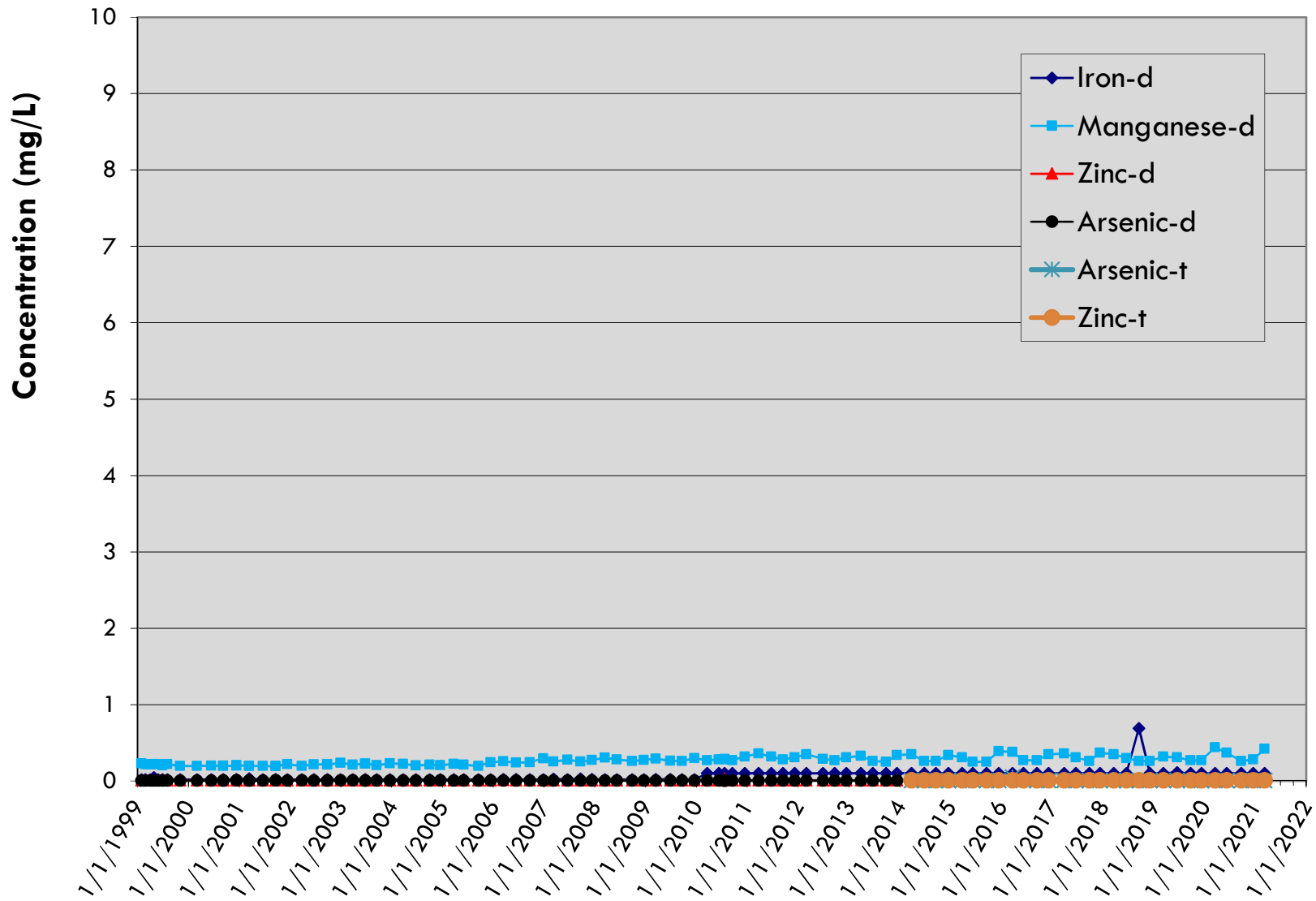
MW-1A
LRI Landfill, Pierce County, Washington



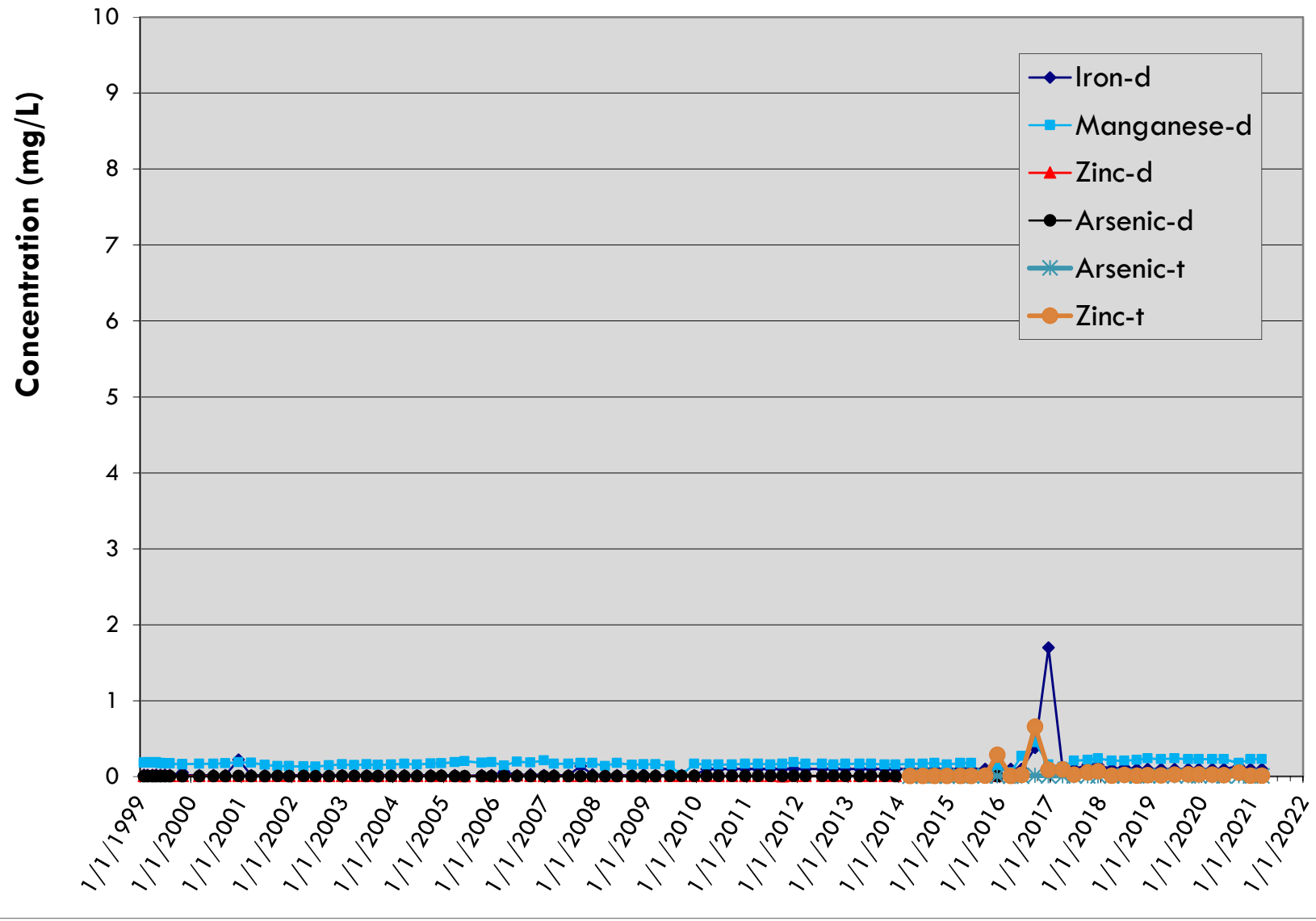
MW-2A
LRI Landfill, Pierce County, Washington



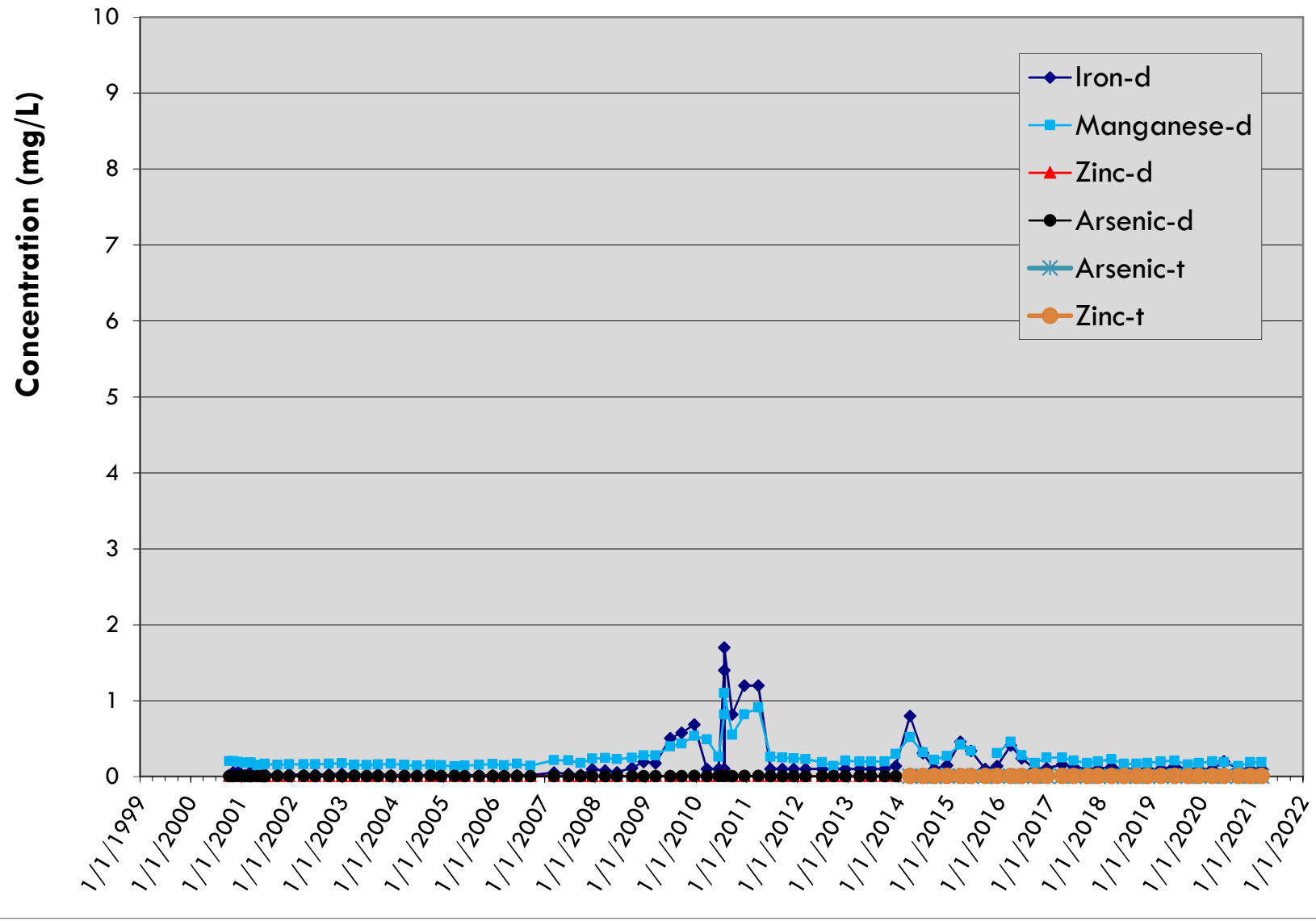
MW-3
LRI Landfill, Pierce County, Washington



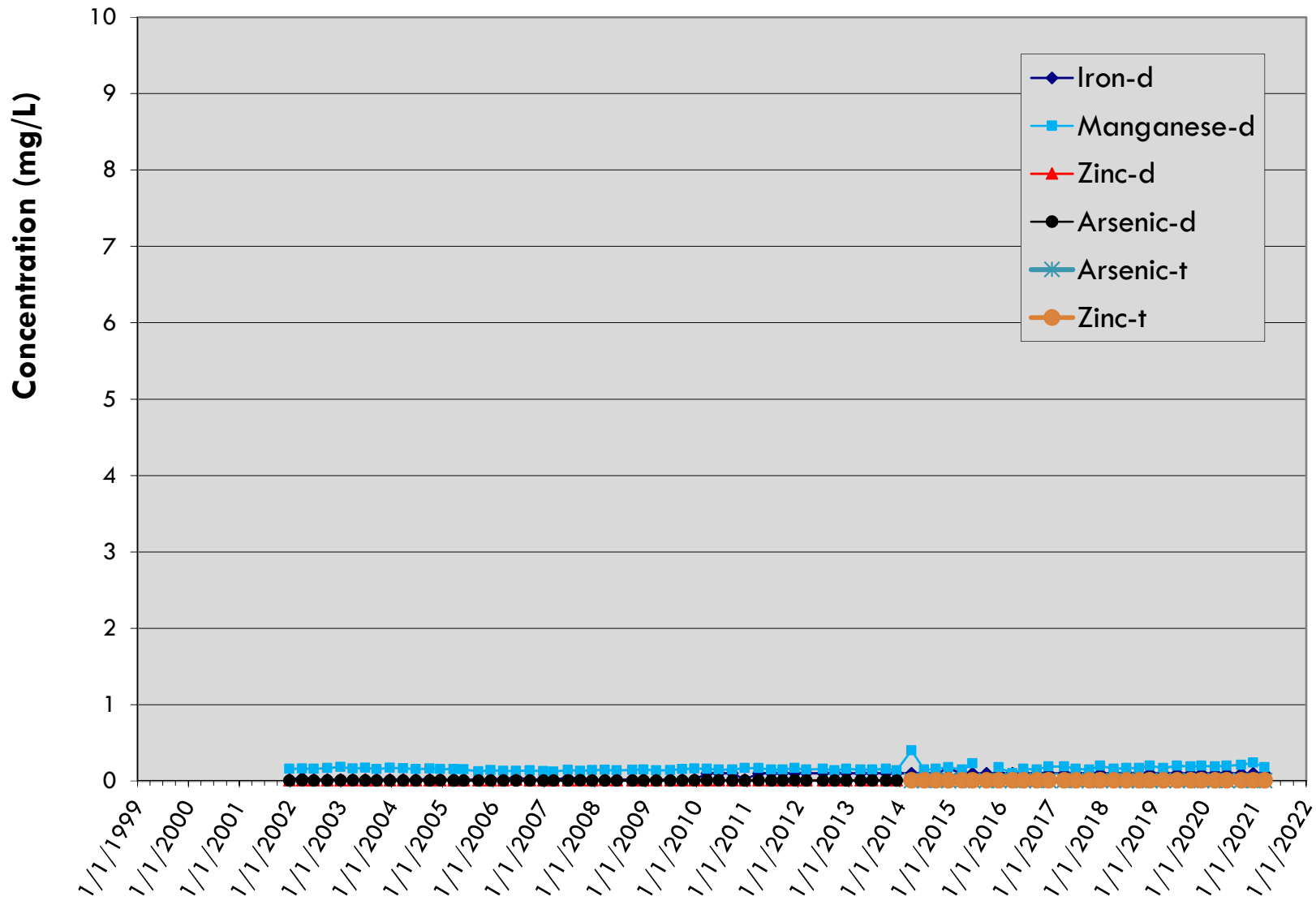
MW-4
LRI Landfill, Pierce County, Washington



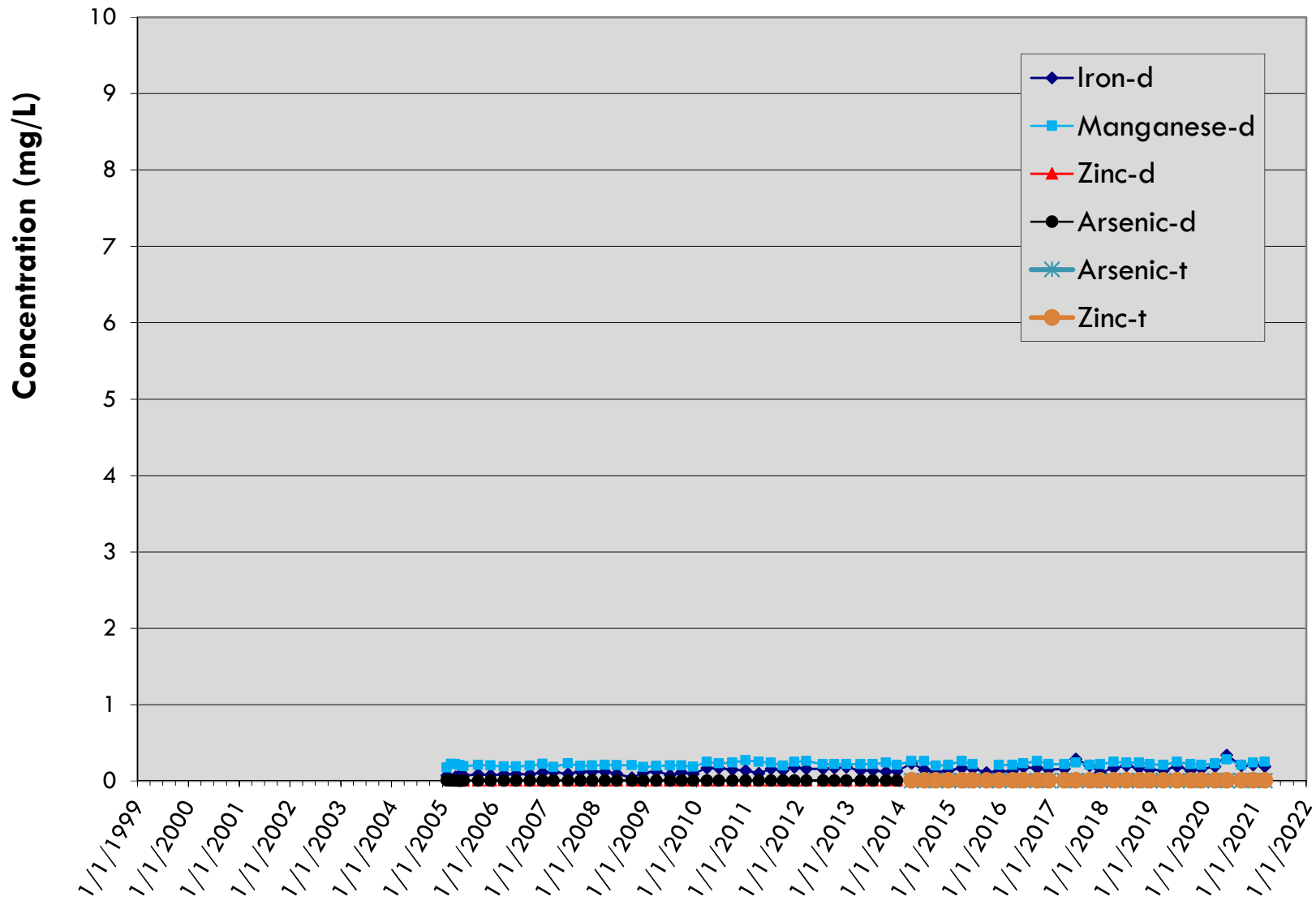
MW-5A
LRI Landfill, Pierce County, Washington

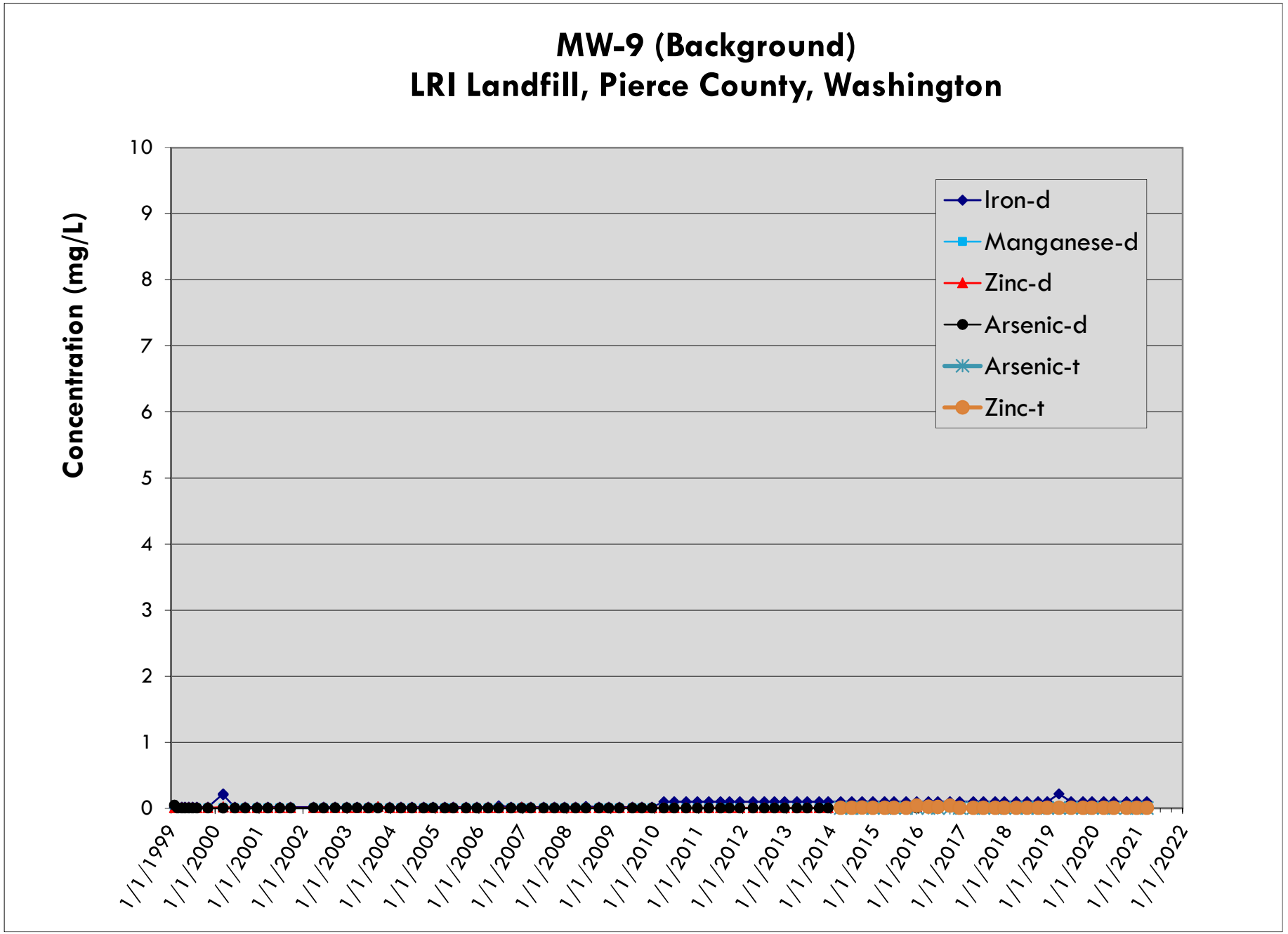


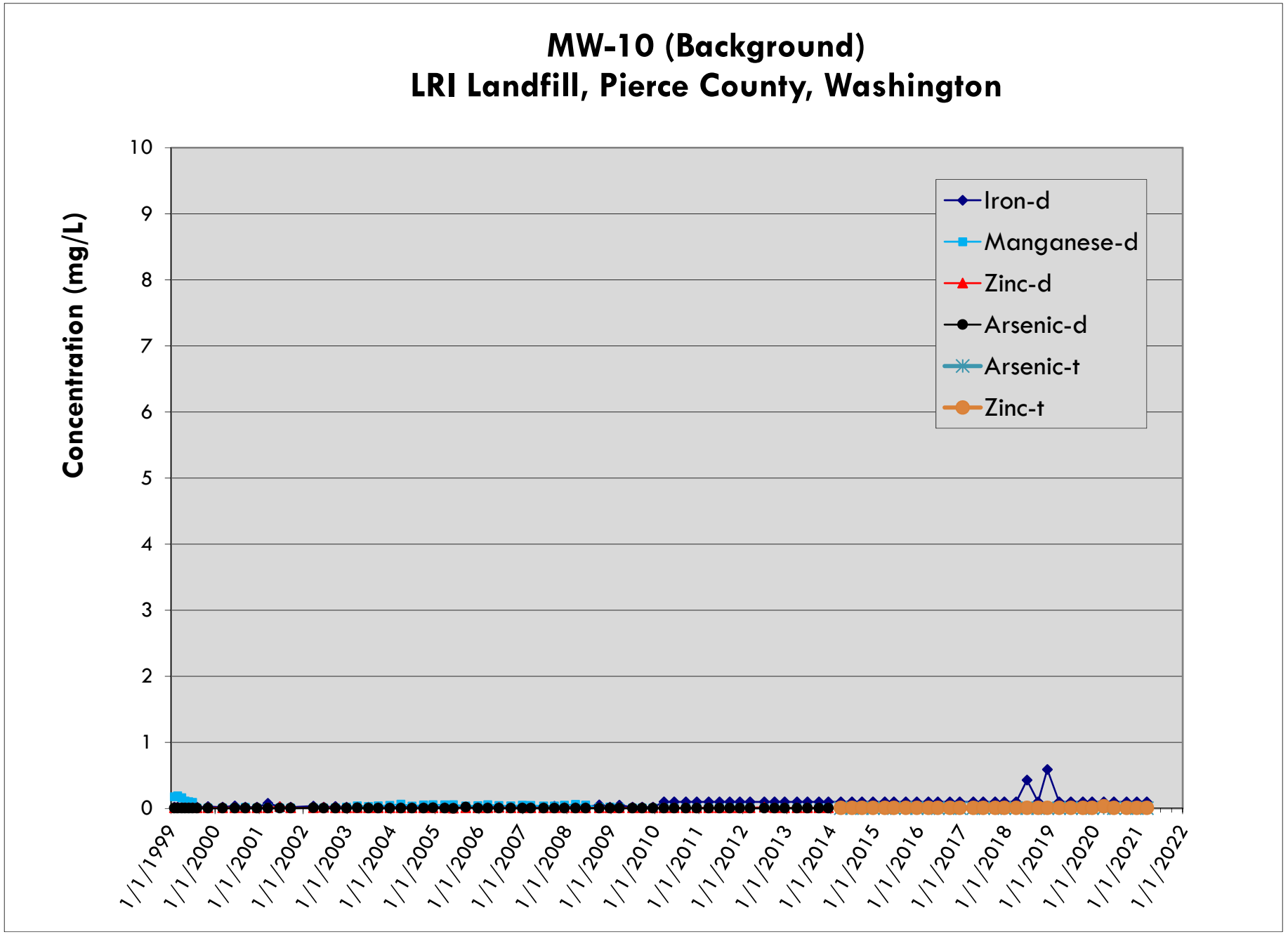
MW-6
LRI Landfill, Pierce County, Washington

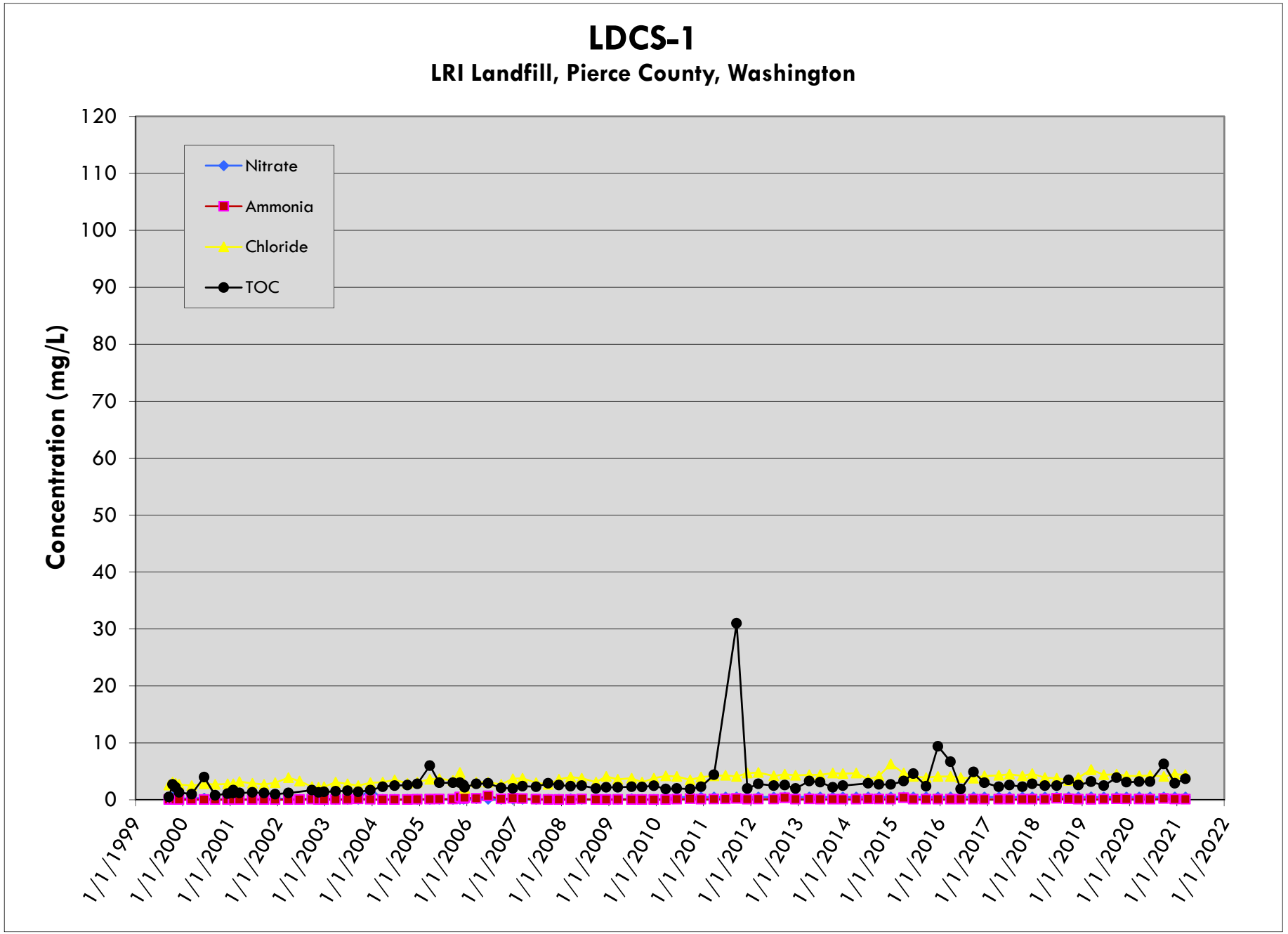


MW-7
LRI Landfill, Pierce County, Washington

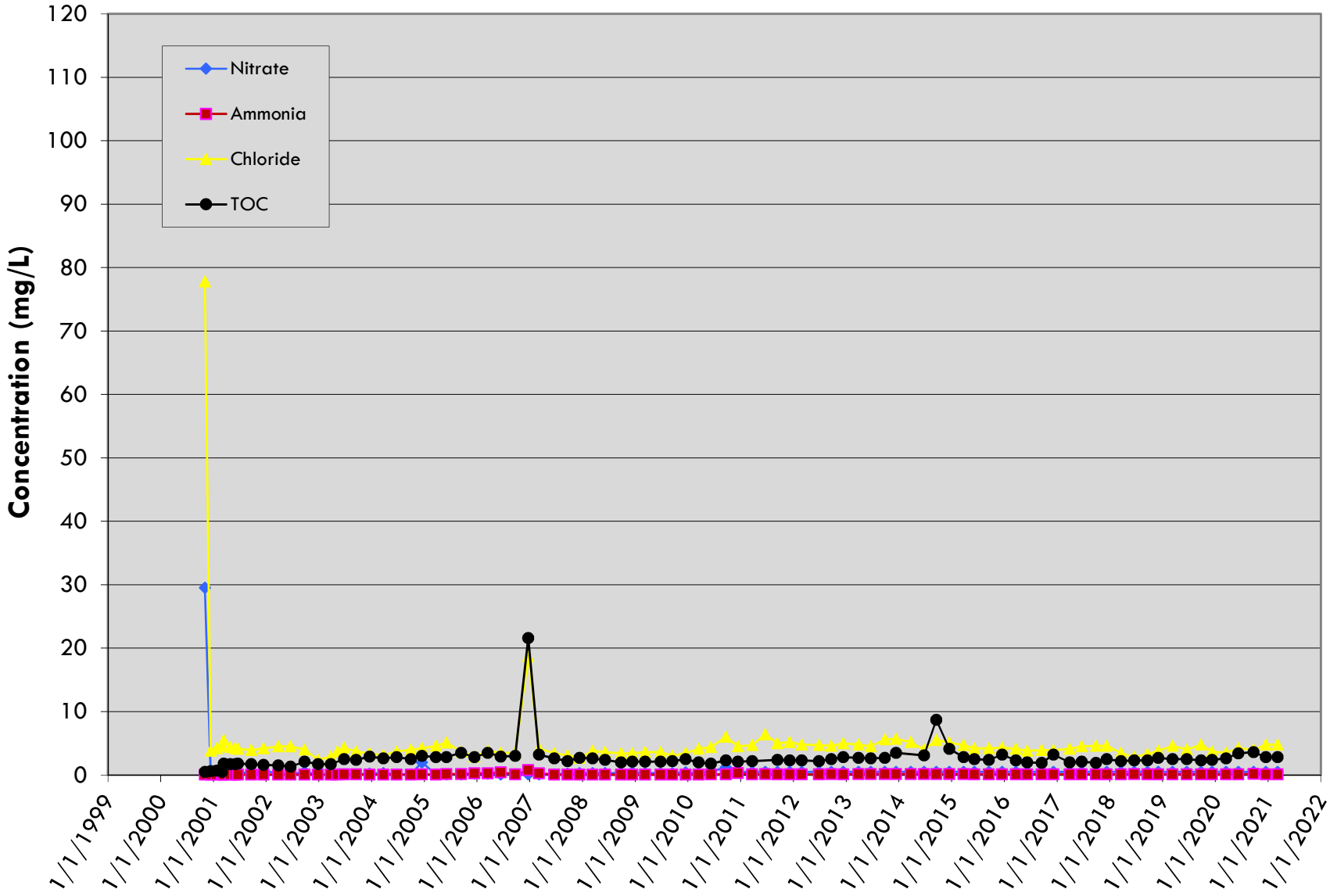


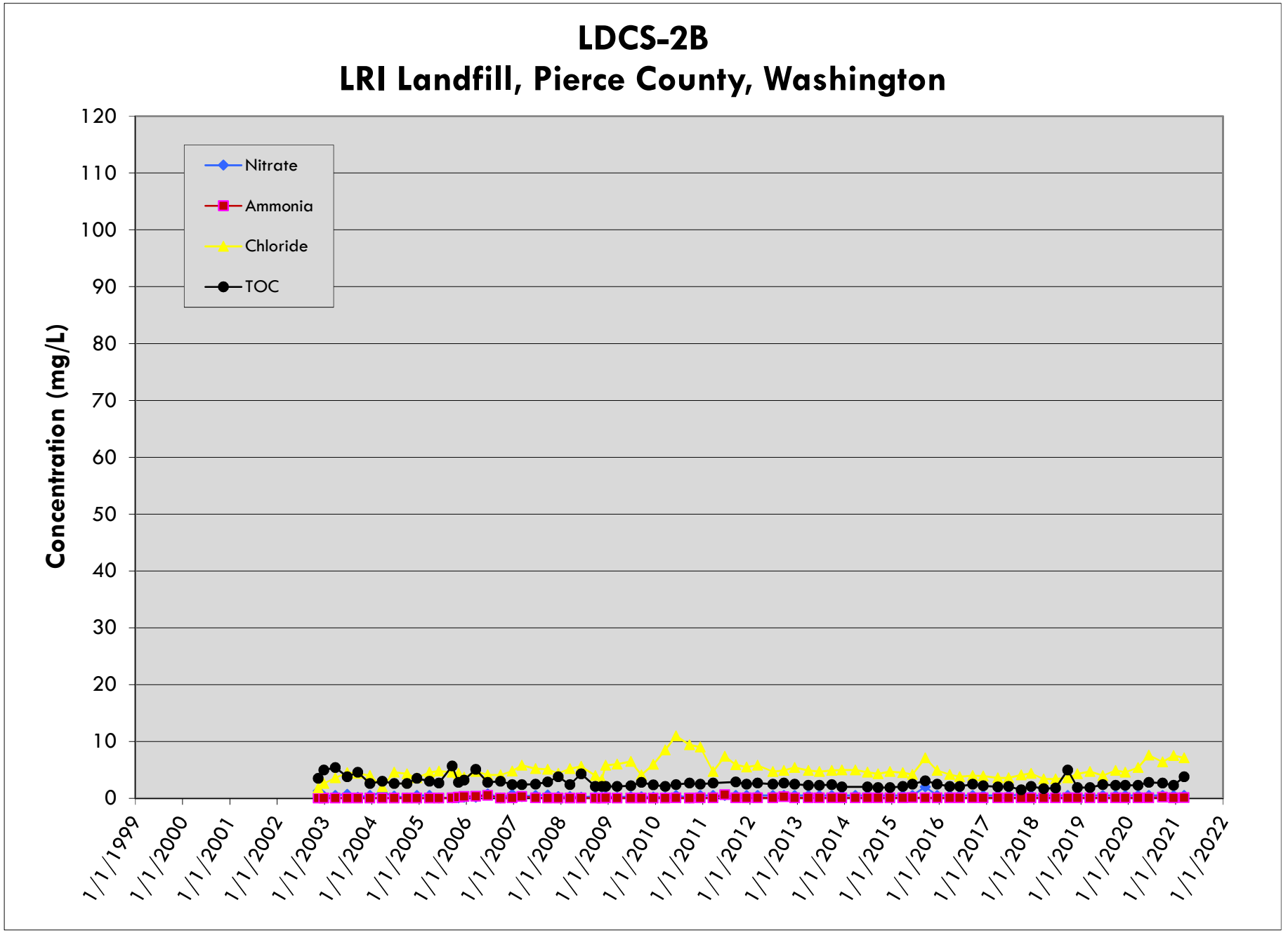

MW-9 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Iron-d
Manganese-d
Zinc-d
Arsenic-d
Arsenic-t
Zinc-t
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


MW-10 (Background)
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Iron-d
Manganese-d
Zinc-d
Arsenic-d
Arsenic-t
Zinc-t
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

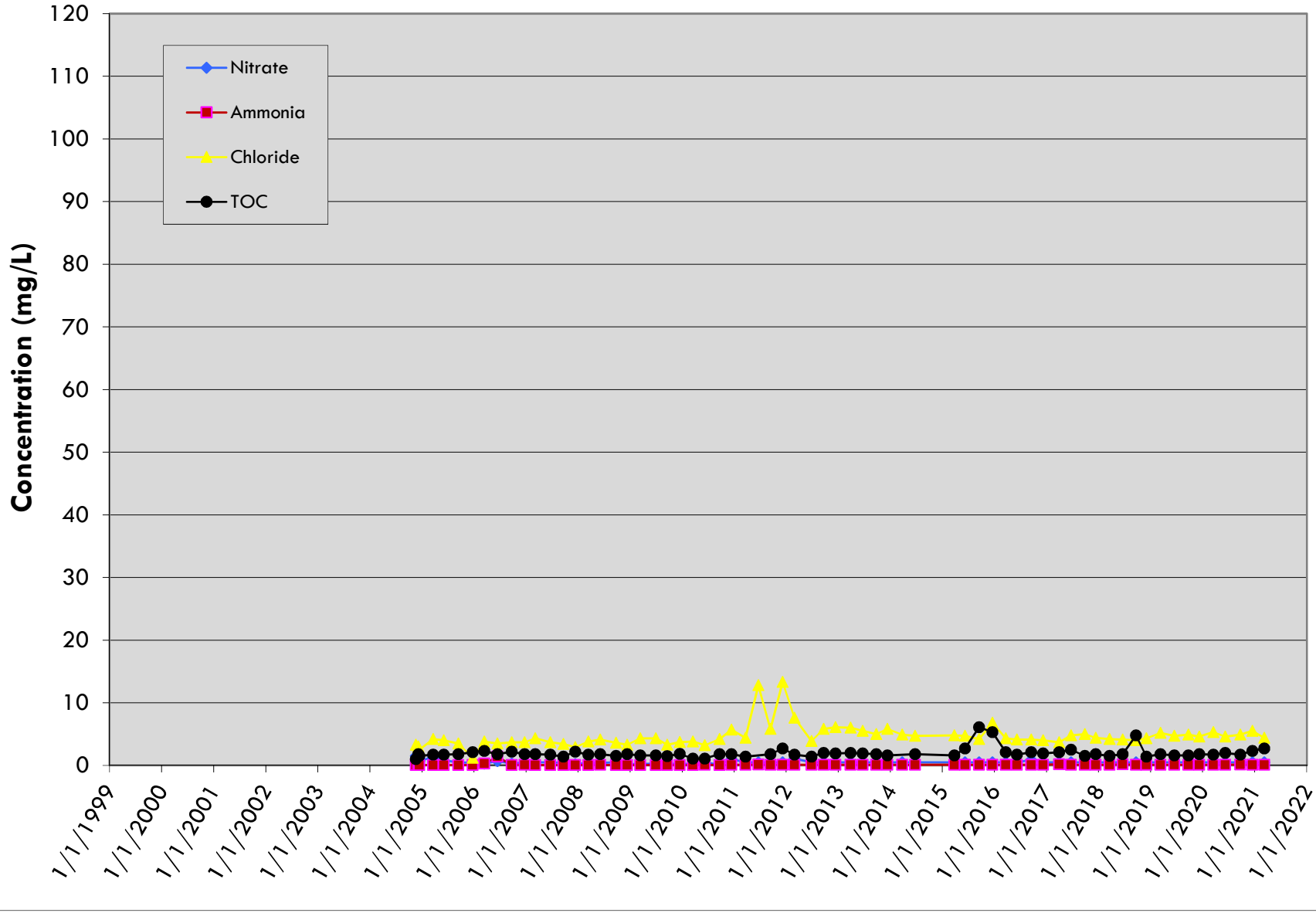

LDCS-1
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
120
110
100
90
80
70
60
50
40
30
20
10
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

LDCS-2A
LRI Landfill, Pierce County, Washington

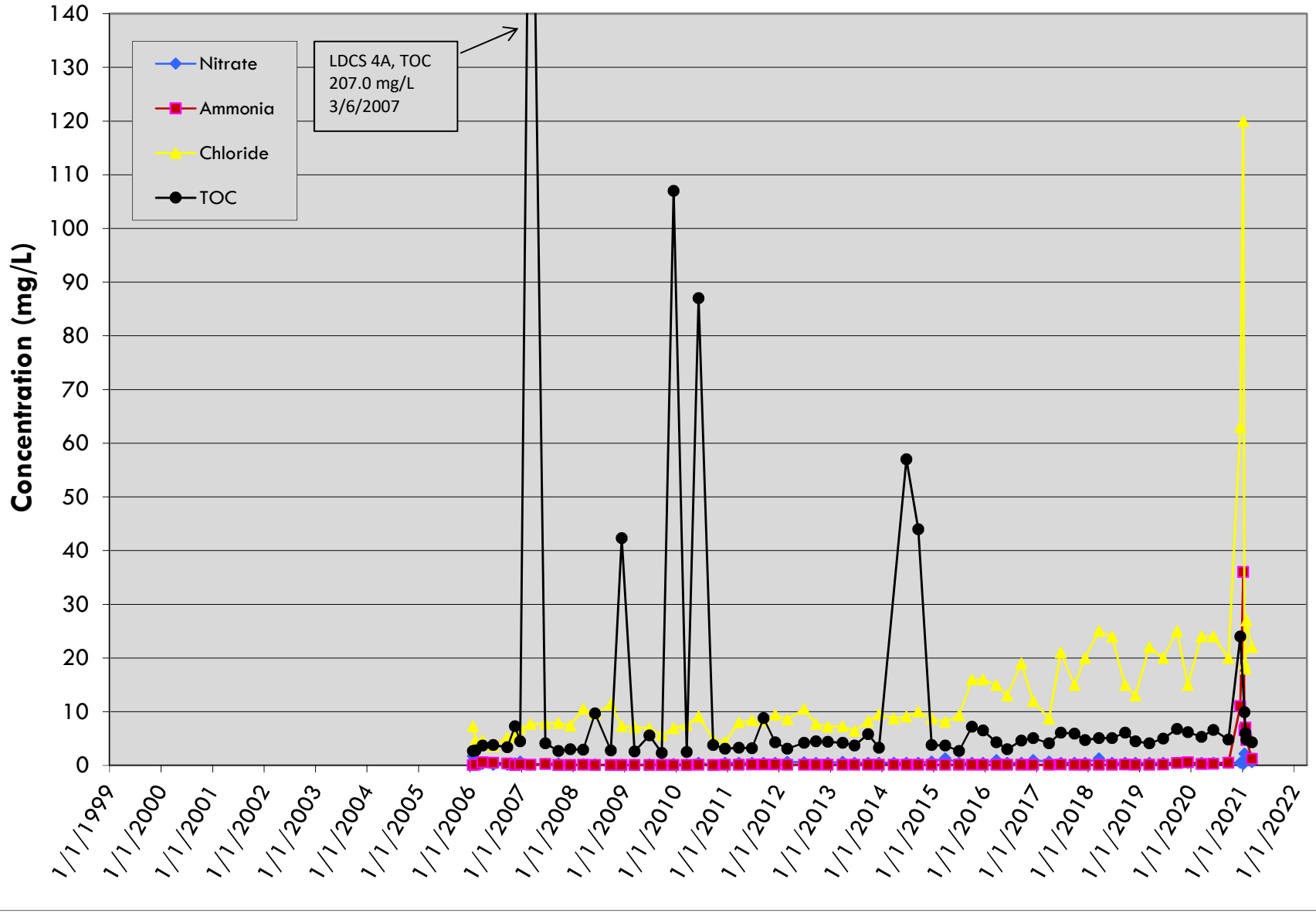



LDCS-2B
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
120
110
100
90
80
70
60
50
40
30
20
10
0
Nitrate
Ammonia
Chloride
TOC
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

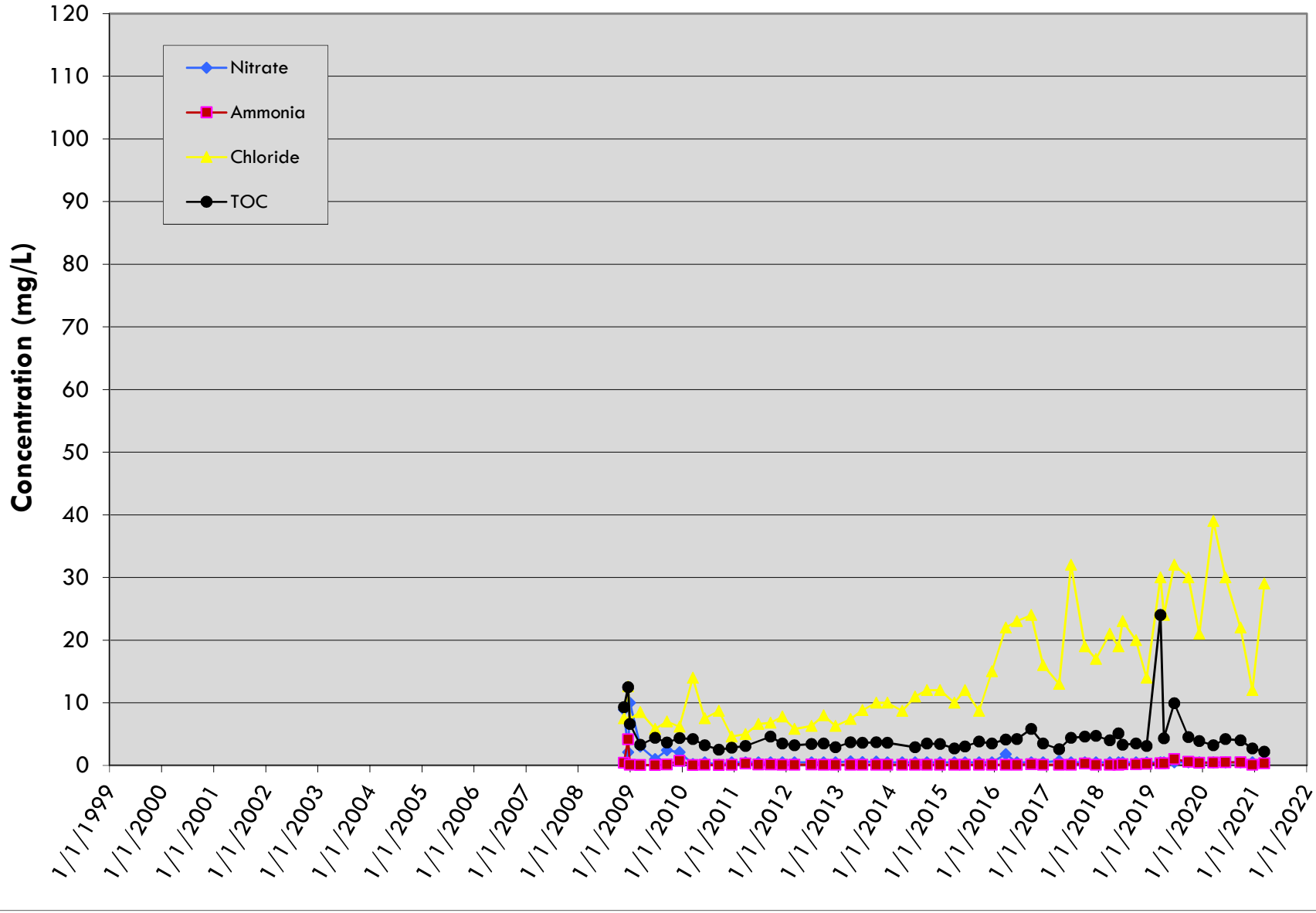
LDCS-3A
LRI Landfill, Pierce County, Washington



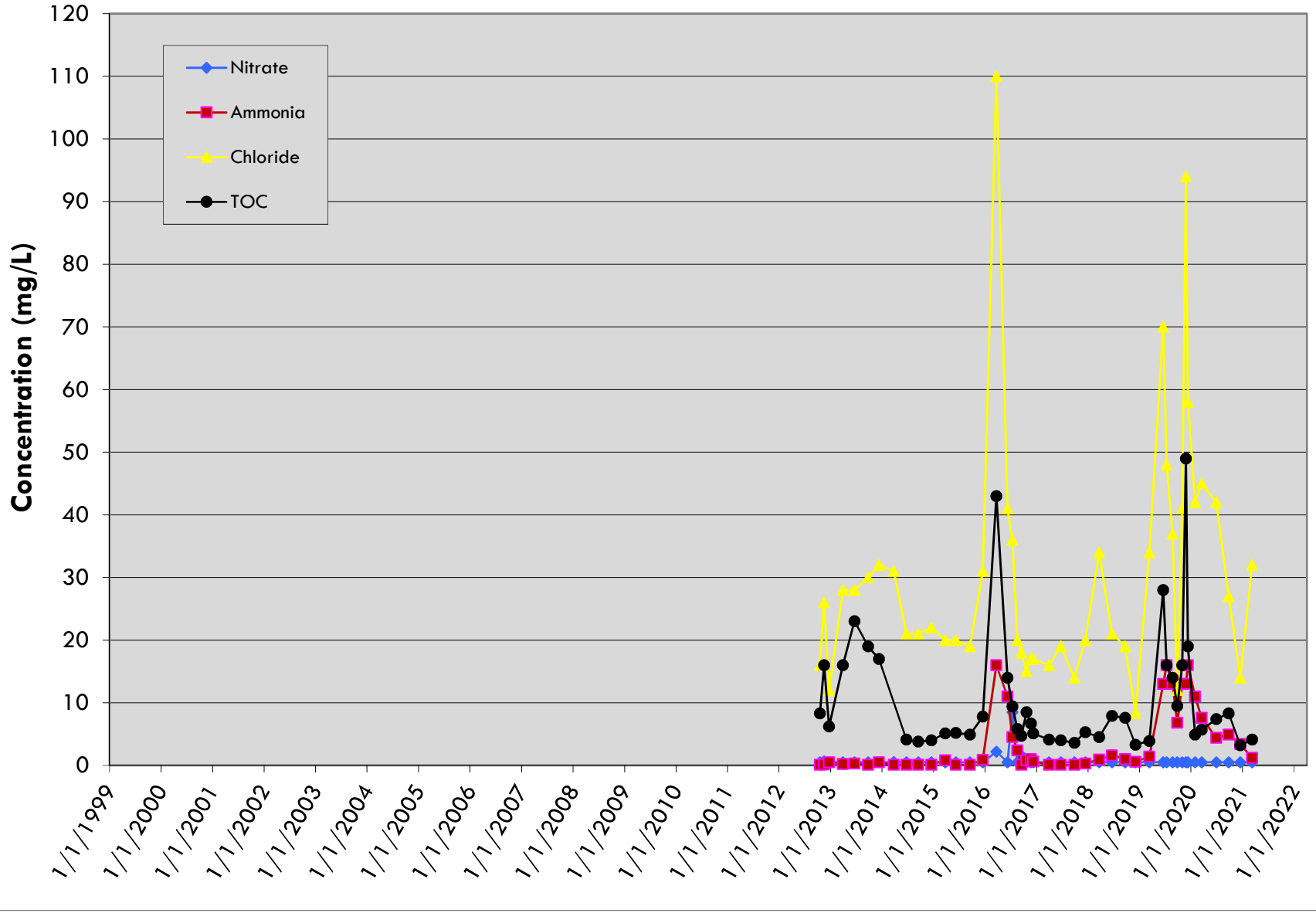
LDCS-4A
LRI Landfill, Pierce County, Washington



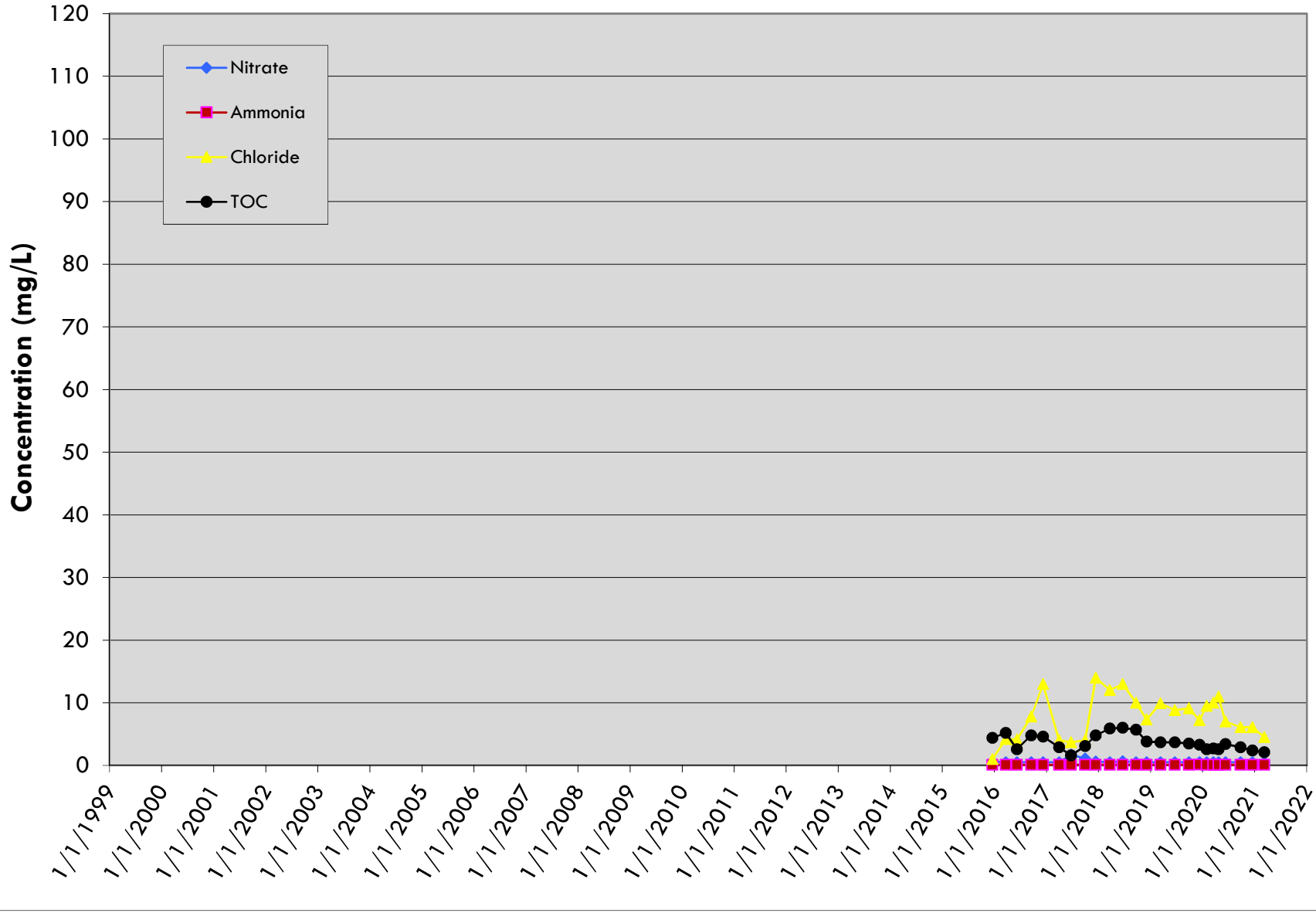
LDCS-4B
LRI Landfill, Pierce County, Washington

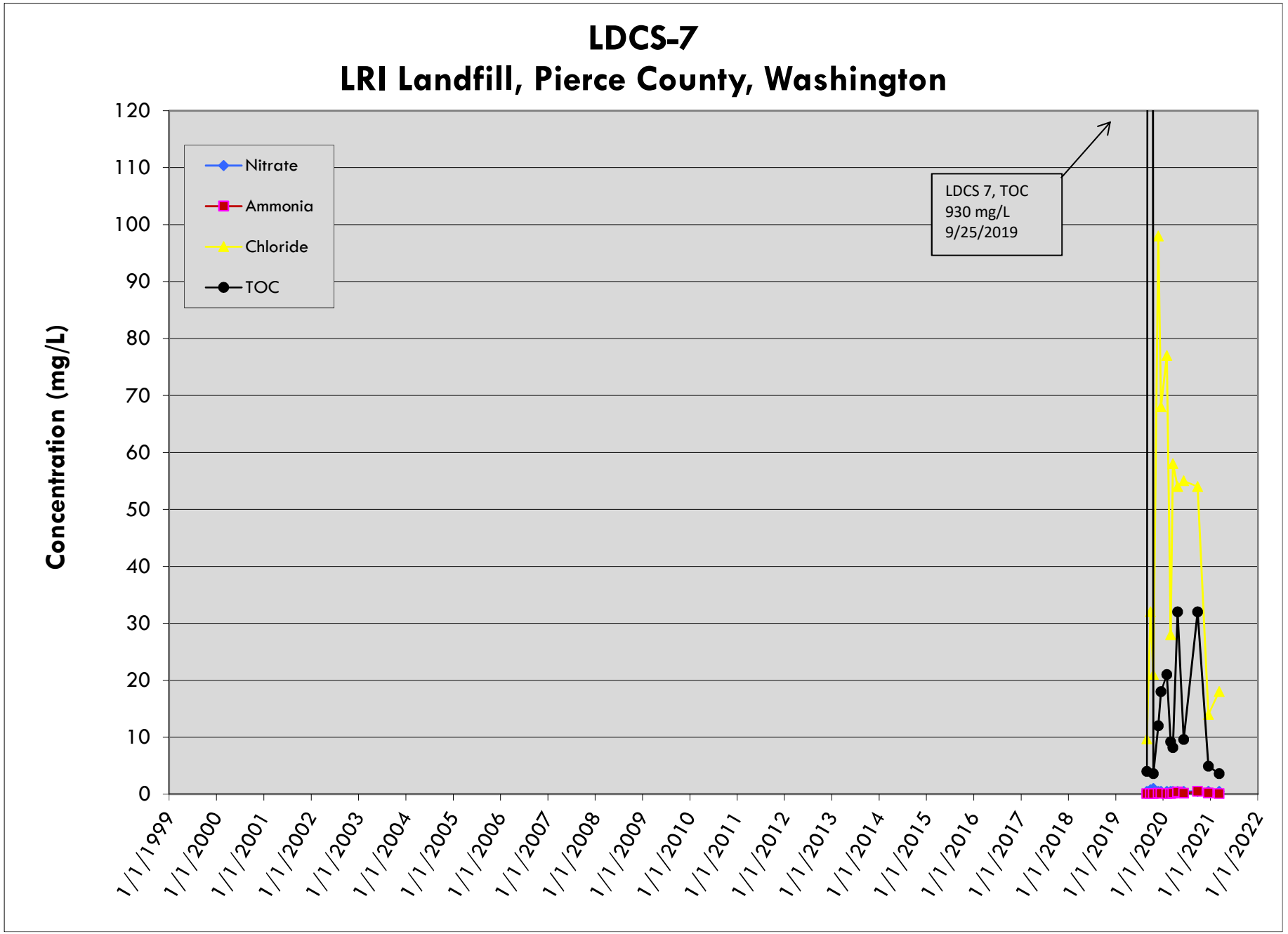


LDCS-5
LRI Landfill, Pierce County, Washington

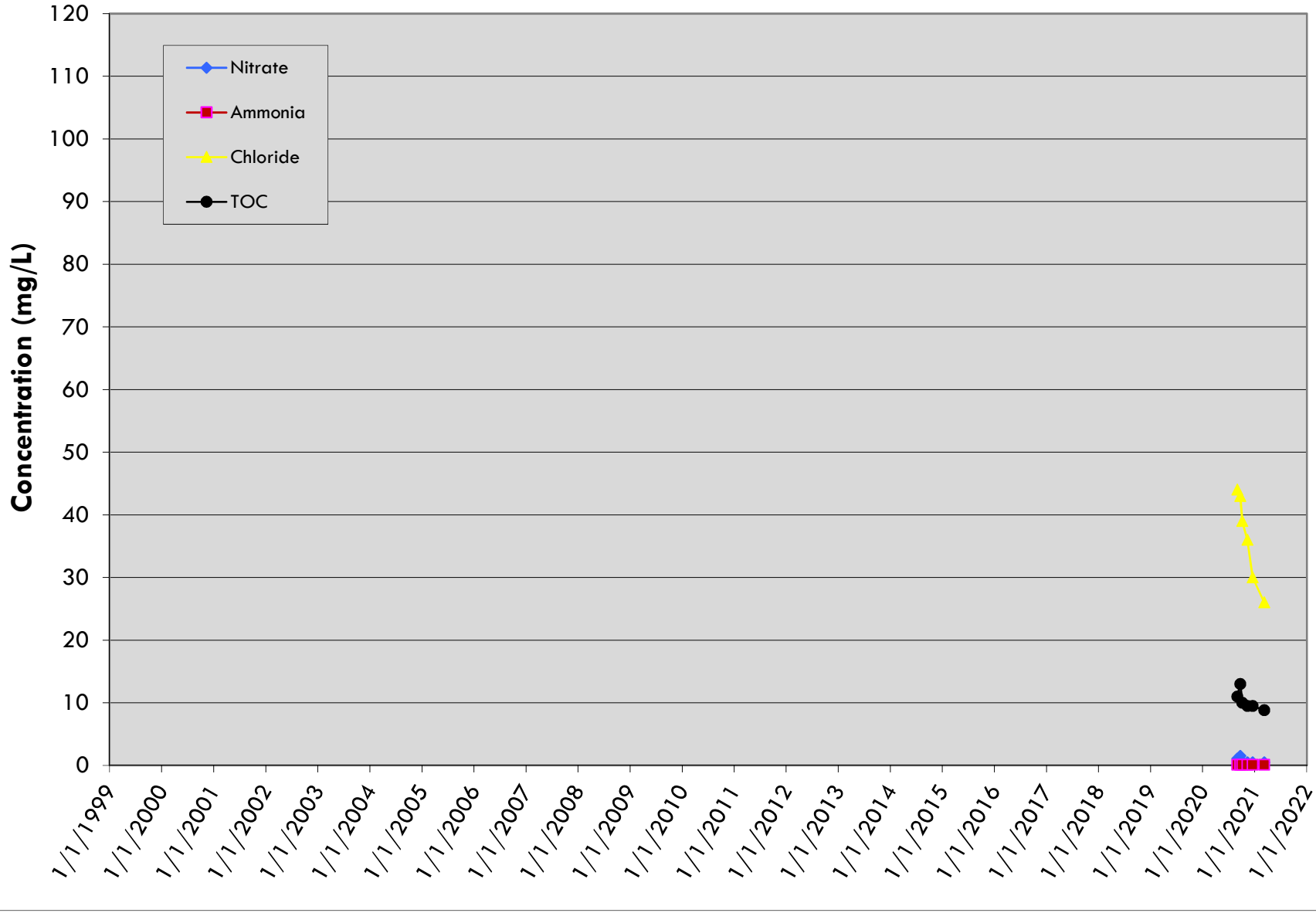


LDCS-6A
LRI Landfill, Pierce County, Washington

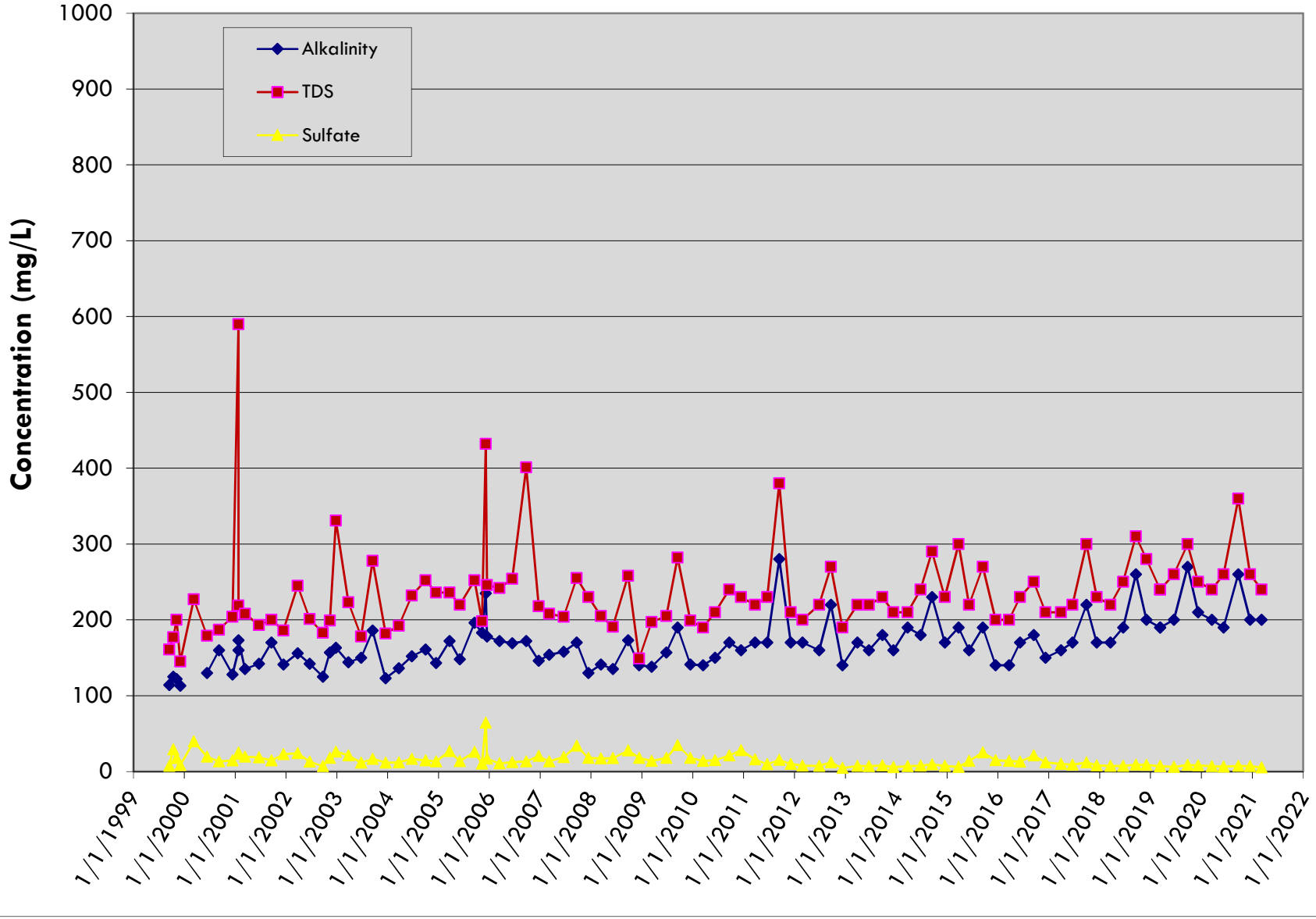



LDCS-7
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
120
110
100
90
80
70
60
50
40
30
20
10
0
Nitrate
Ammonia
Chloride
TOC
LDCS 7, TOC
930 mg/L
9/25/2019
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

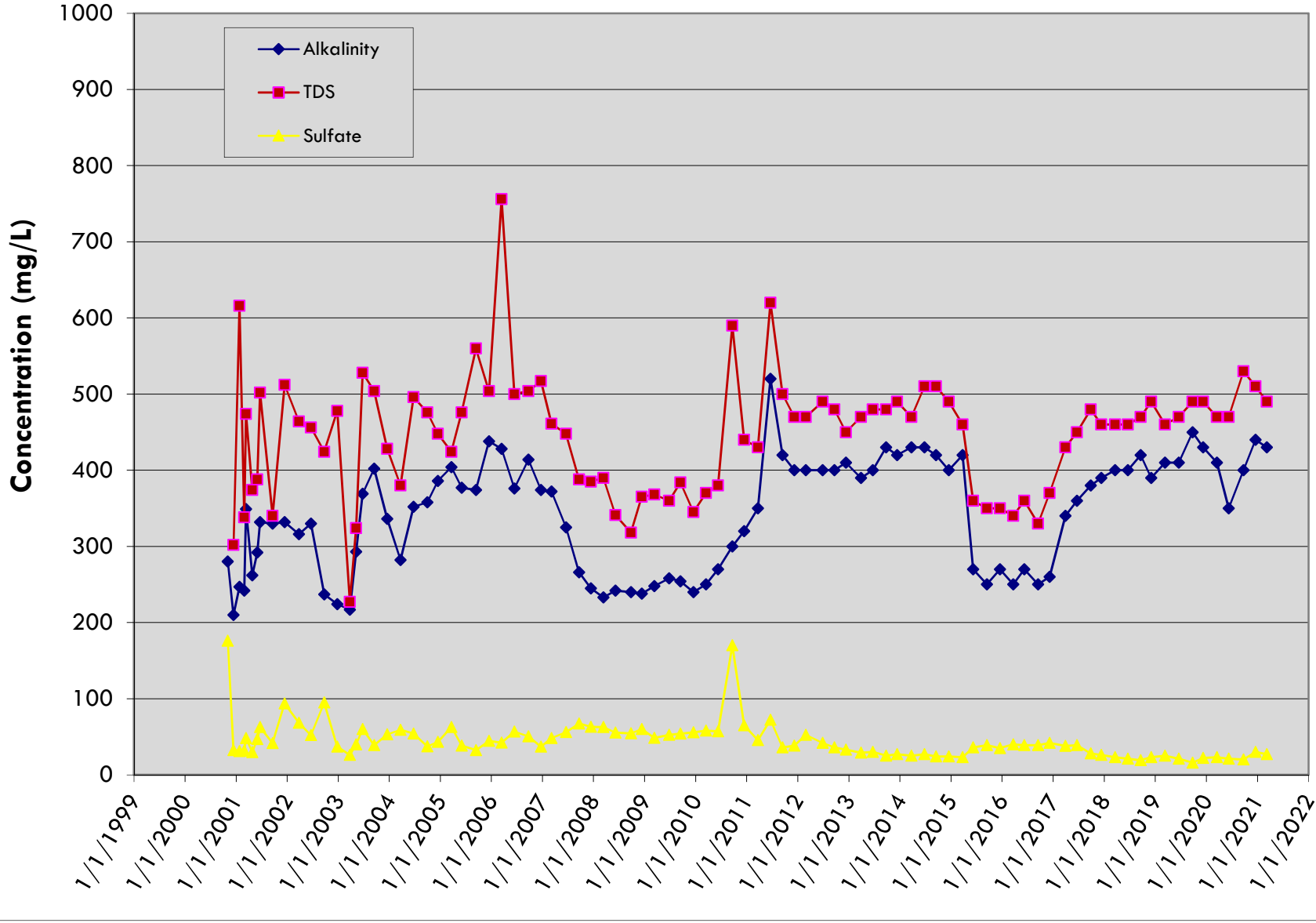
LDCS-8A
LRI Landfill, Pierce County, Washington



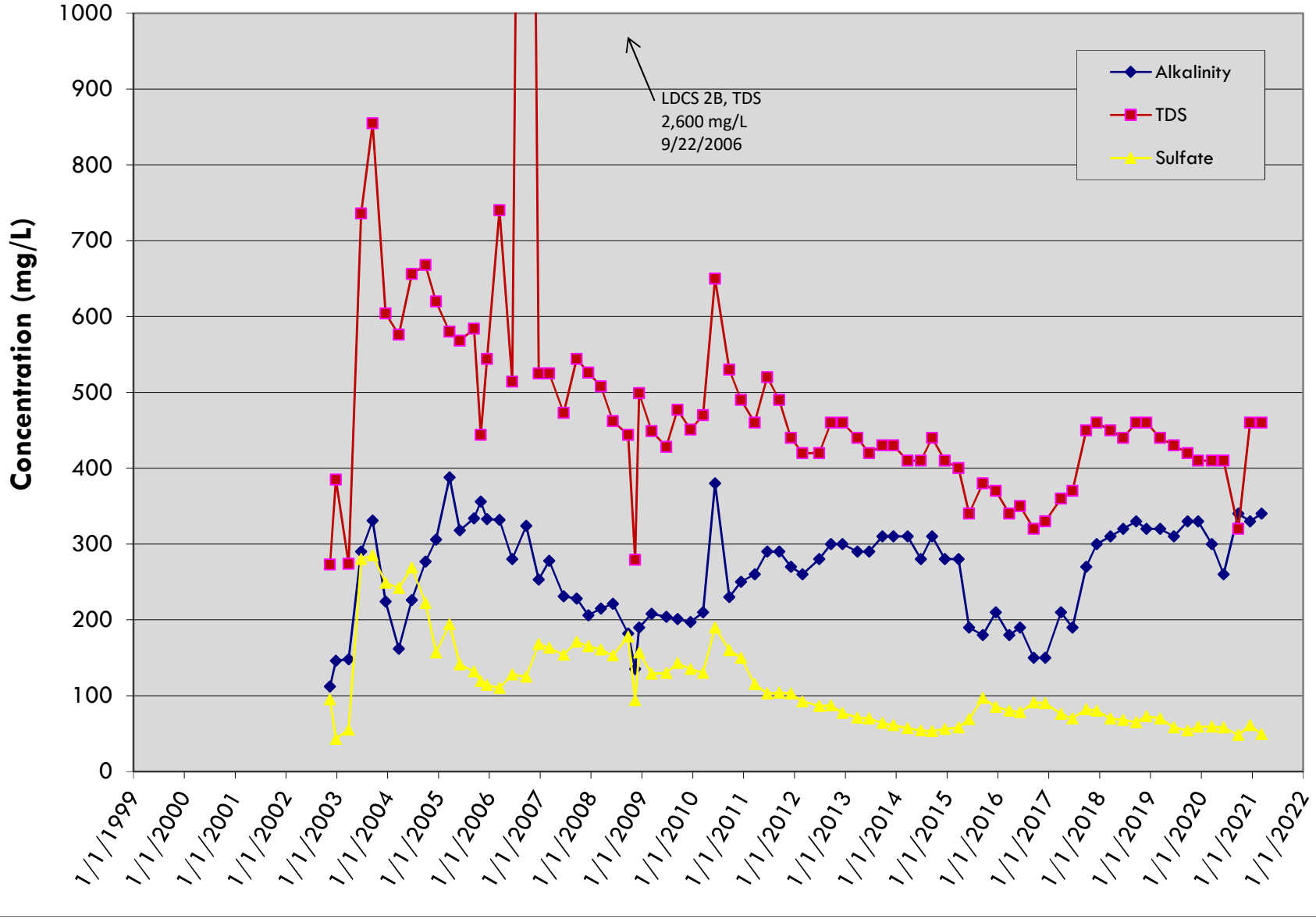
LDCS-1
LRI Landfill, Pierce County, Washington



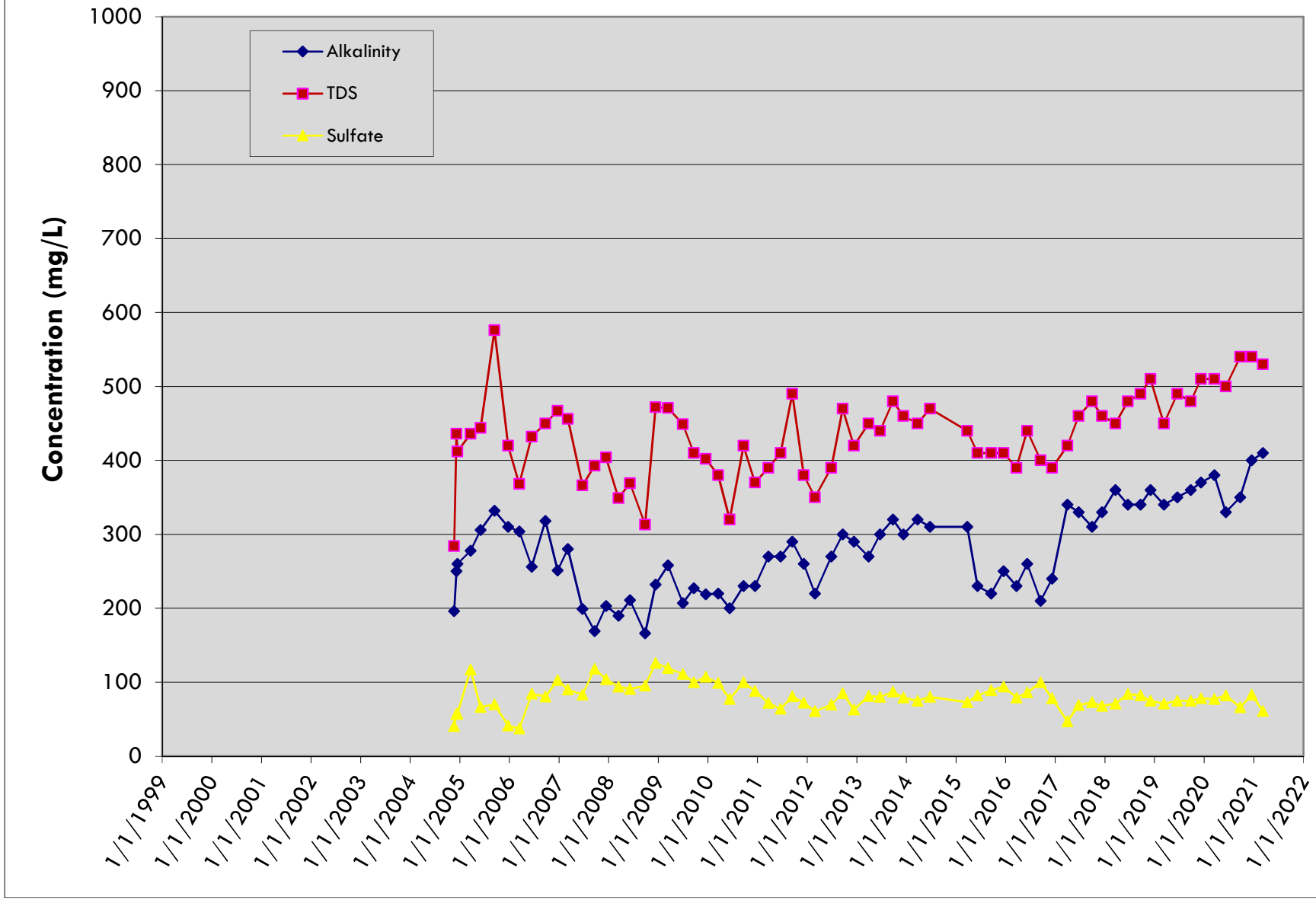
LDCS-2A
LRI Landfill, Pierce County, Washington



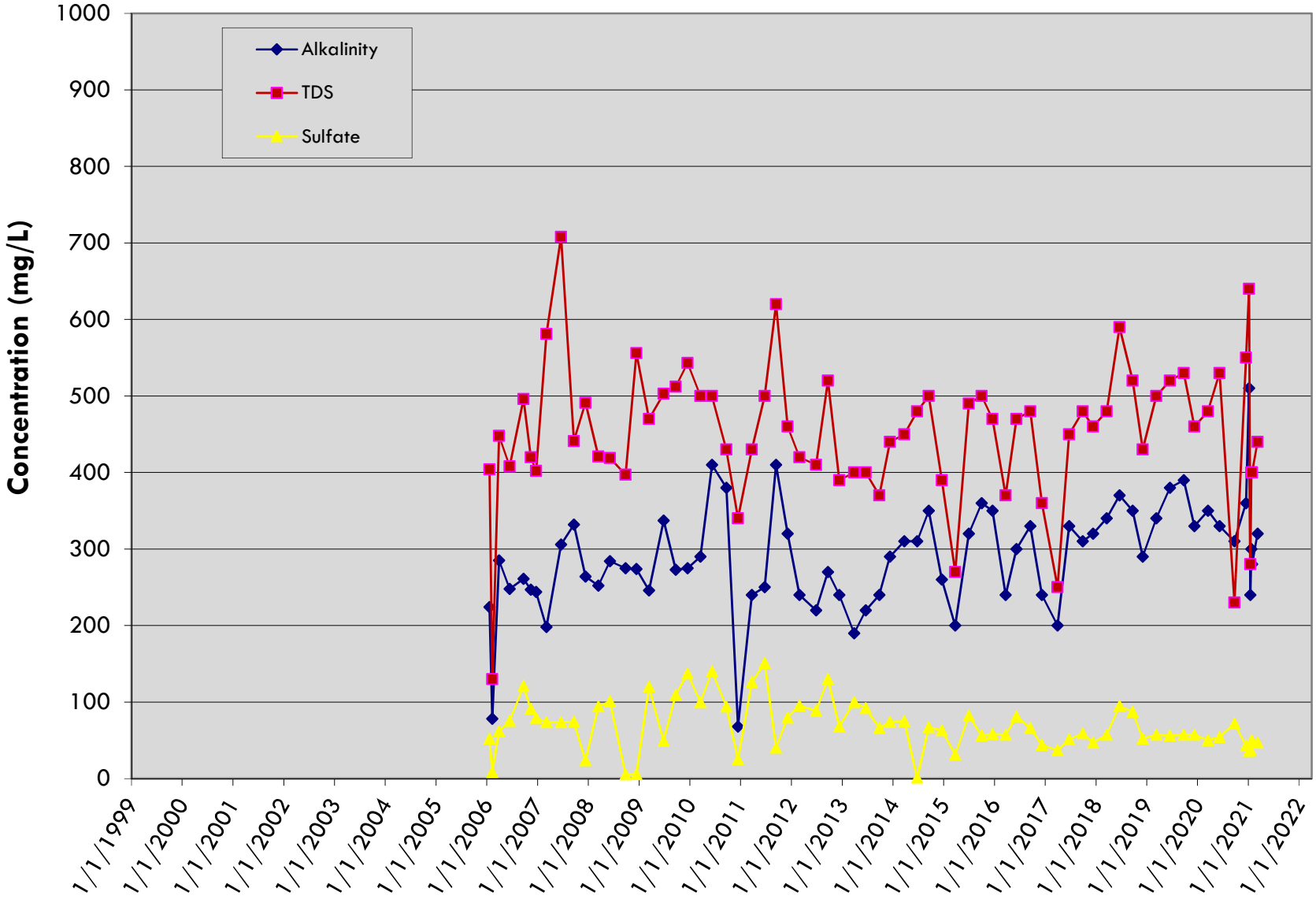
LDCS-2B
LRI Landfill, Pierce County, Washington

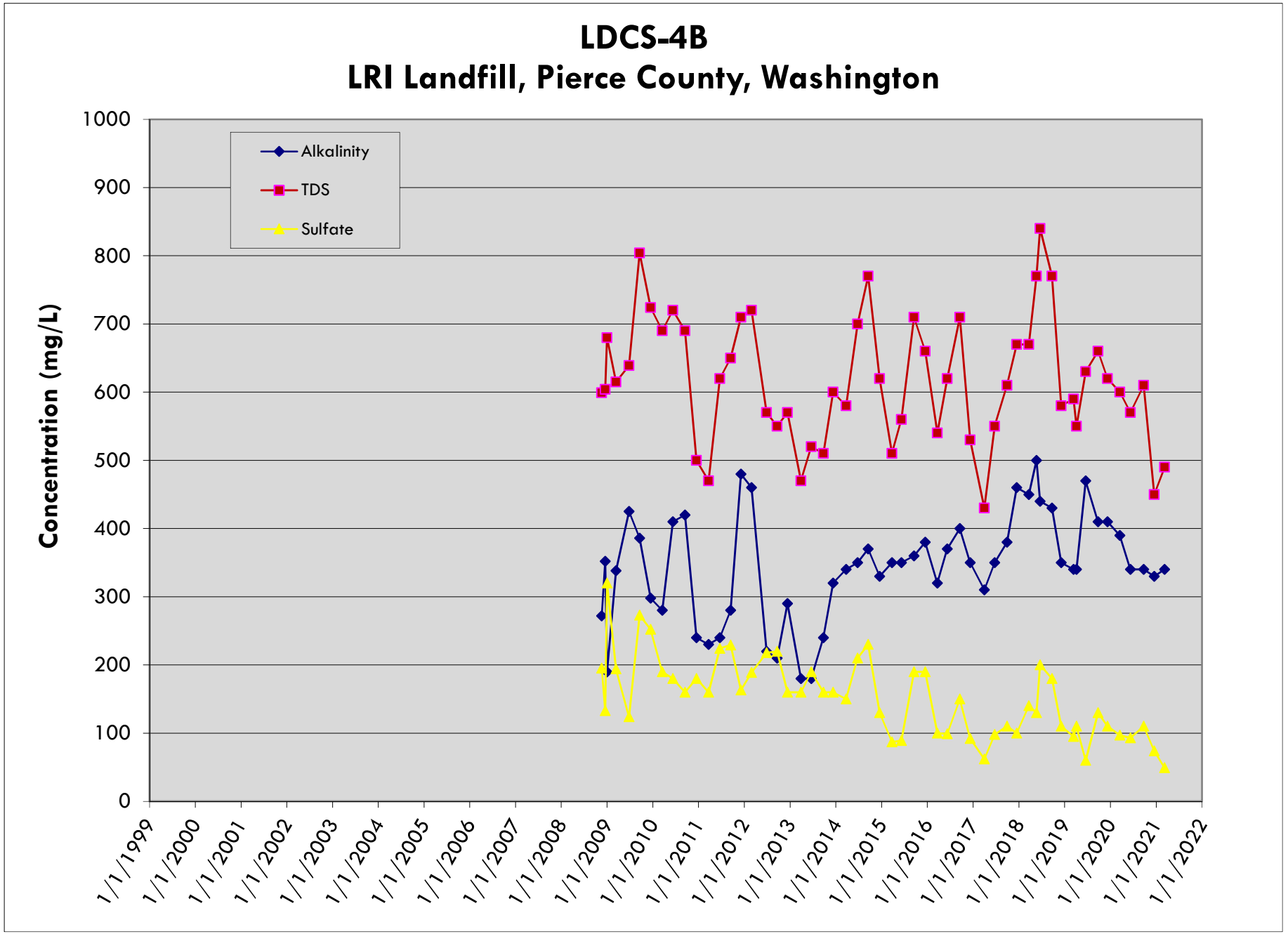


LDCS-3A
LRI Landfill, Pierce County, Washington

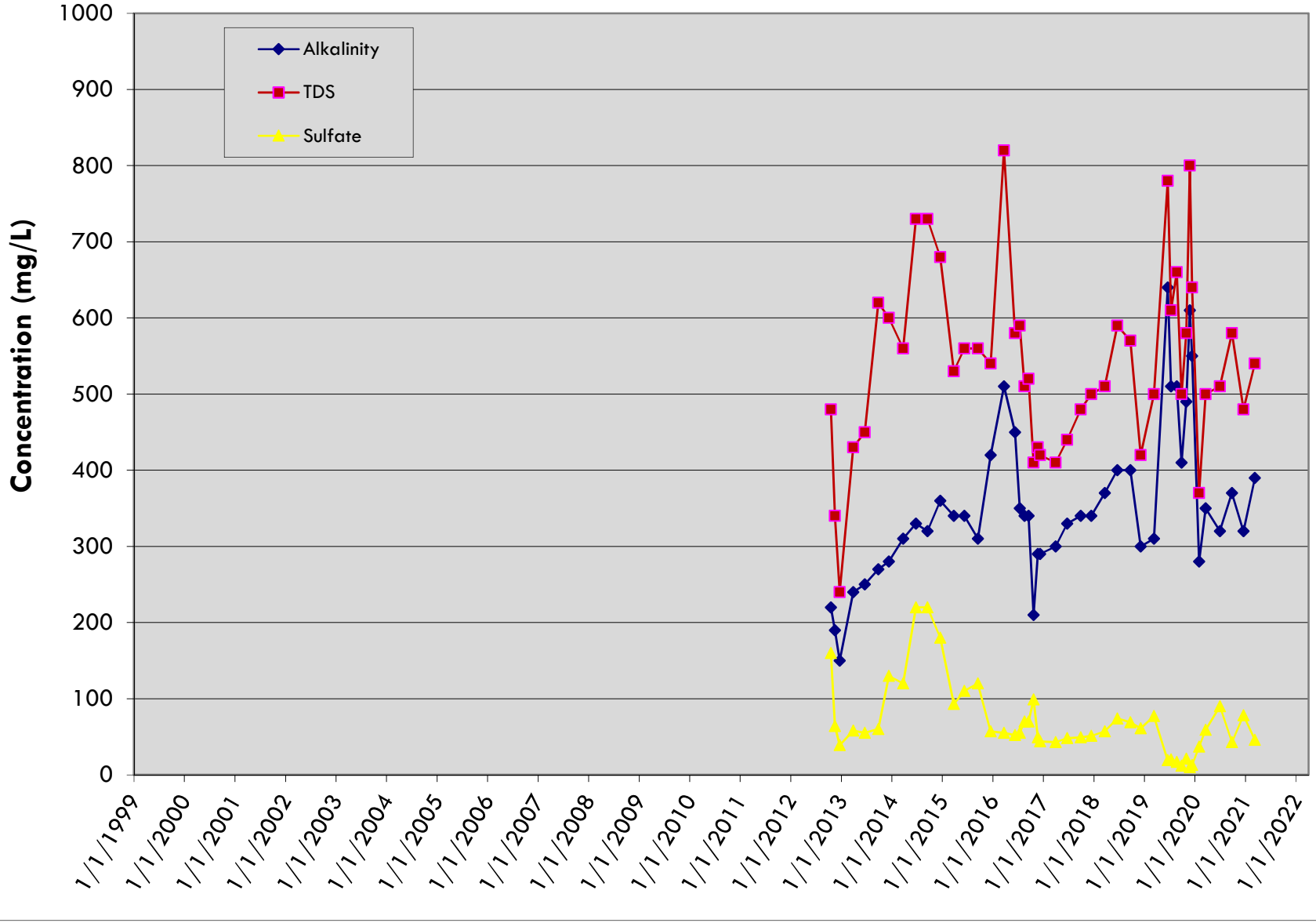


LDCS-4A
LRI Landfill, Pierce County, Washington

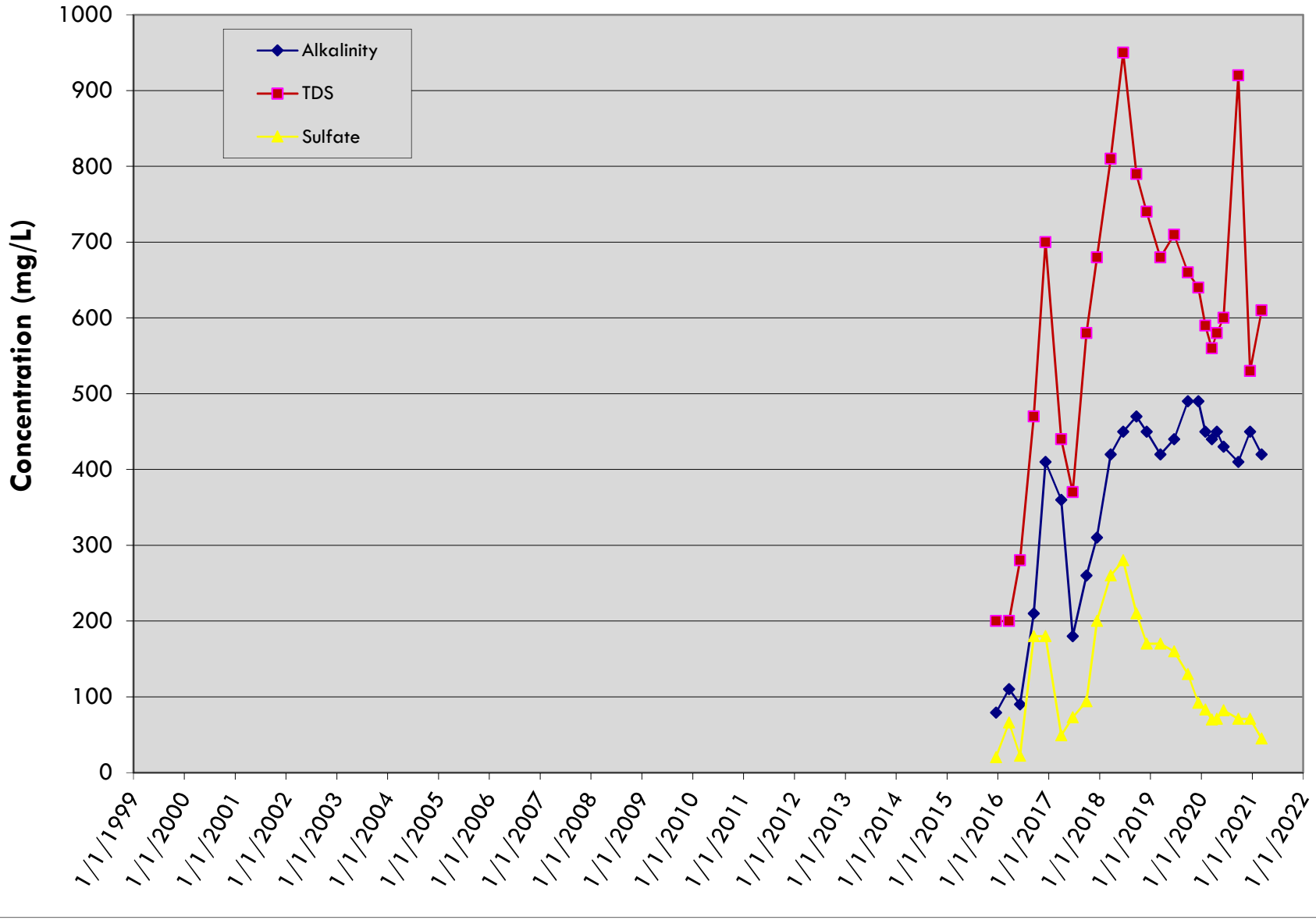



LDCS-4B
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Alkalinity
TDS
Sulfate
1000
900
800
700
600
500
400
300
200
100
0
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

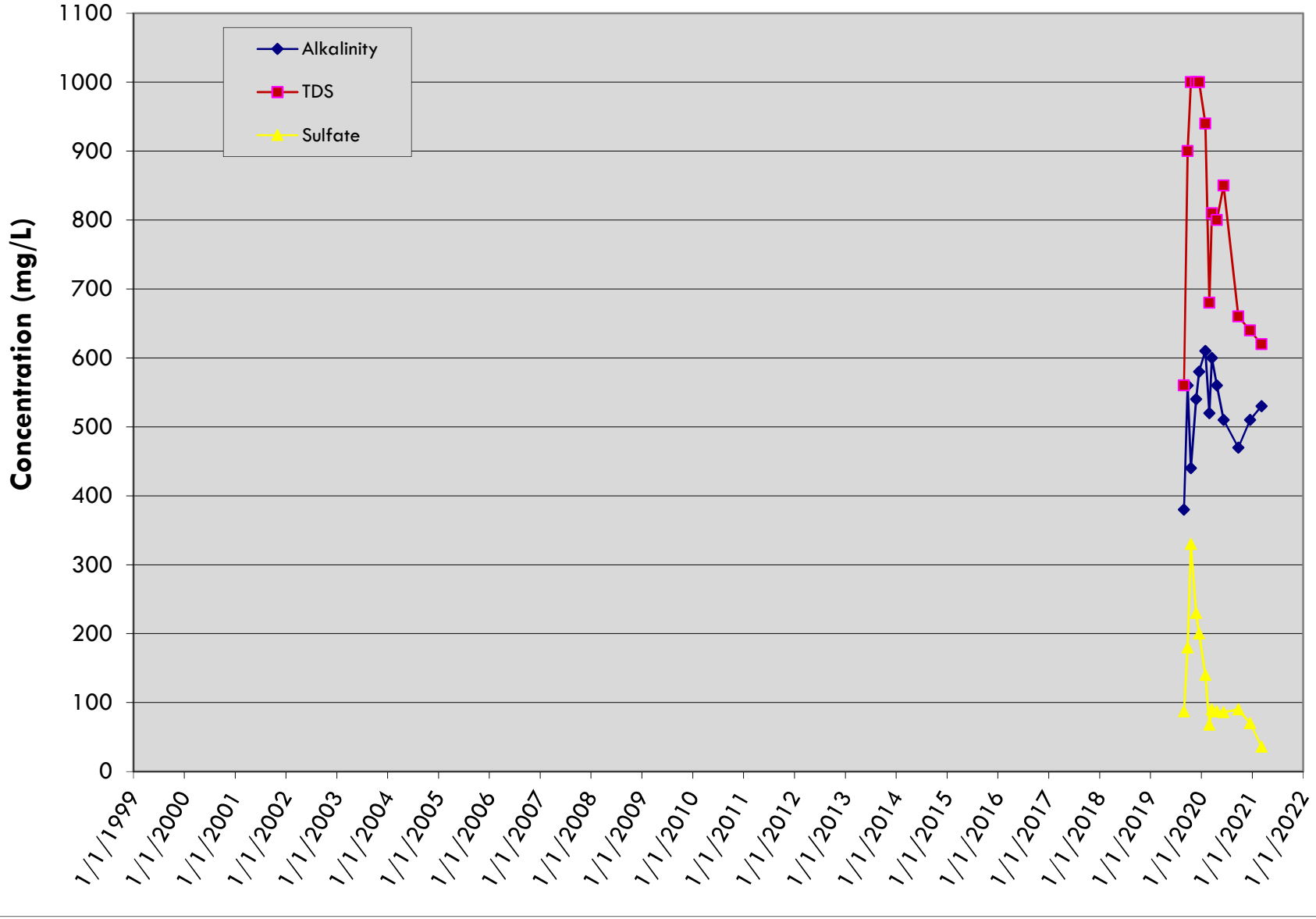
LDCS-5
LRI Landfill, Pierce County, Washington



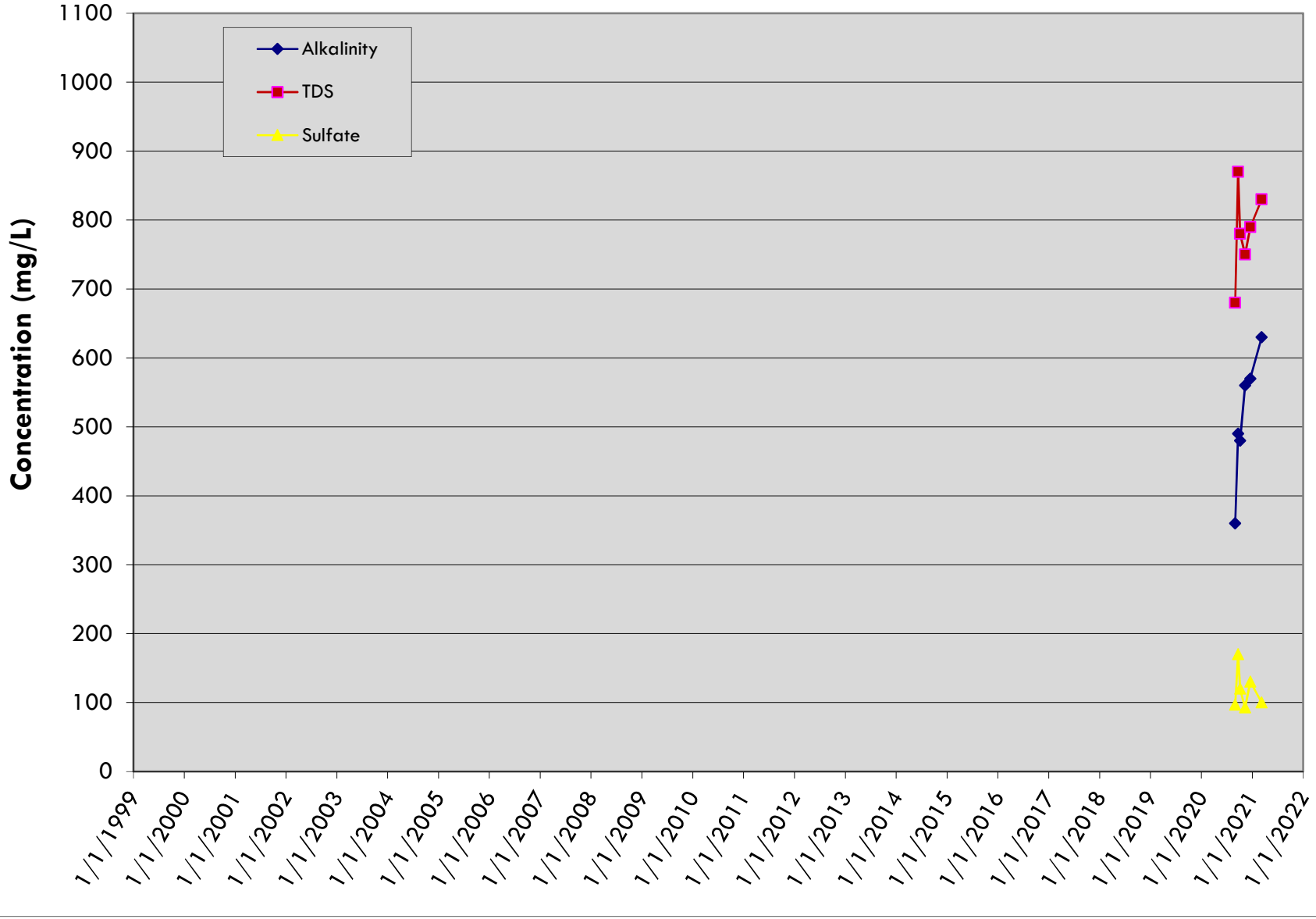
LDCS-6A
LRI Landfill, Pierce County, Washington



LDCS-7
LRI Landfill, Pierce County, Washington

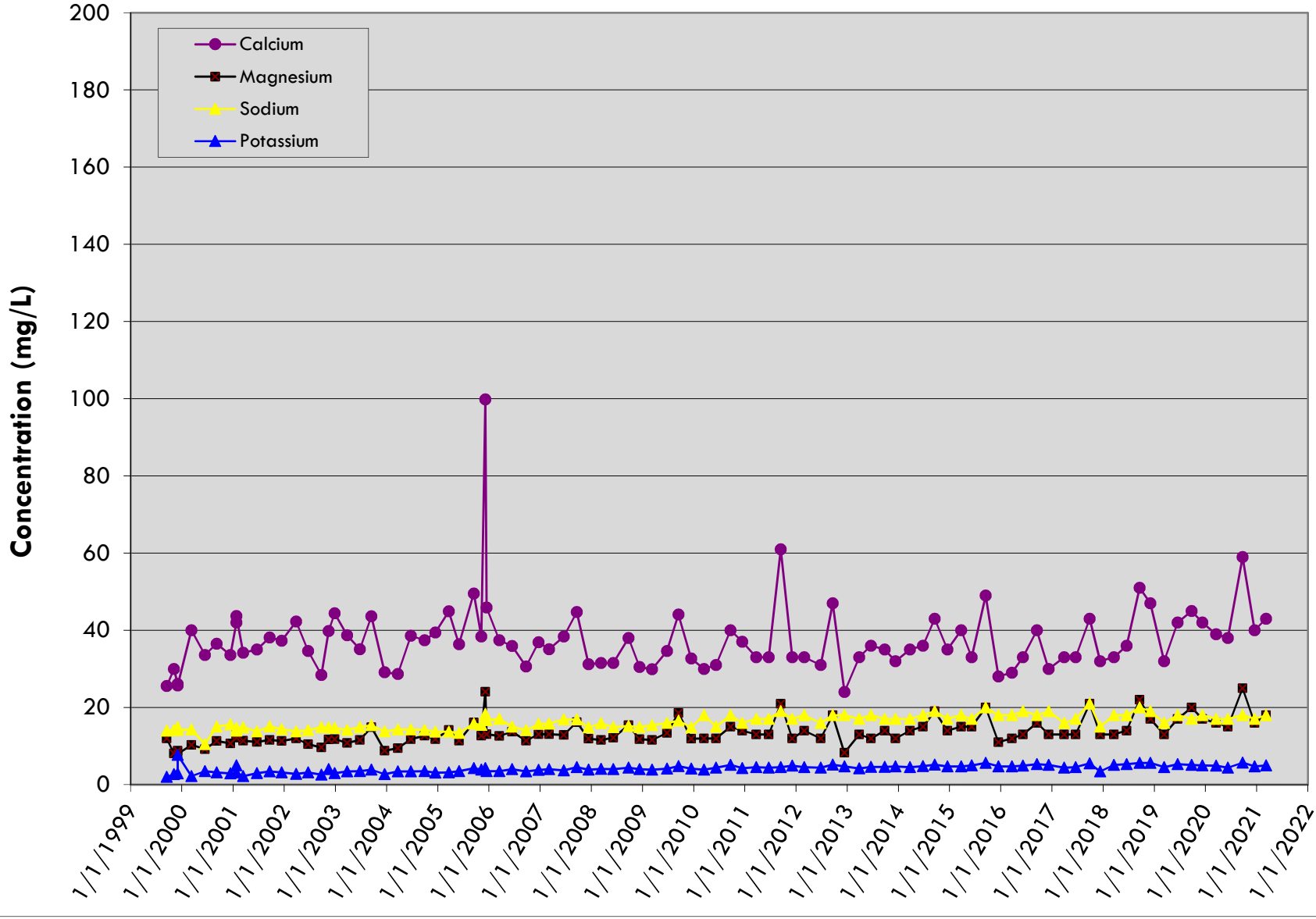


LDCS-8A
LRI Landfill, Pierce County, Washington

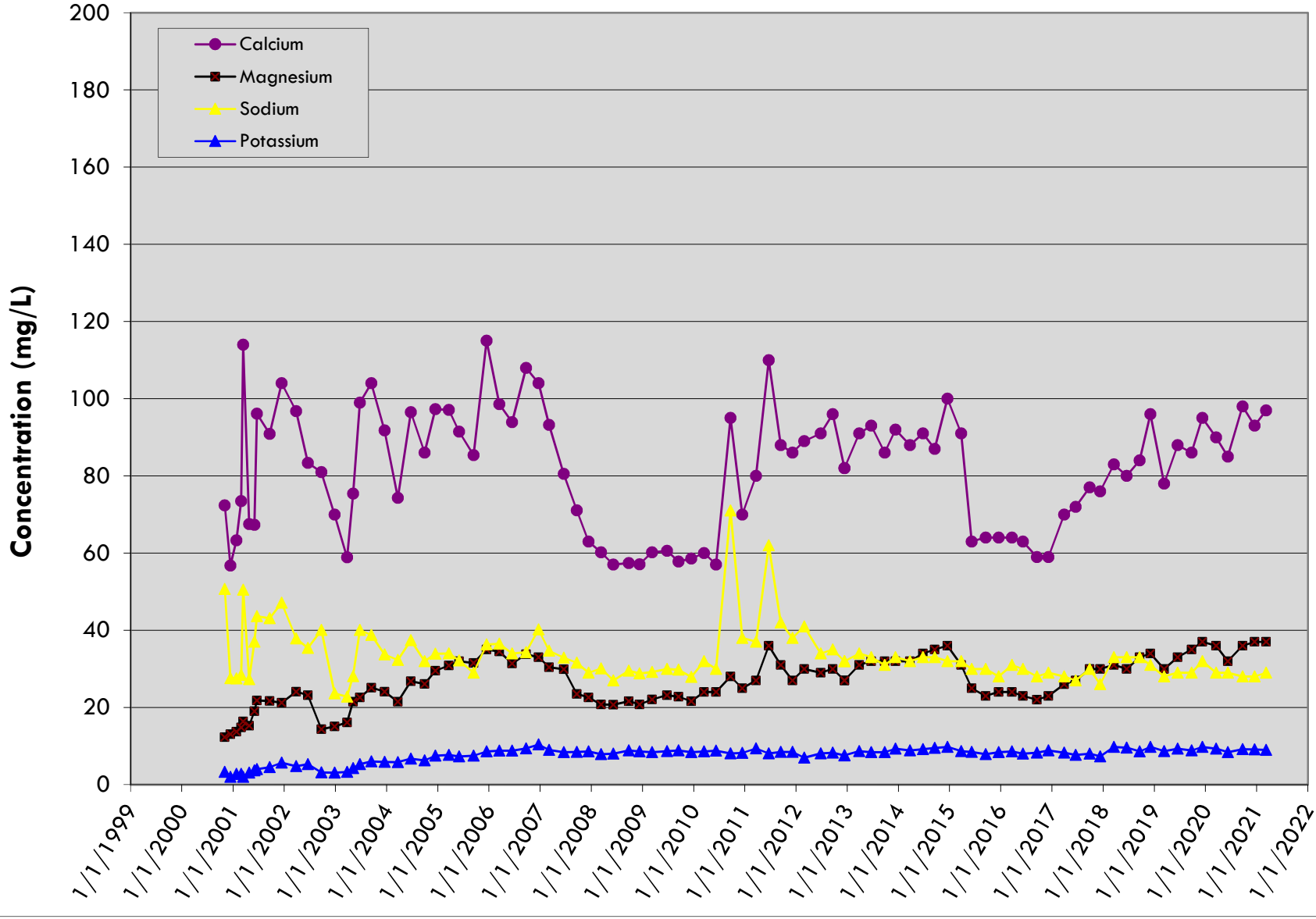


LDCS-1

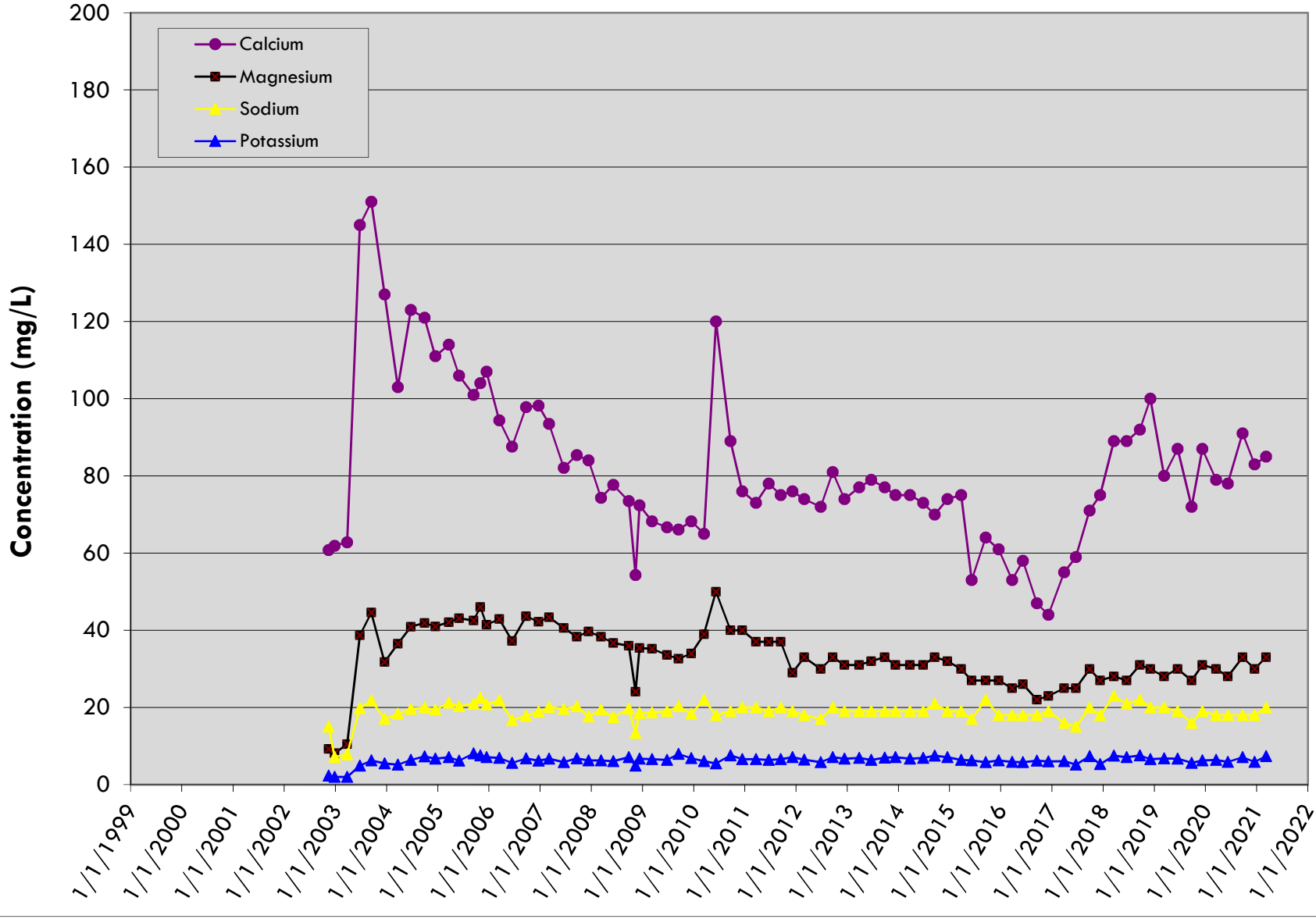
LRI Landfill, Pierce County, Washington



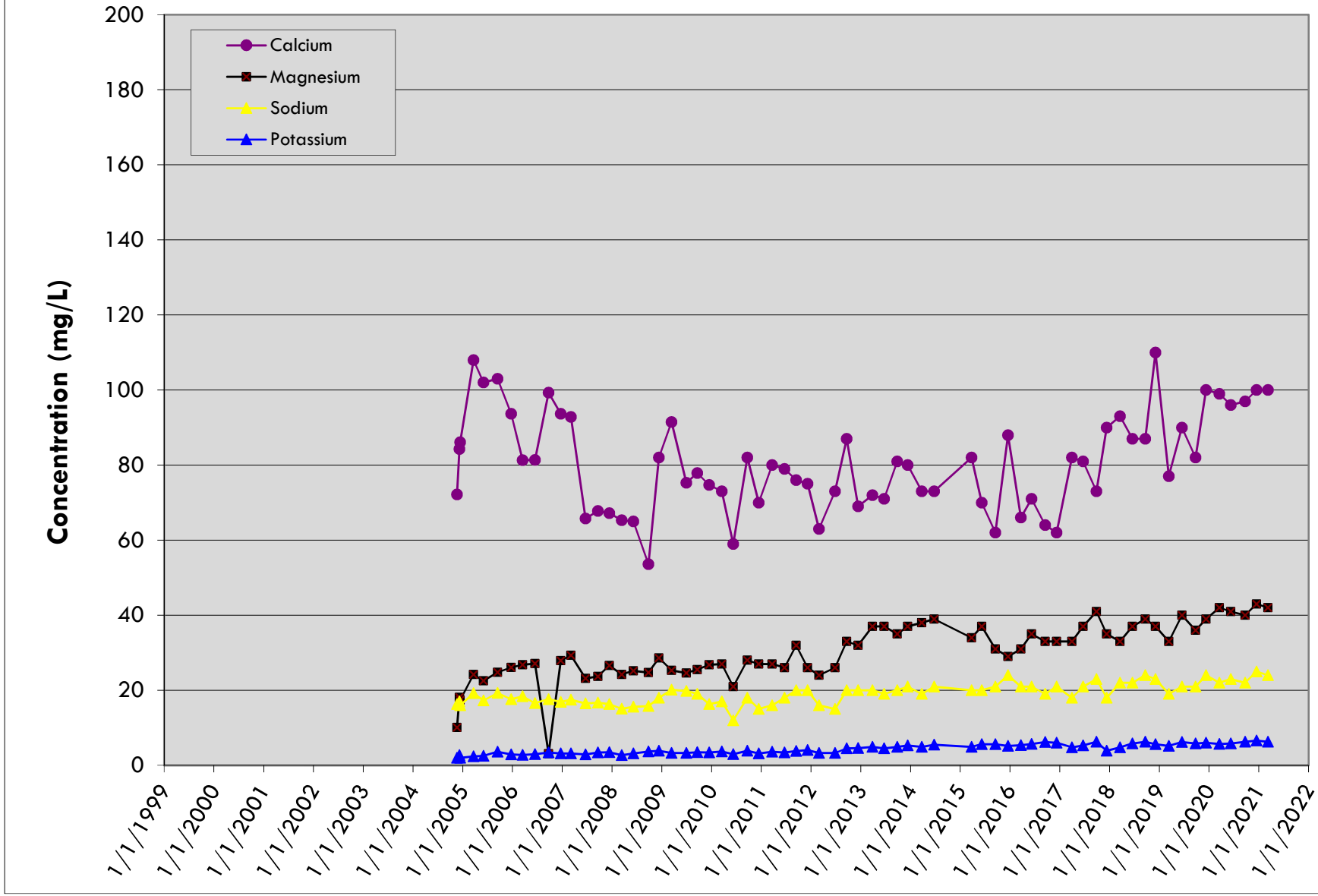
LDCS-2A
LRI Landfill, Pierce County, Washington



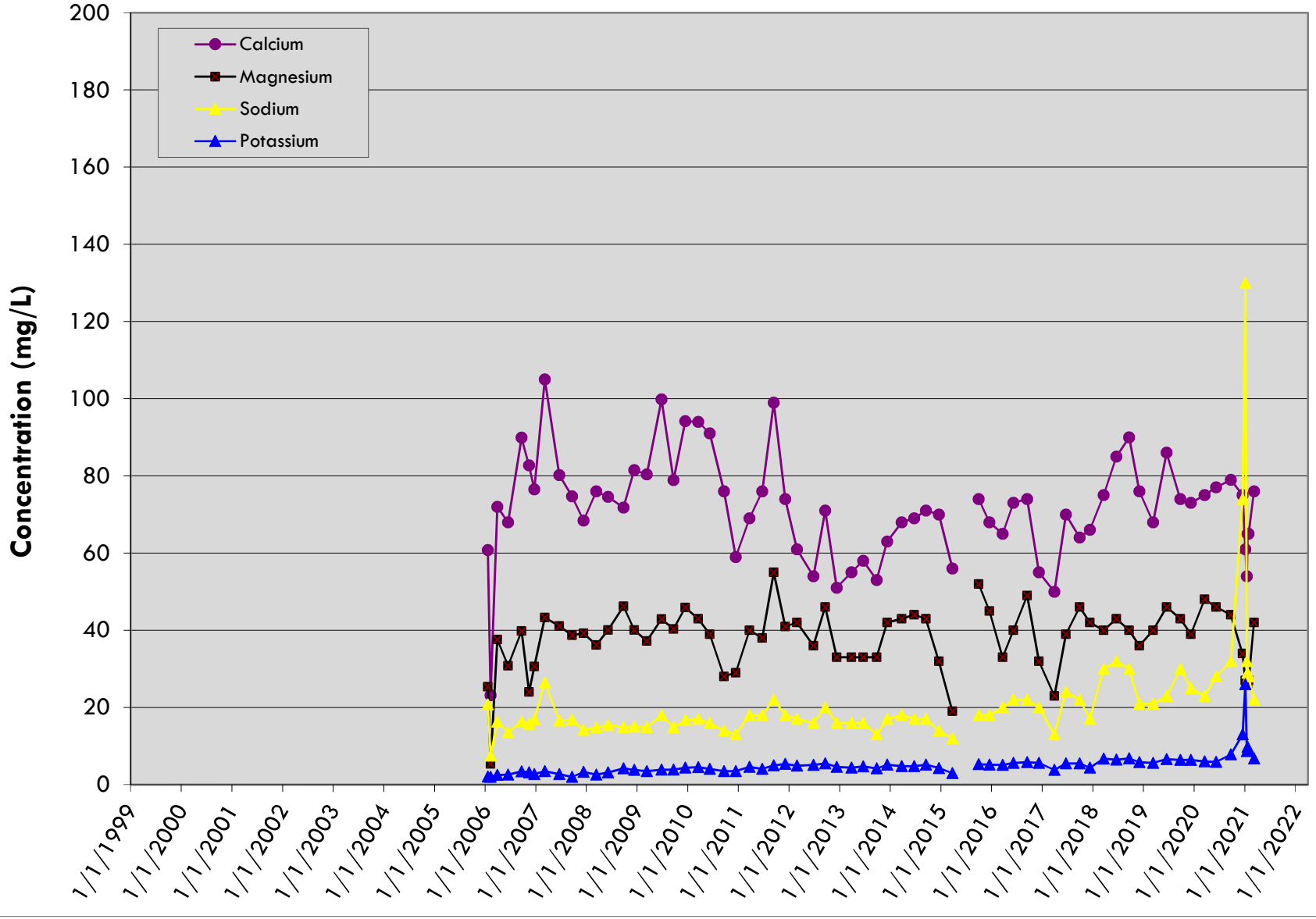
LDCS-2B
LRI Landfill, Pierce County, Washington



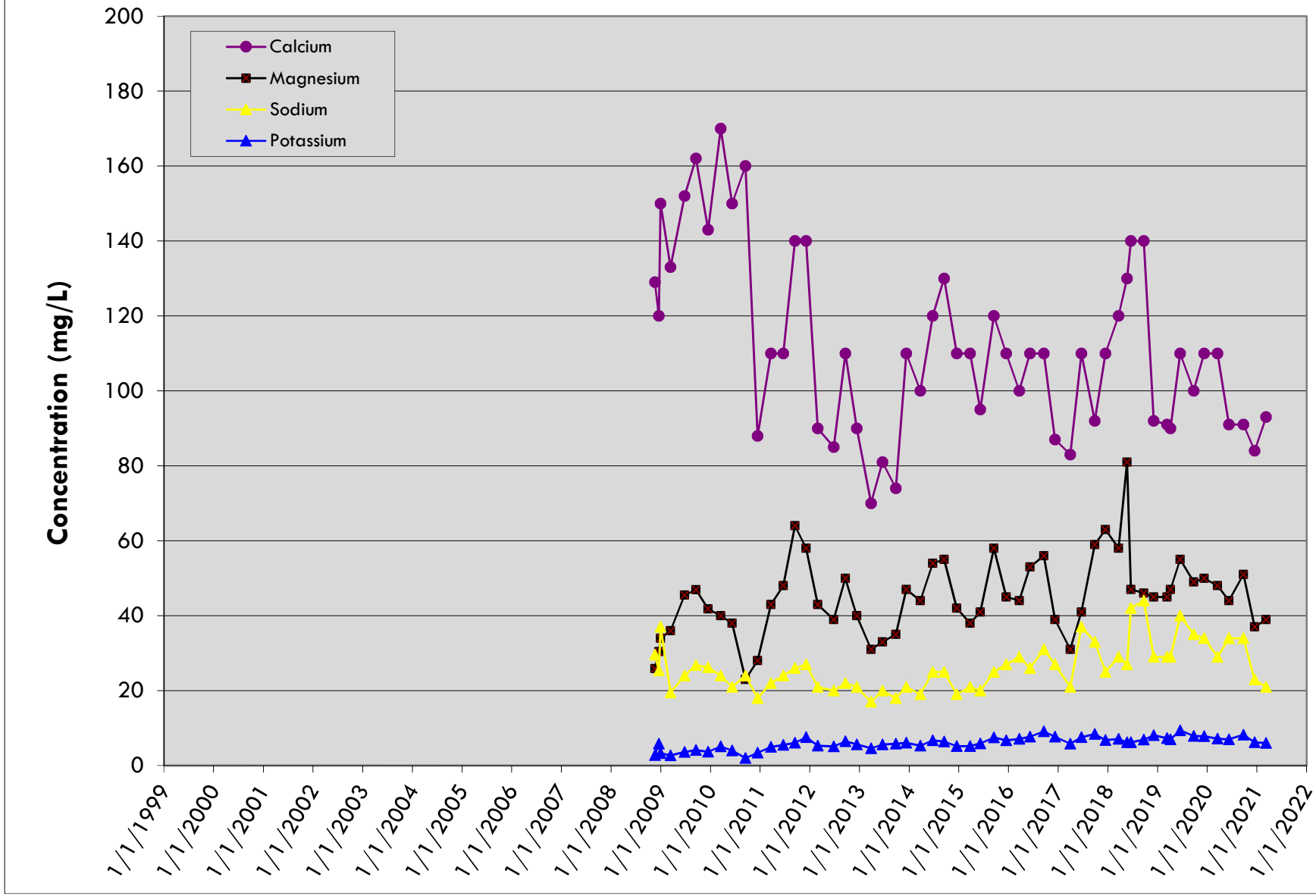
LDCS-3A
LRI Landfill, Pierce County, Washington



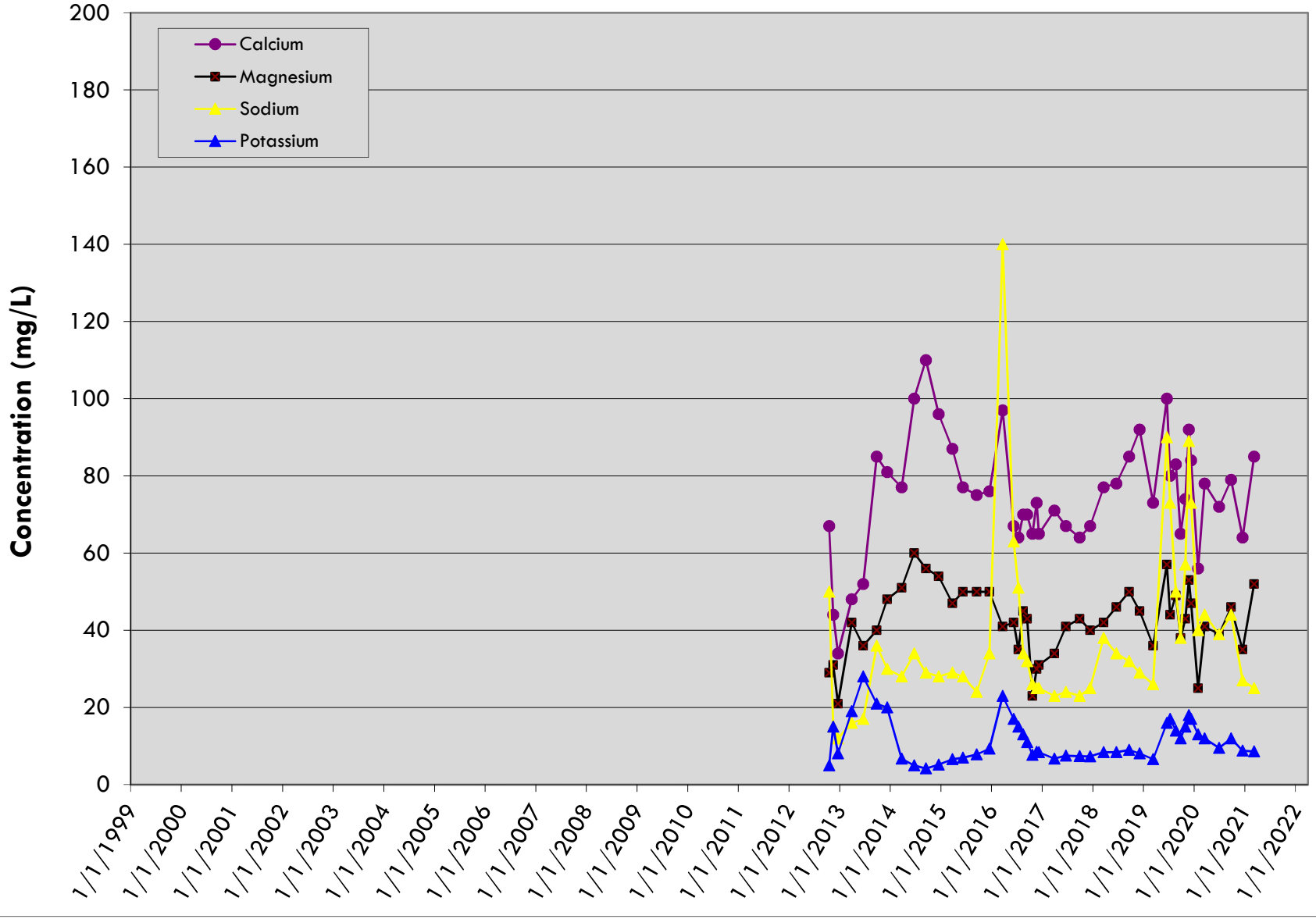
LDCS-4A
LRI Landfill, Pierce County, Washington



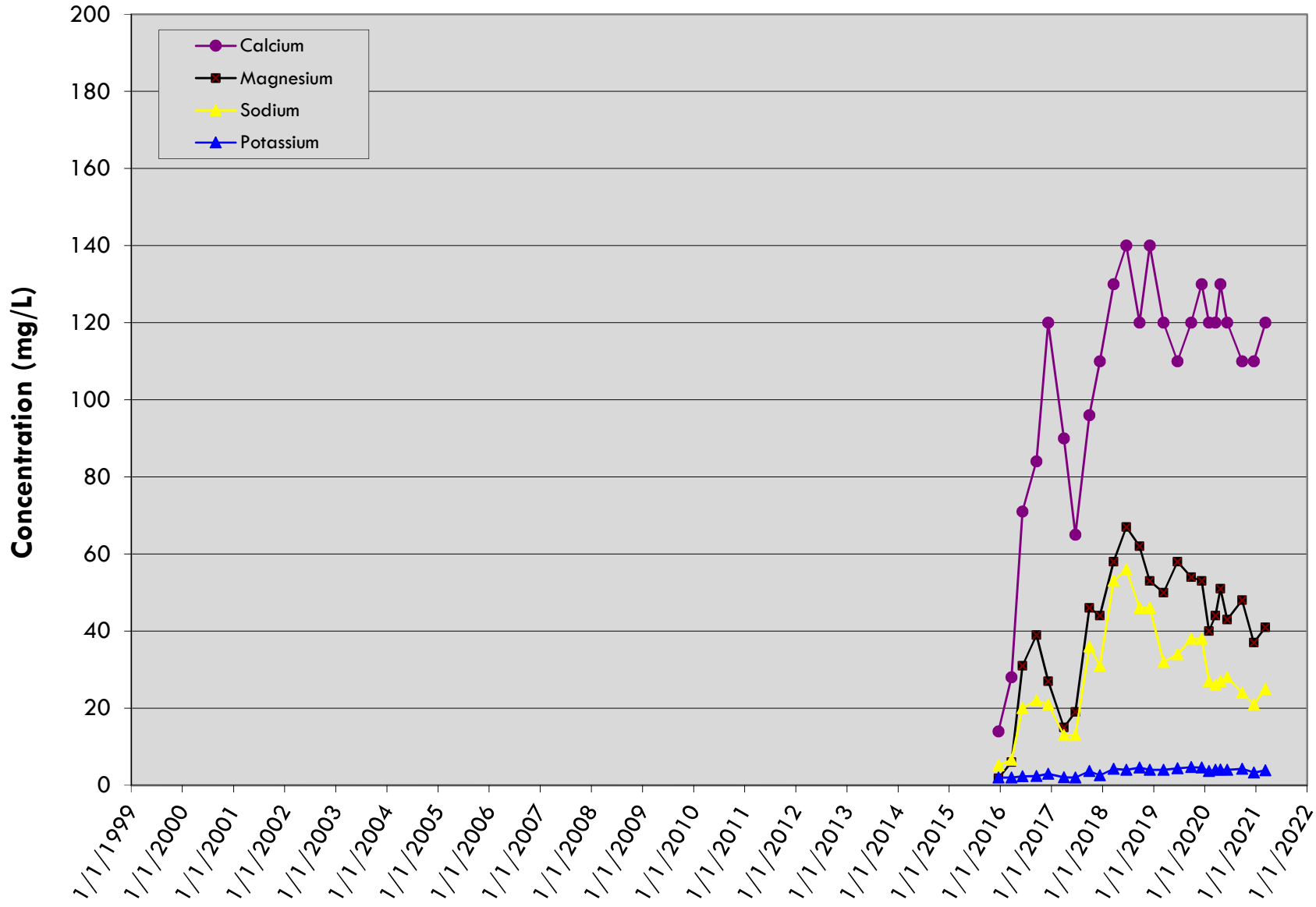
LDCS-4B
LRI Landfill, Pierce County, Washington



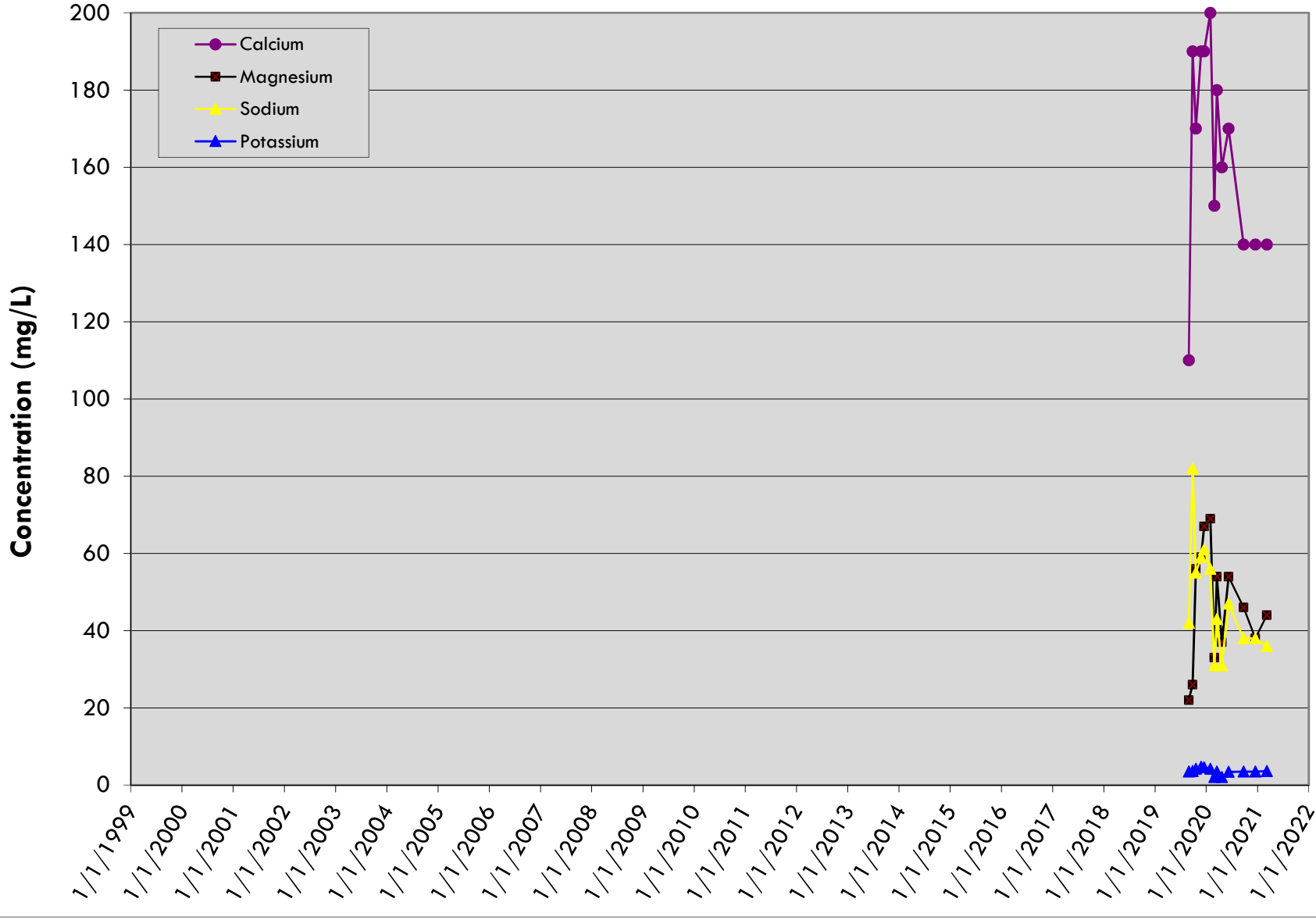
LDCS-5
LRI Landfill, Pierce County, Washington



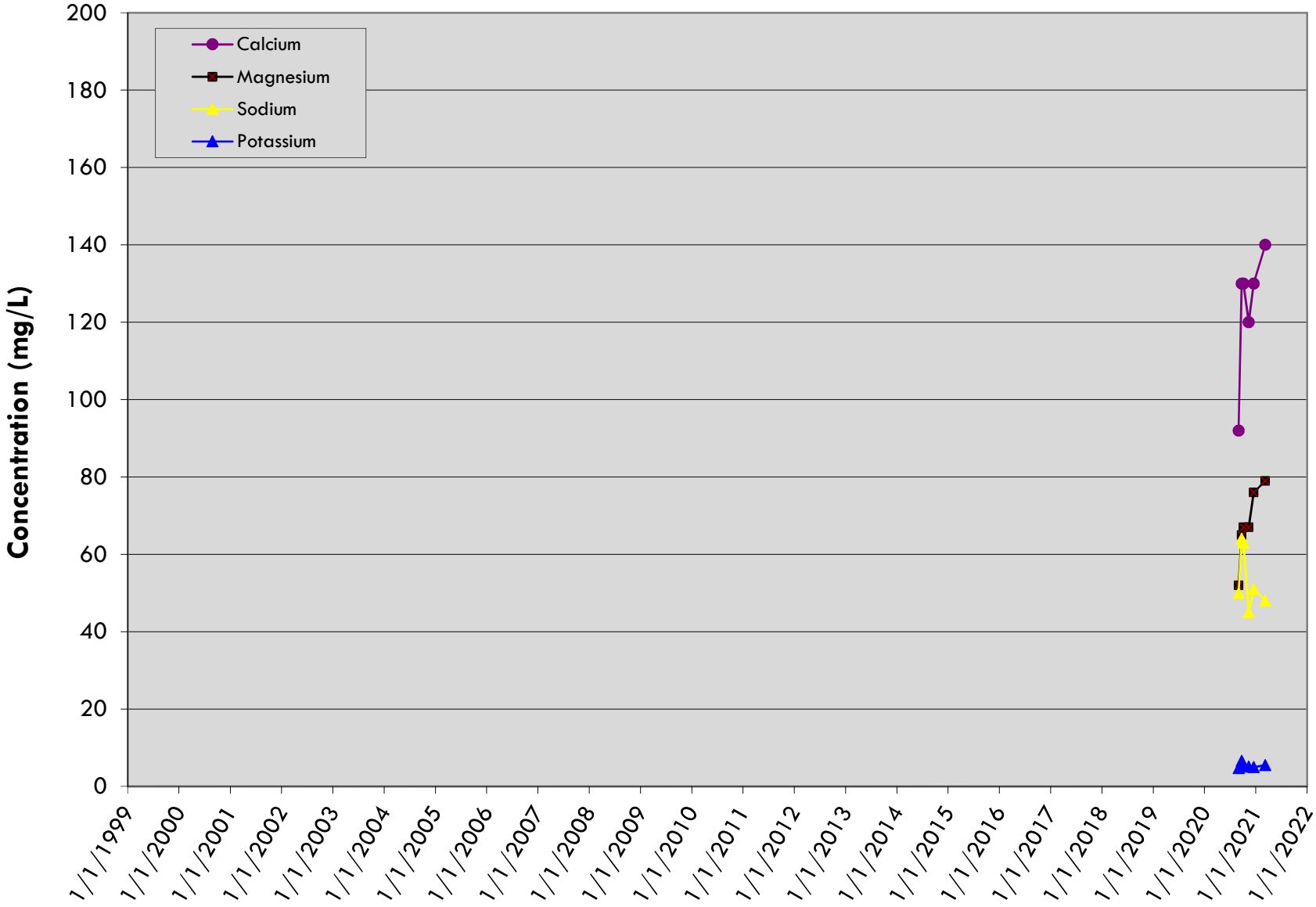
LDCS-6A
LRI Landfill, Pierce County, Washington



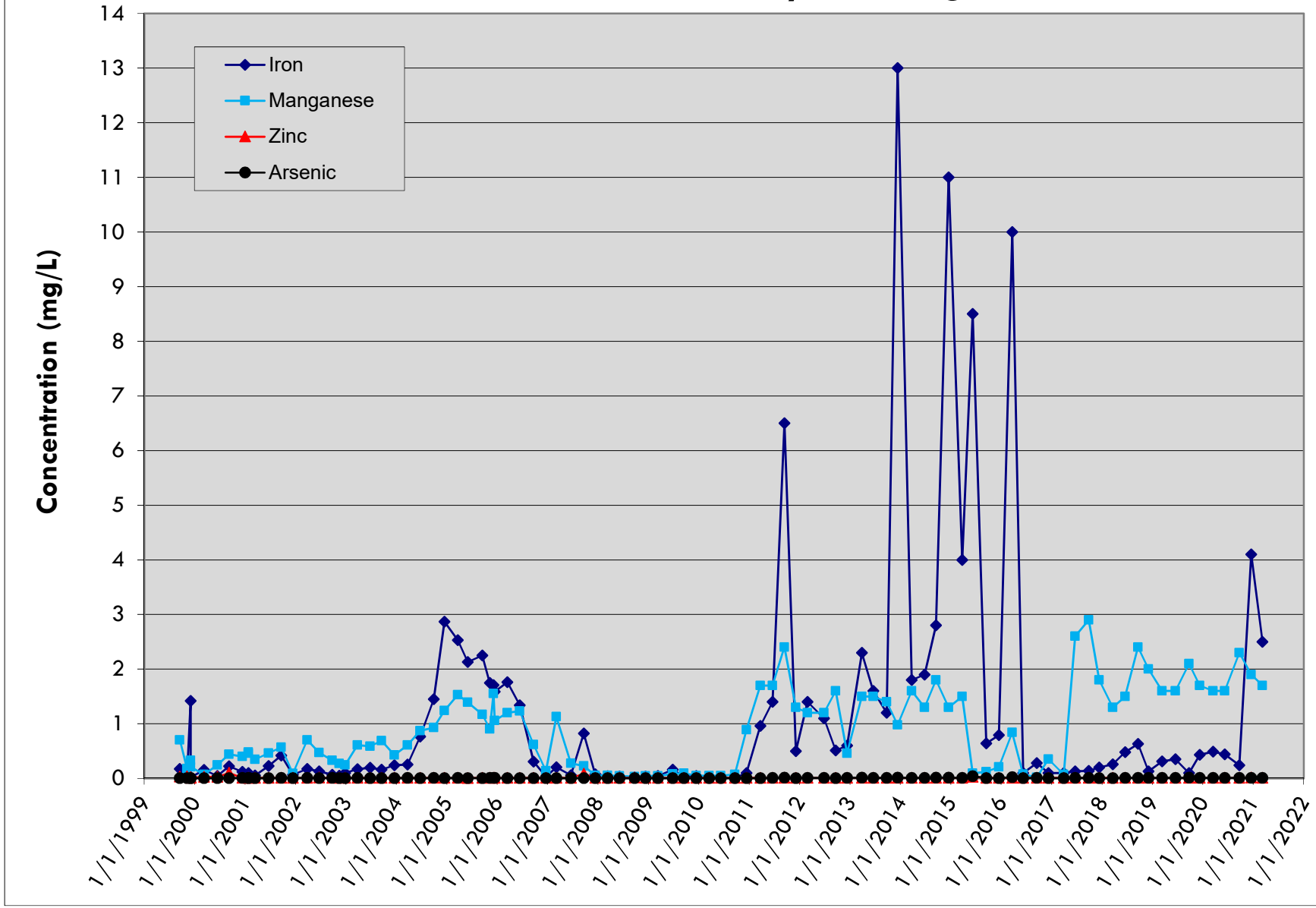
LDCS-7
LRI Landfill, Pierce County, Washington



LDCS-8A
LRI Landfill, Pierce County, Washington

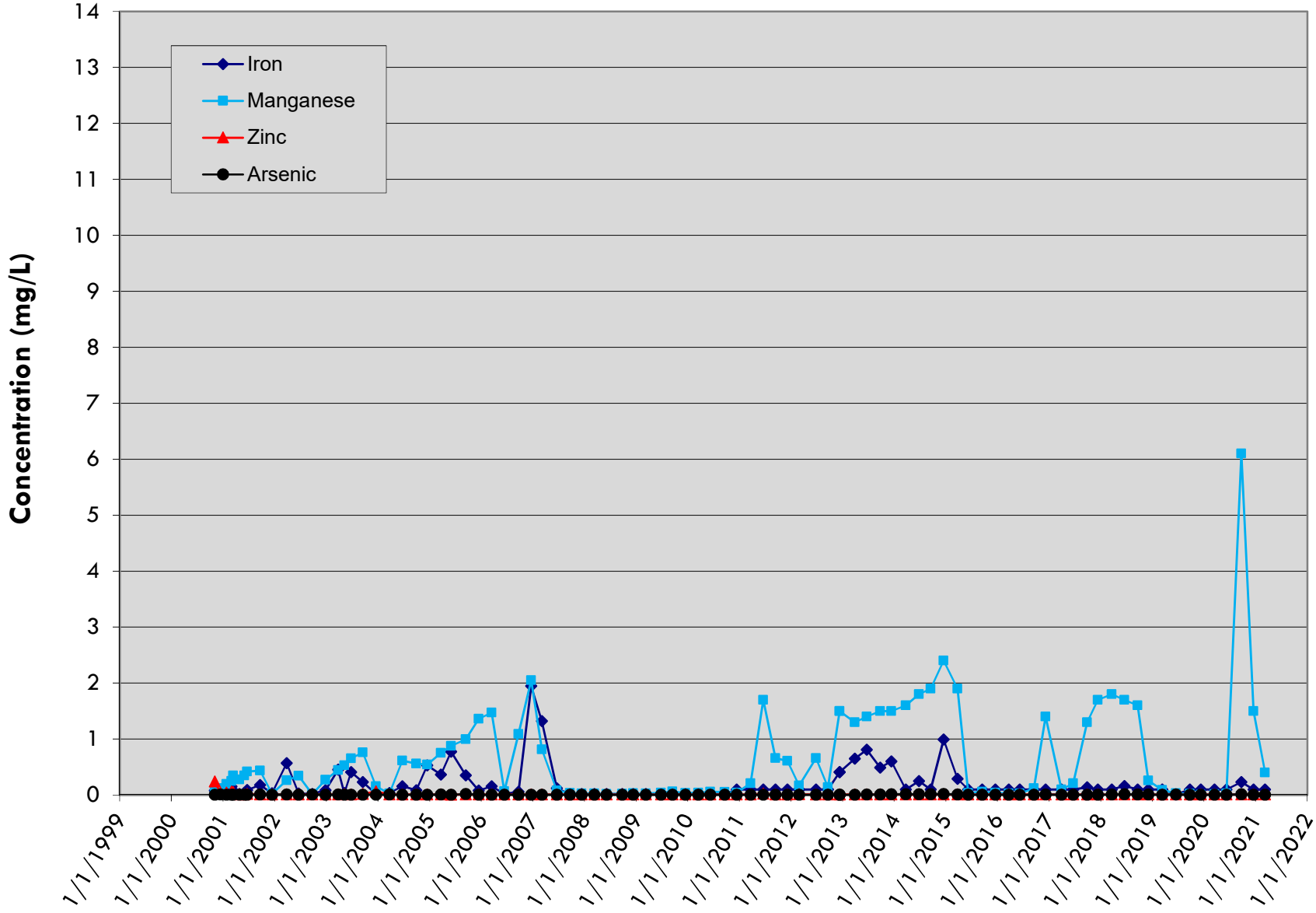


LDCS-1
LRI Landfill, Pierce County, Washington

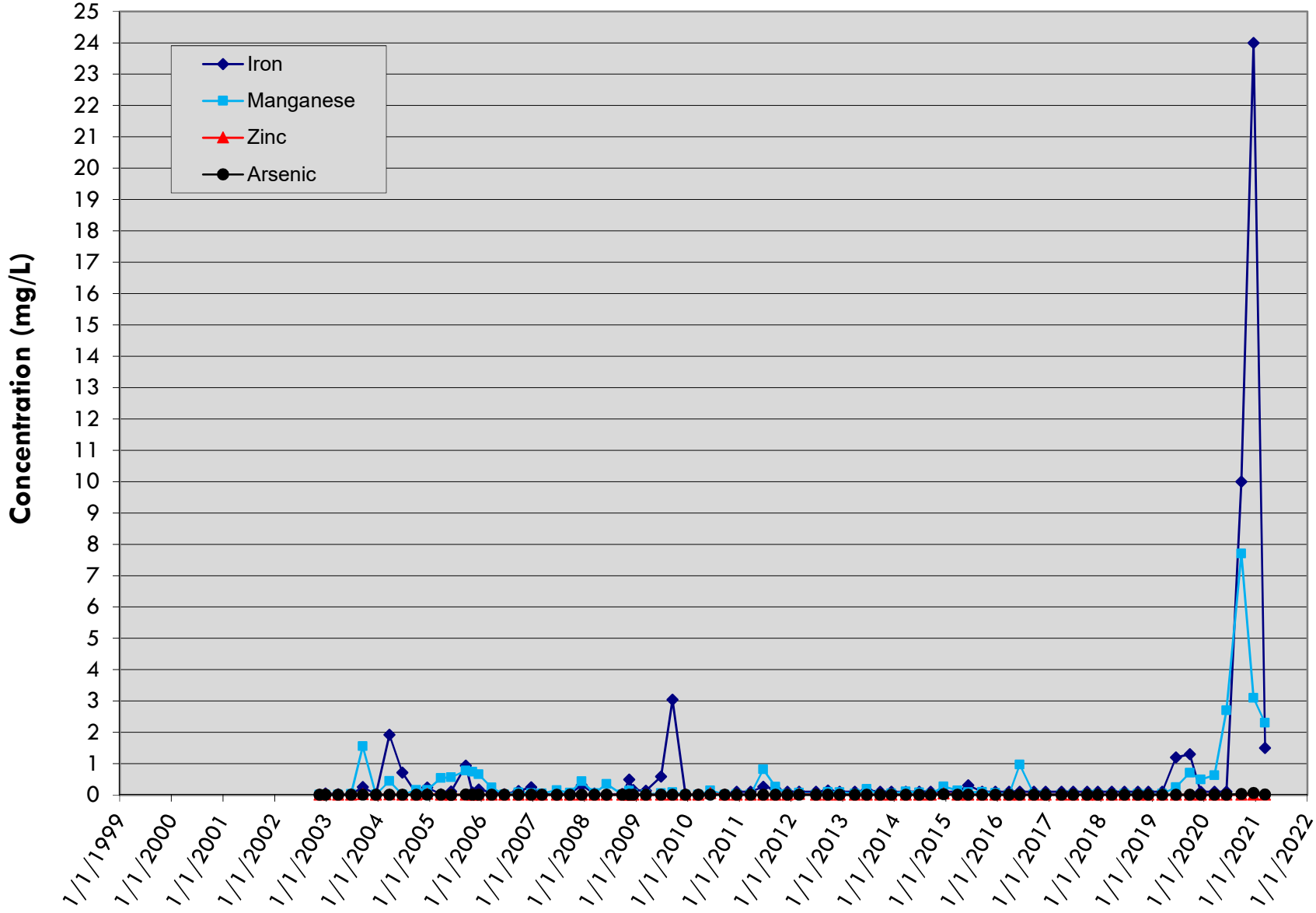


LDCS-2A

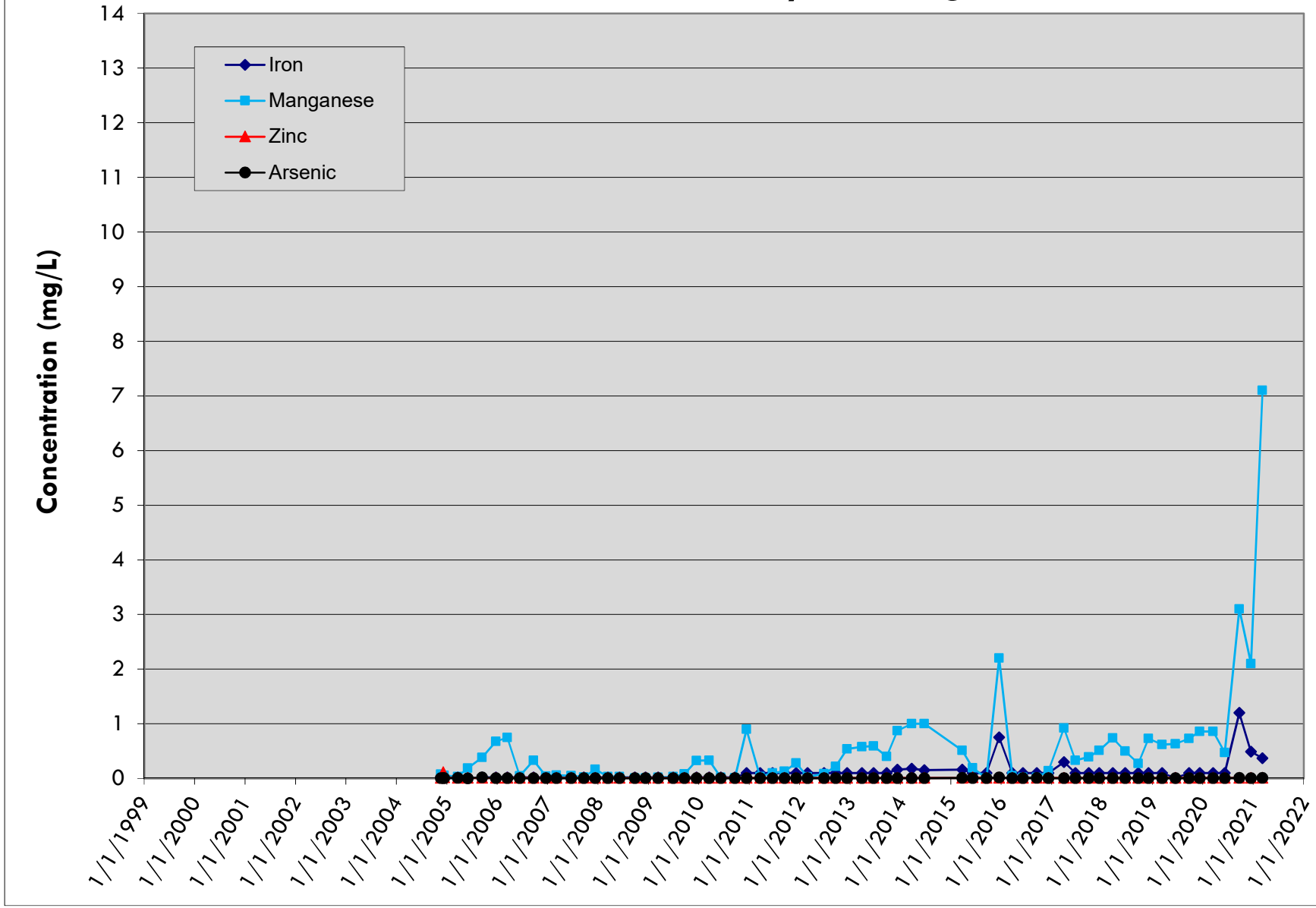
LRI Landfill, Pierce County, Washington

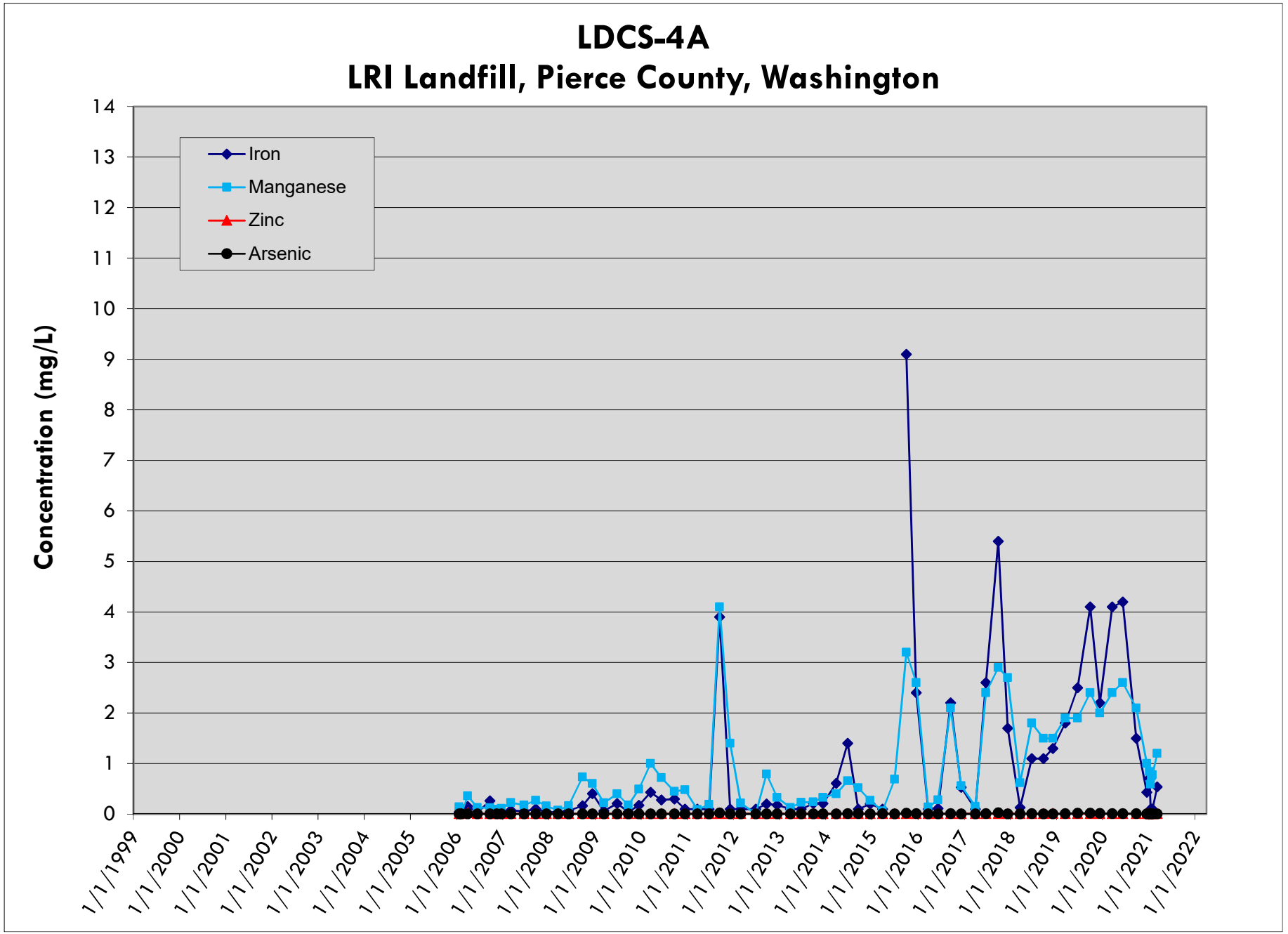


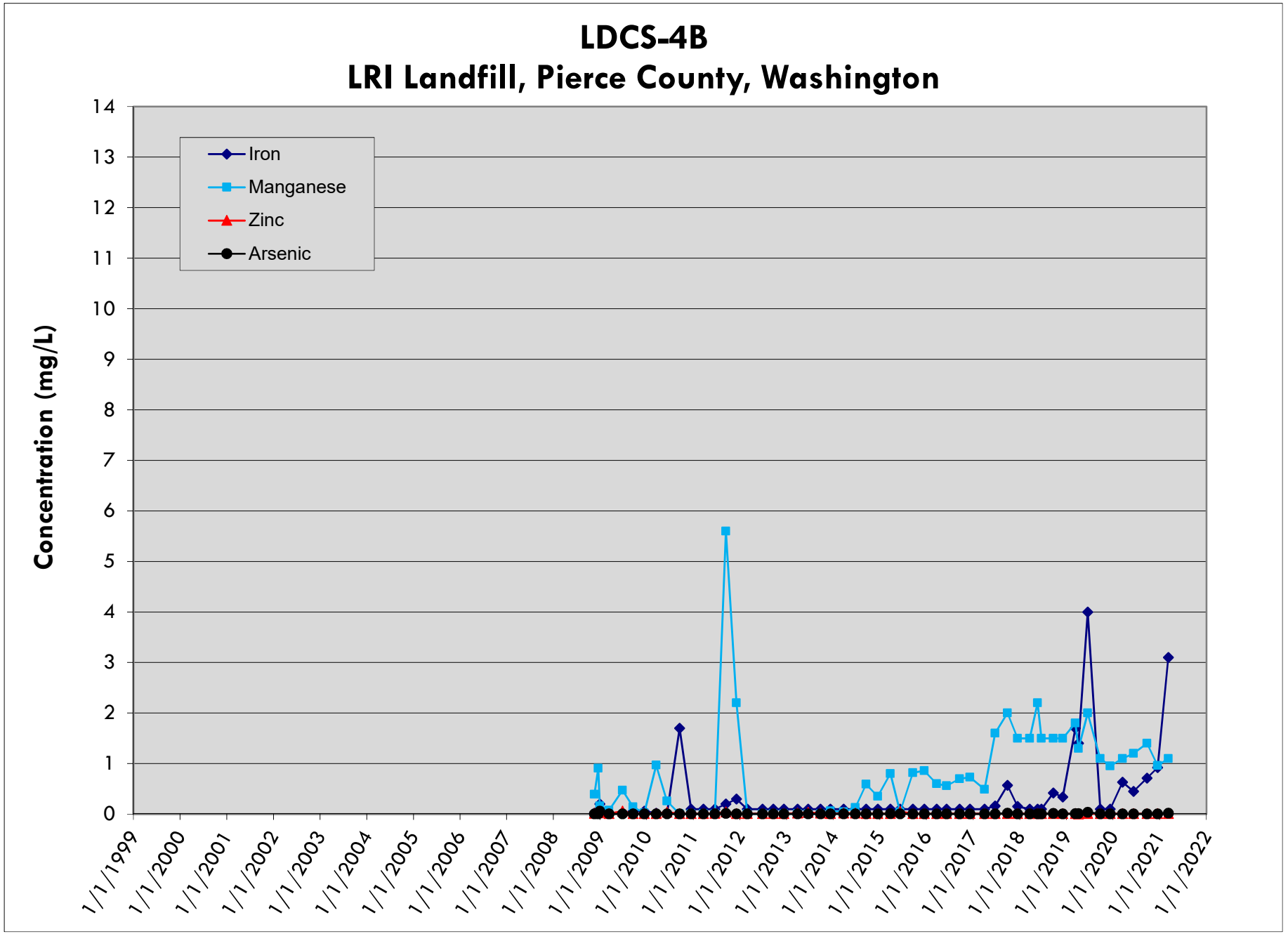
LDCS-2B
LRI Landfill, Pierce County, Washington

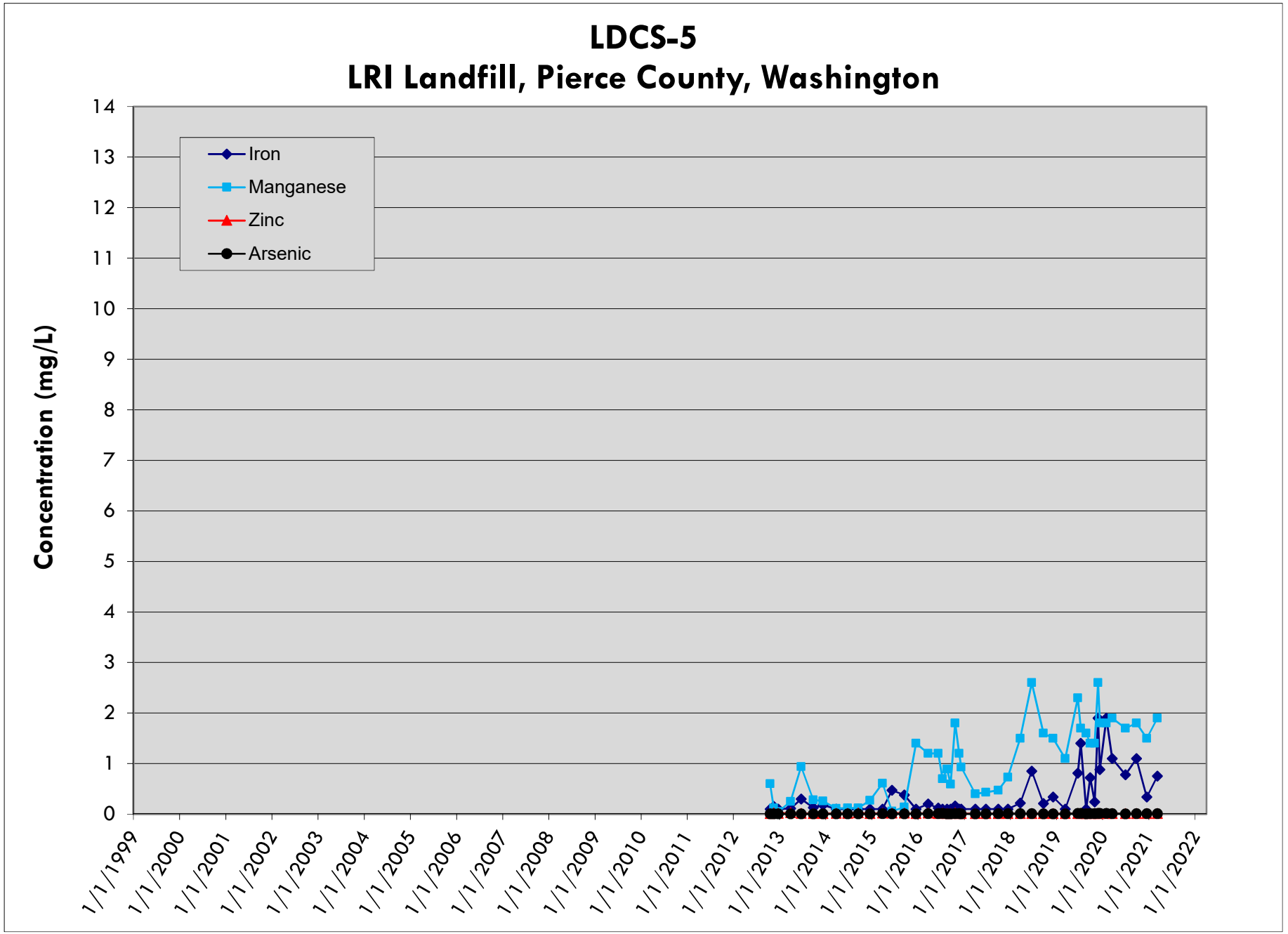


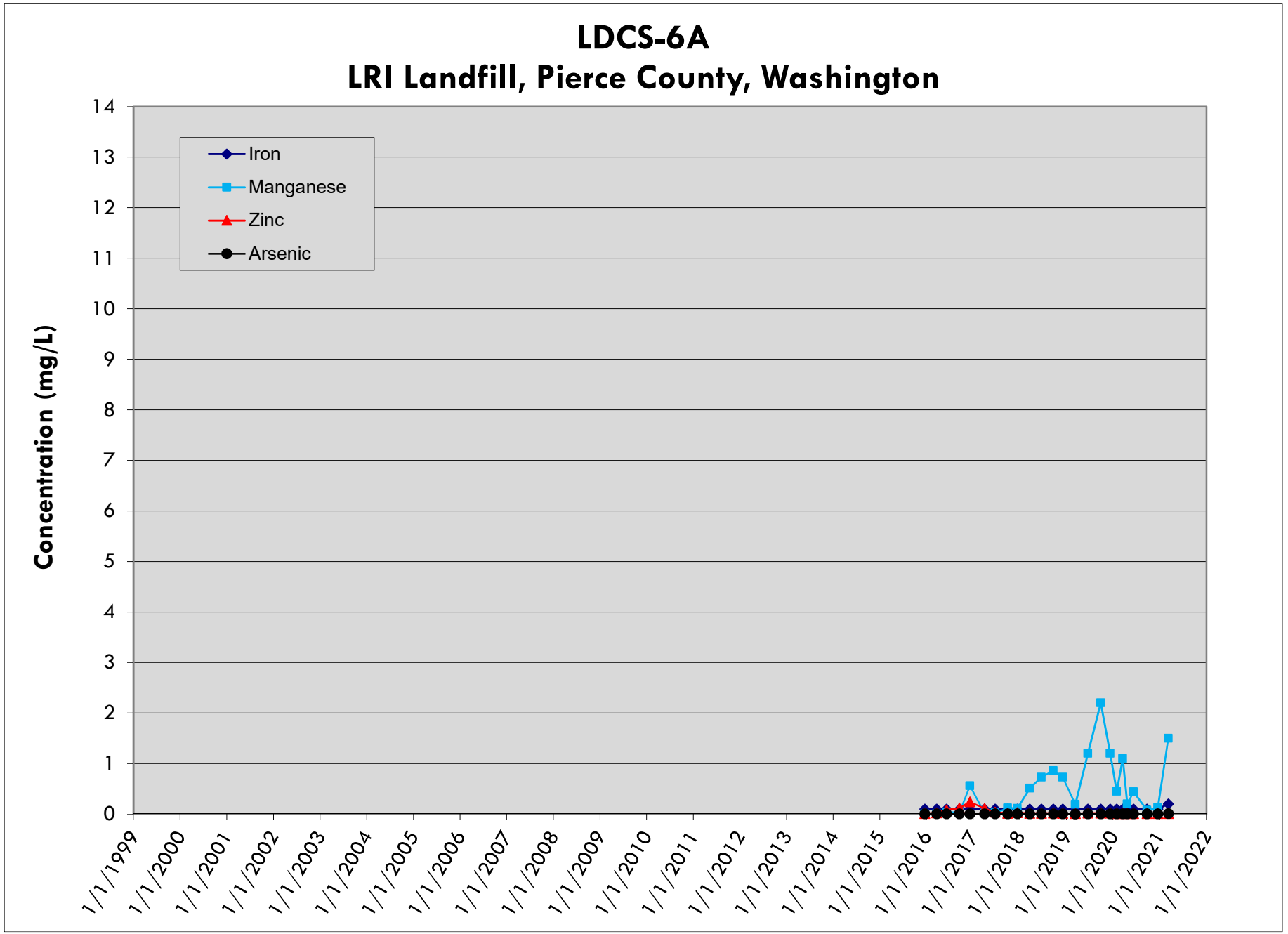
LDCS-3A
LRI Landfill, Pierce County, Washington




LDCS-4A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


LDCS-4B
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


LDCS-5
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022


LDCS-6A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
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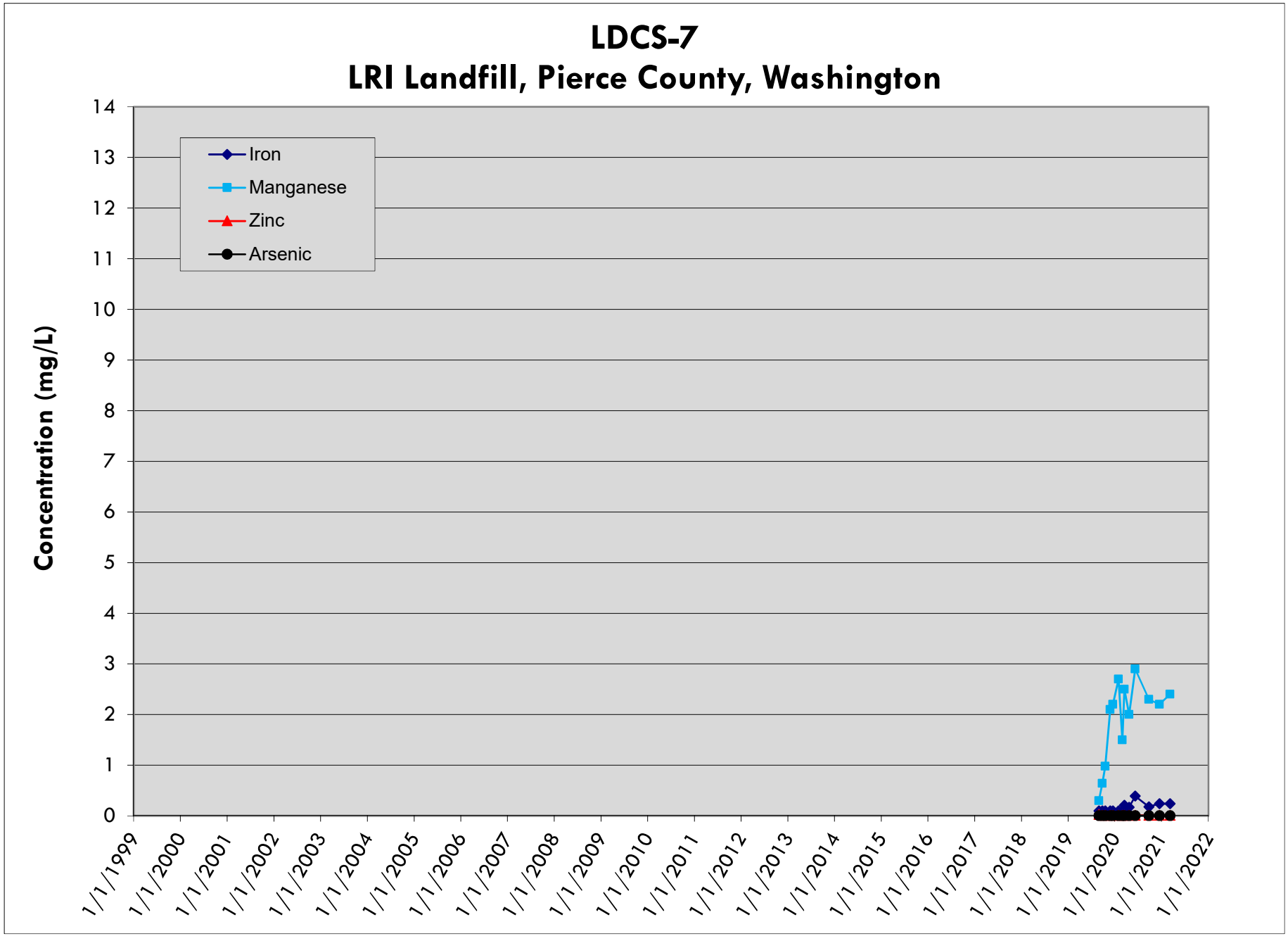
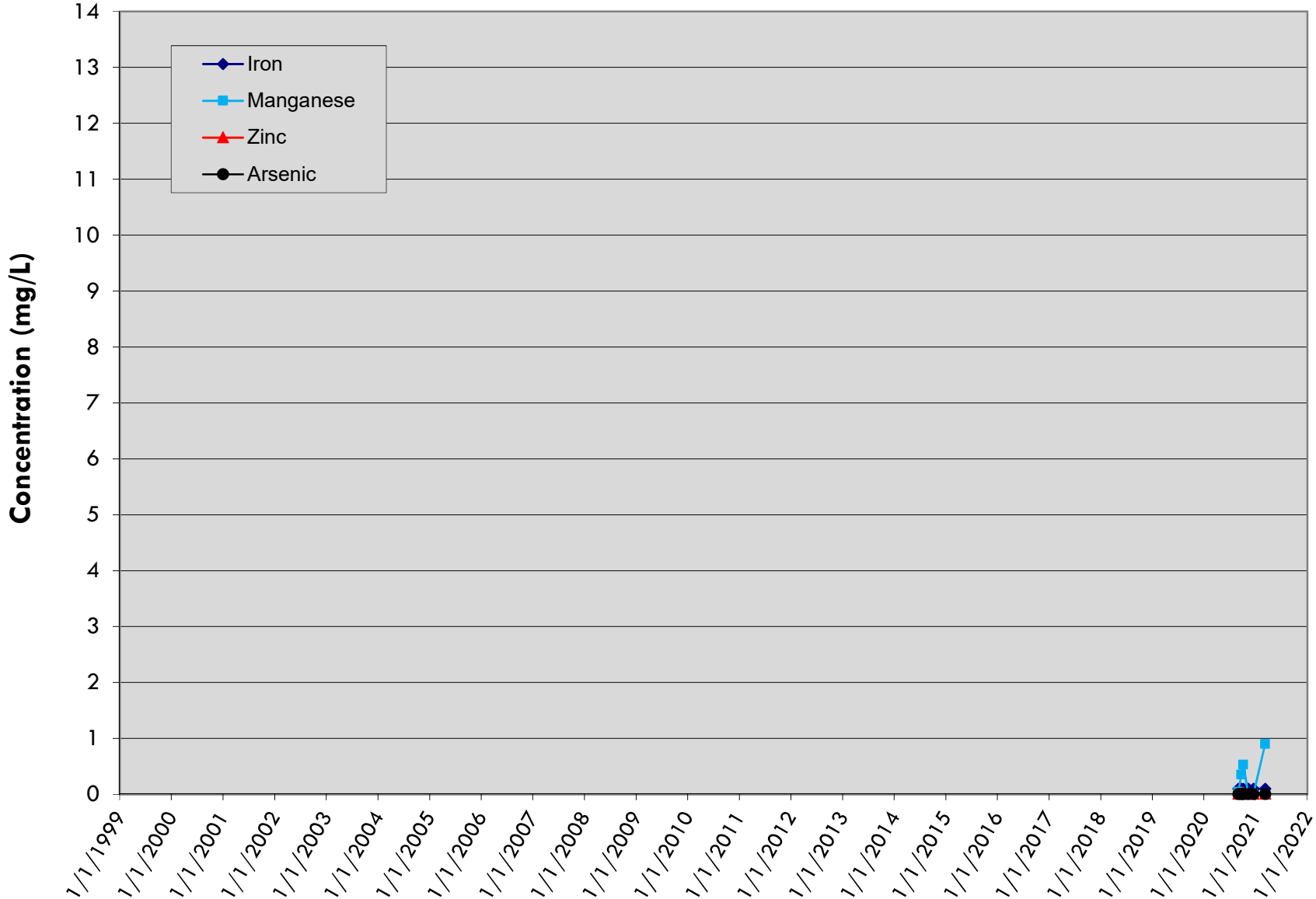
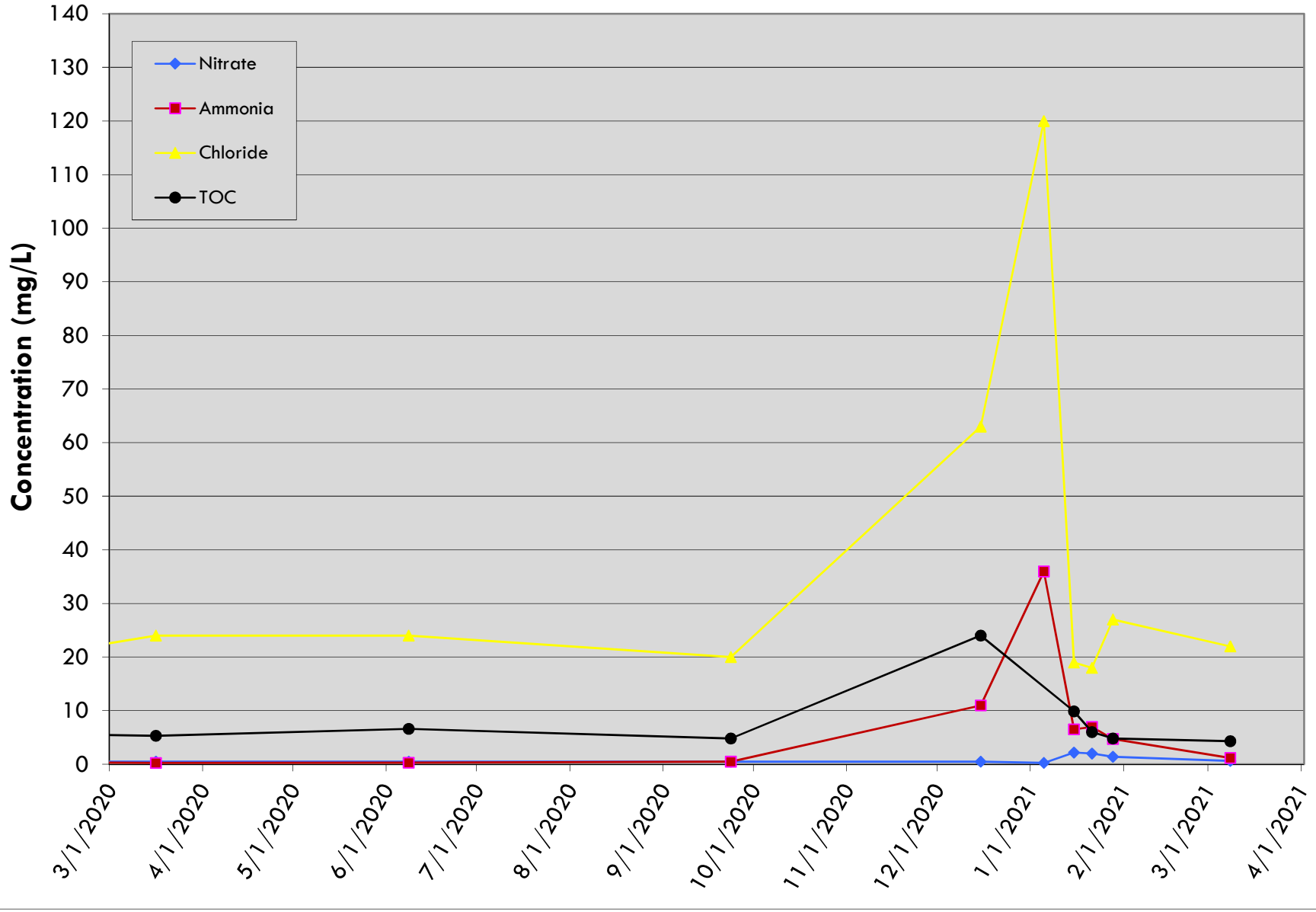
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

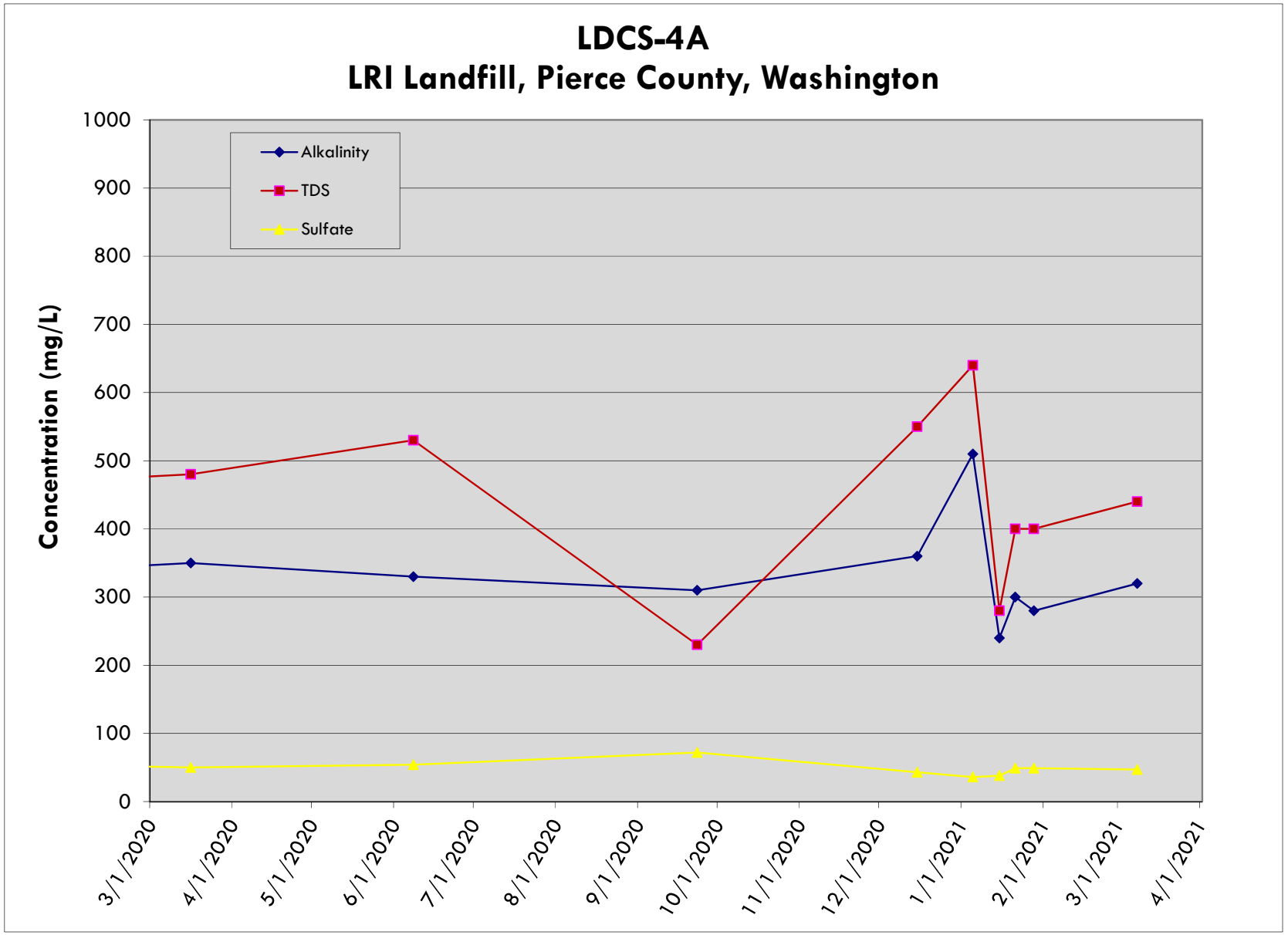

LDCS-7
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022

LDCS-8A
LRI Landfill, Pierce County, Washington

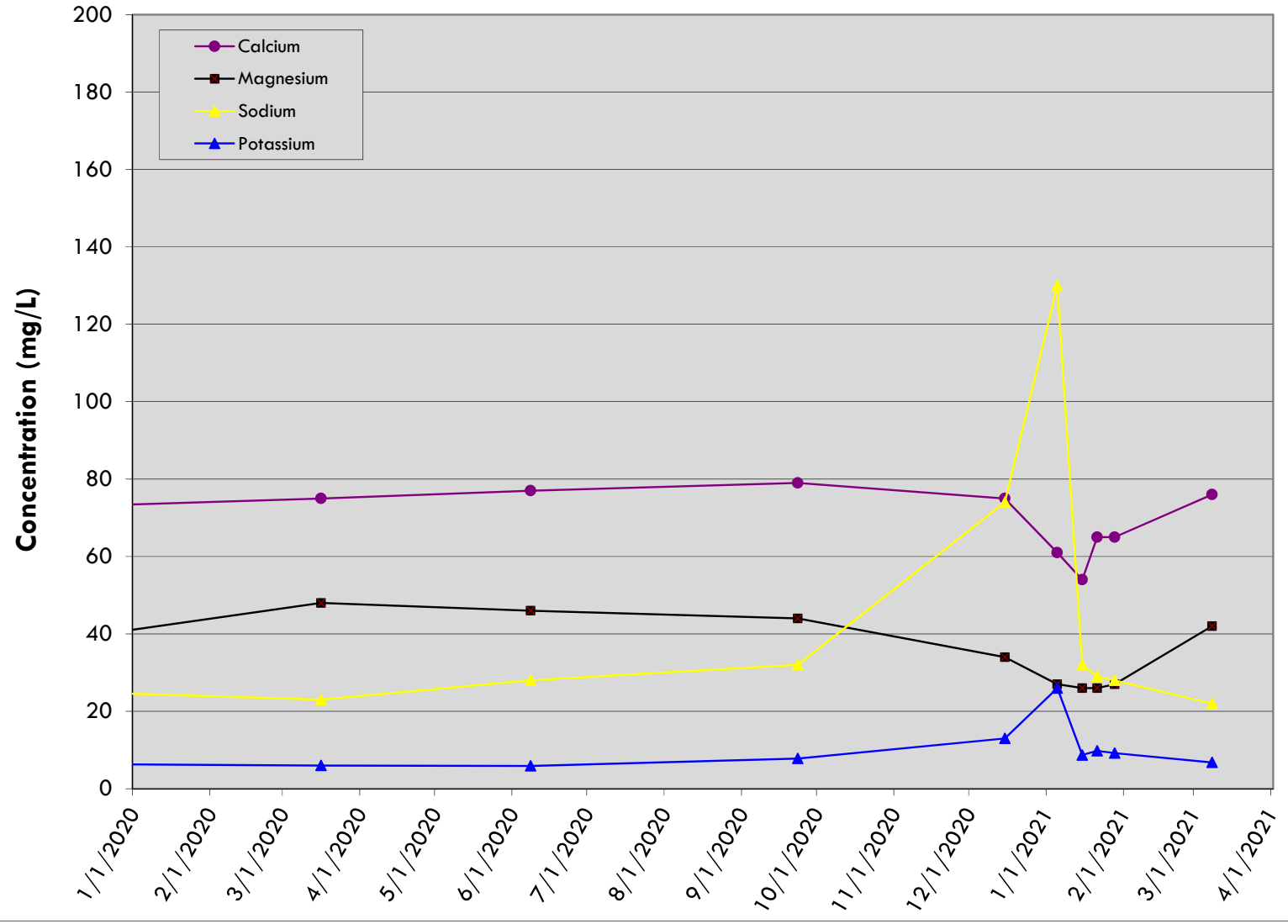


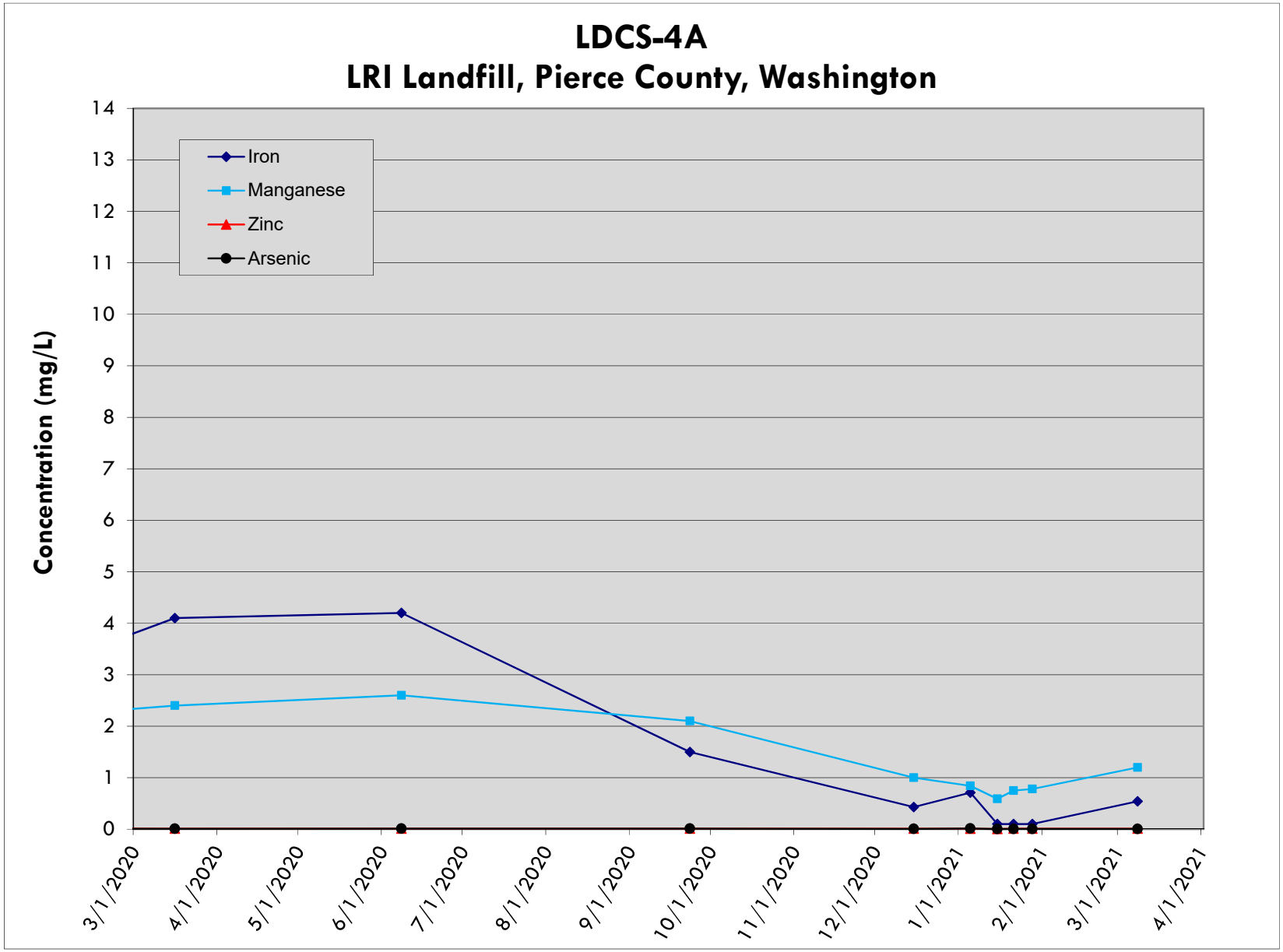
LDCS-4A
LRI Landfill, Pierce County, Washington



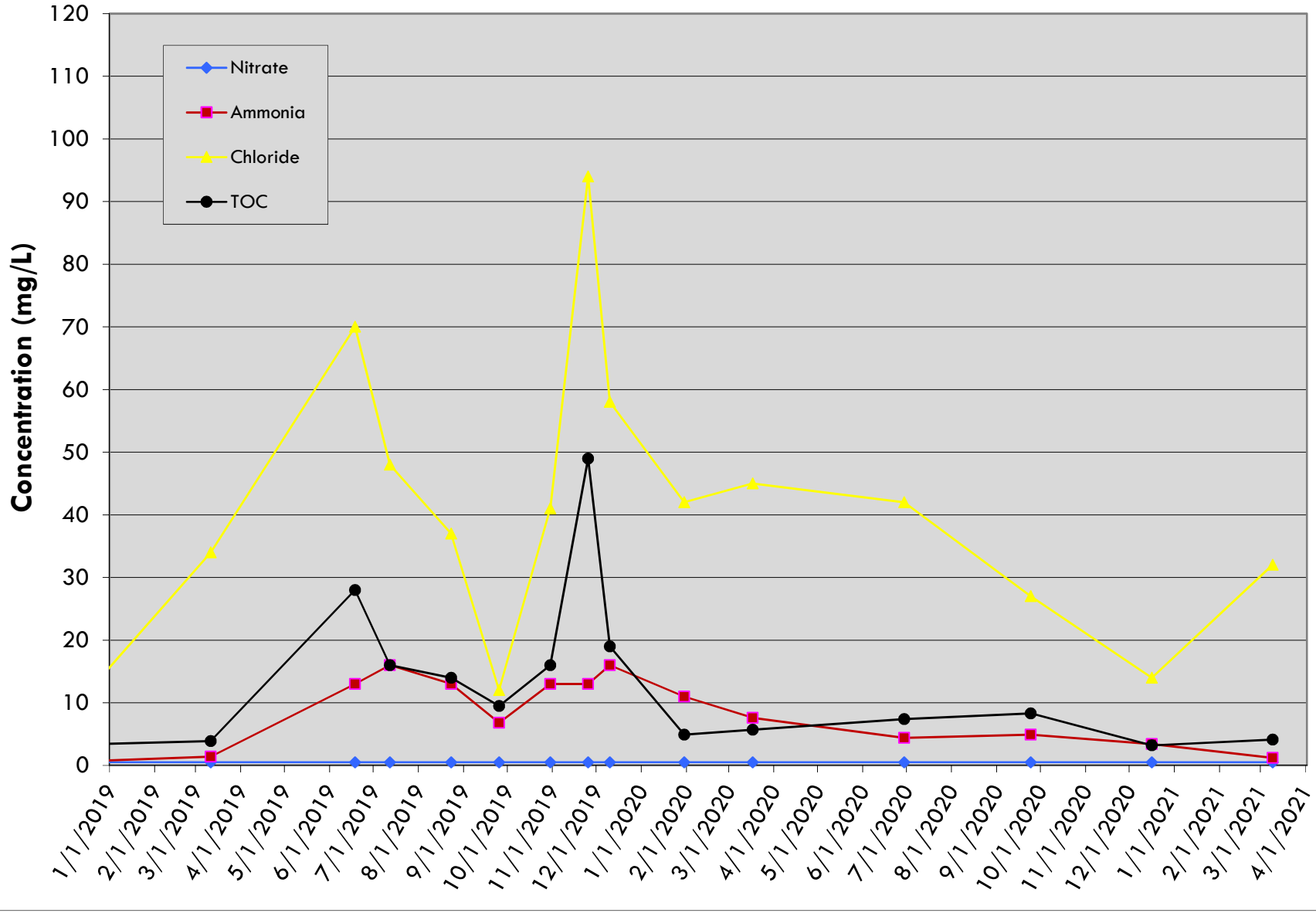

LDCS-4A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Alkalinity
TDS
Sulfate
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

LDCS-4A
LRI Landfill, Pierce County, Washington

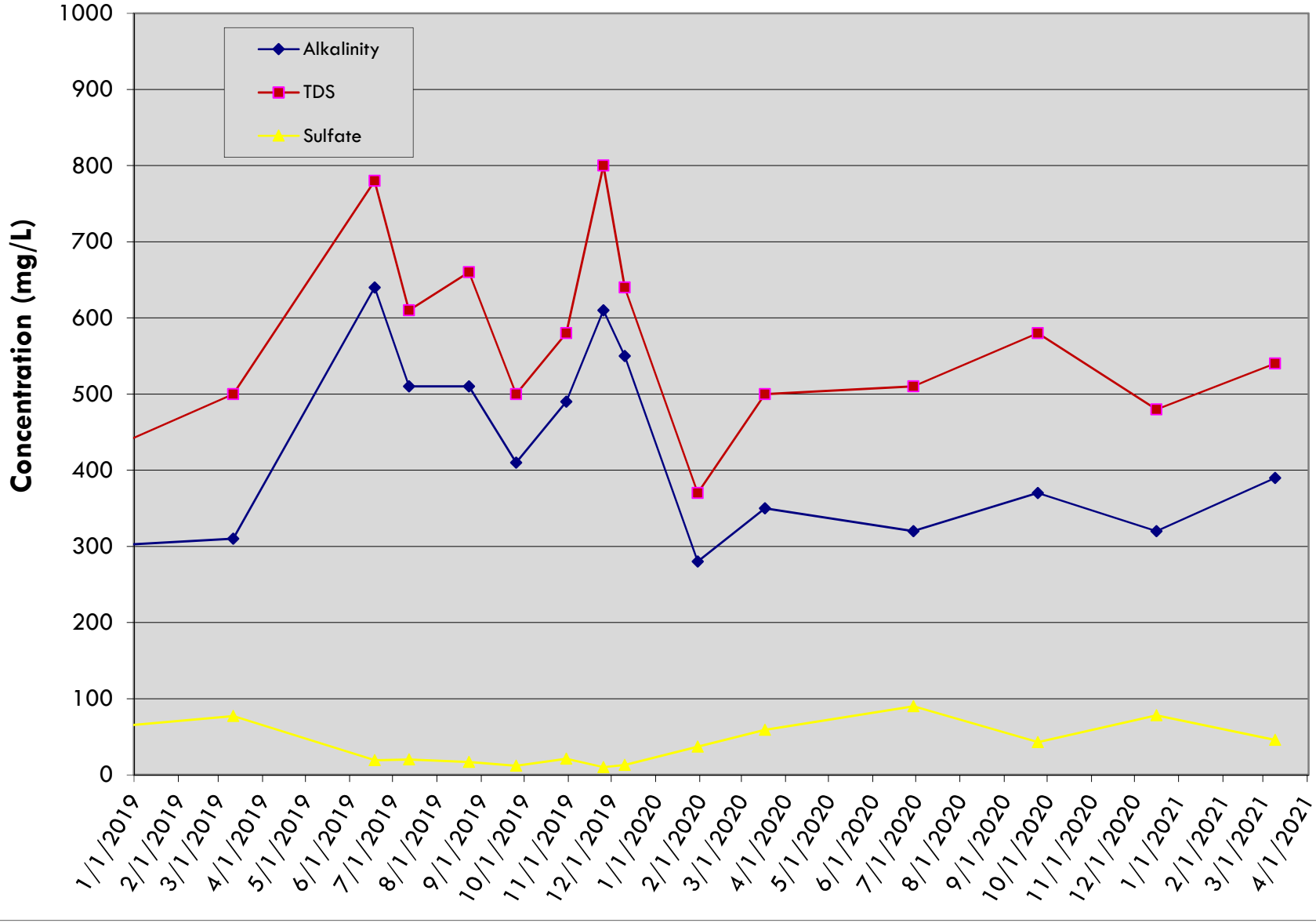



LDCS-4A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Iron
Manganese
Zinc
Arsenic
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

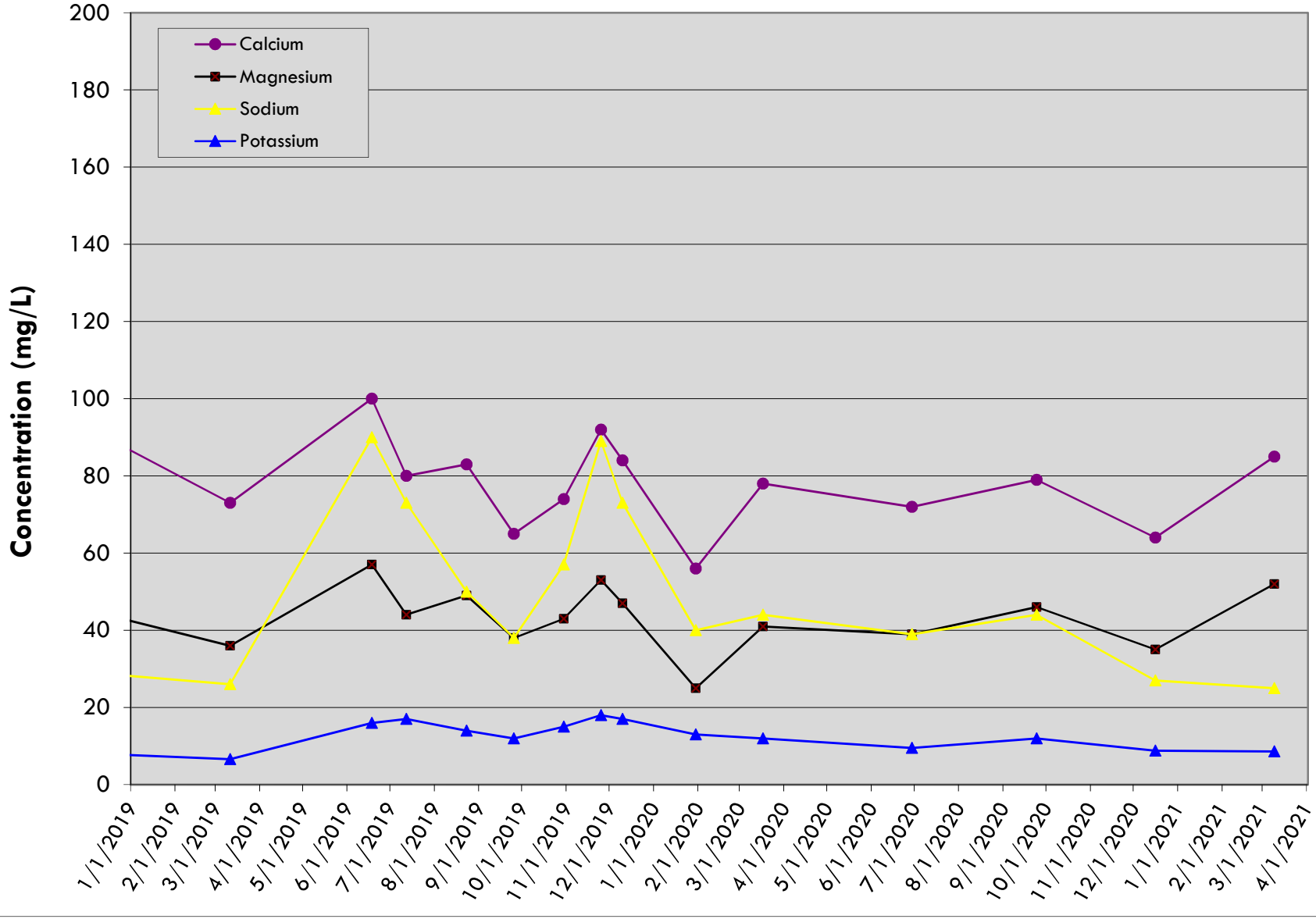
LDCS-5
LRI Landfill, Pierce County, Washington

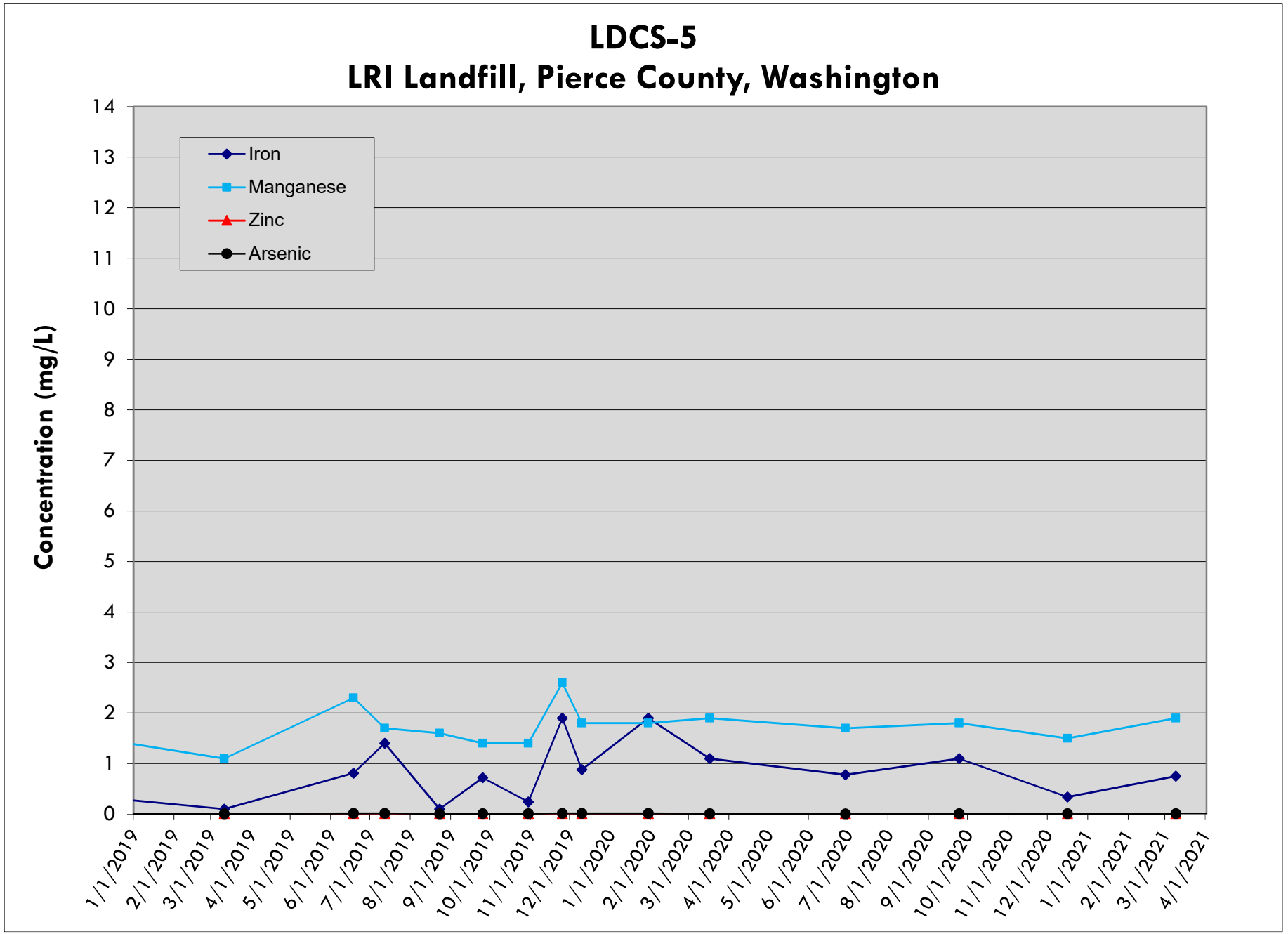


LDCS-5
LRI Landfill, Pierce County, Washington

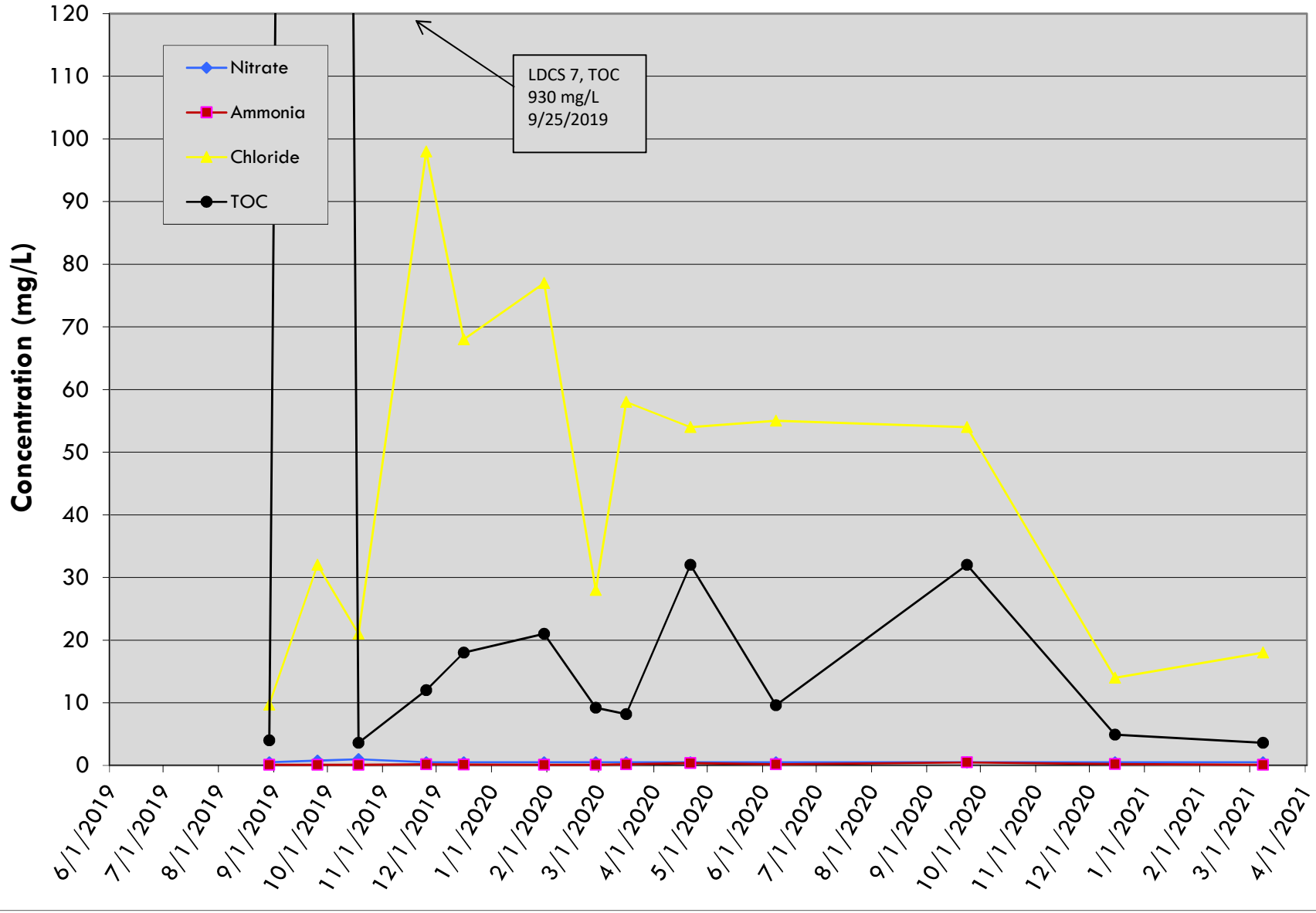


LDCS-5
LRI Landfill, Pierce County, Washington

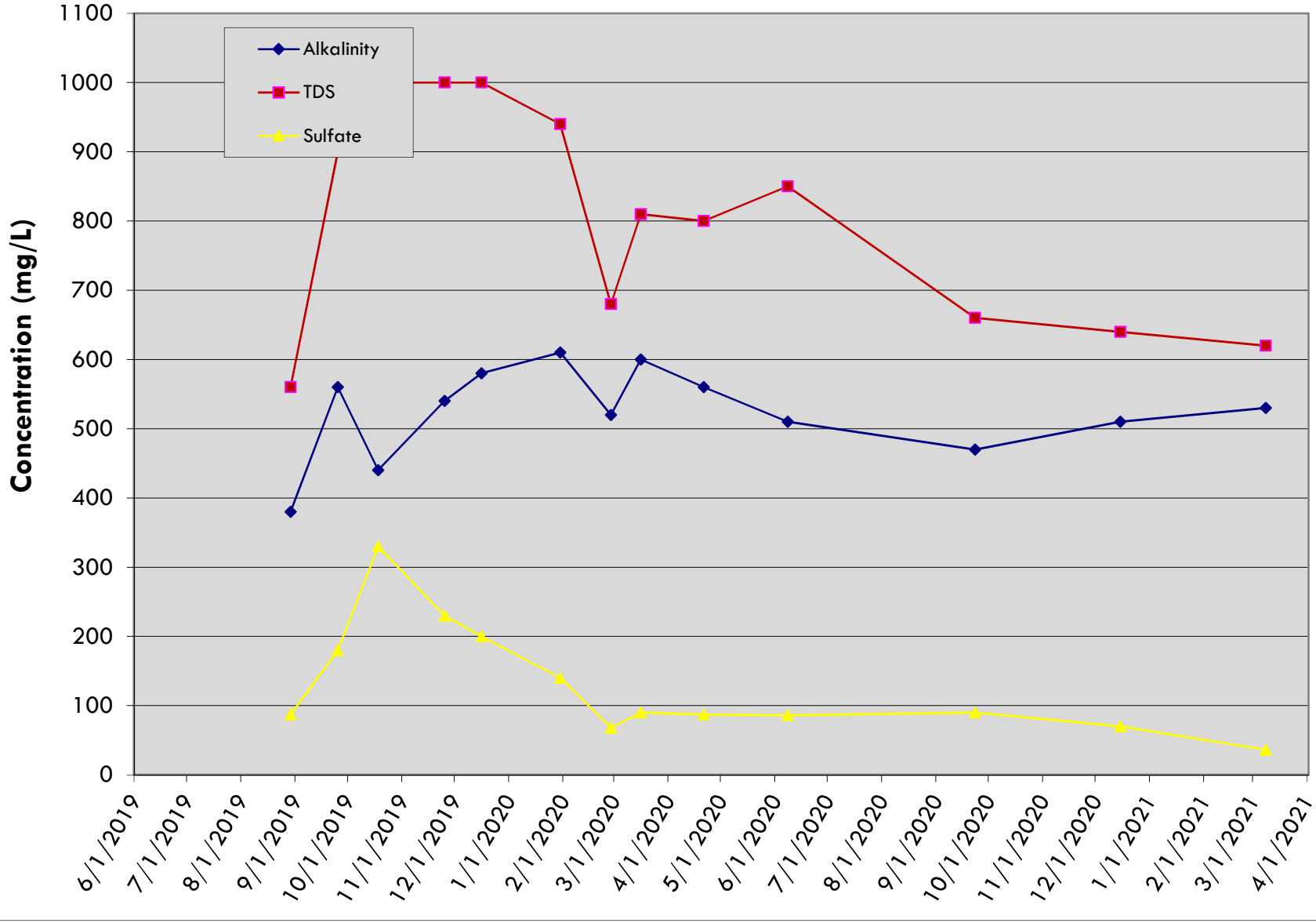



LDCS-5
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
Iron
Manganese
Zinc
Arsenic
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
1/1/2019
2/1/2019
3/1/2019
4/1/2019
5/1/2019
6/1/2019
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

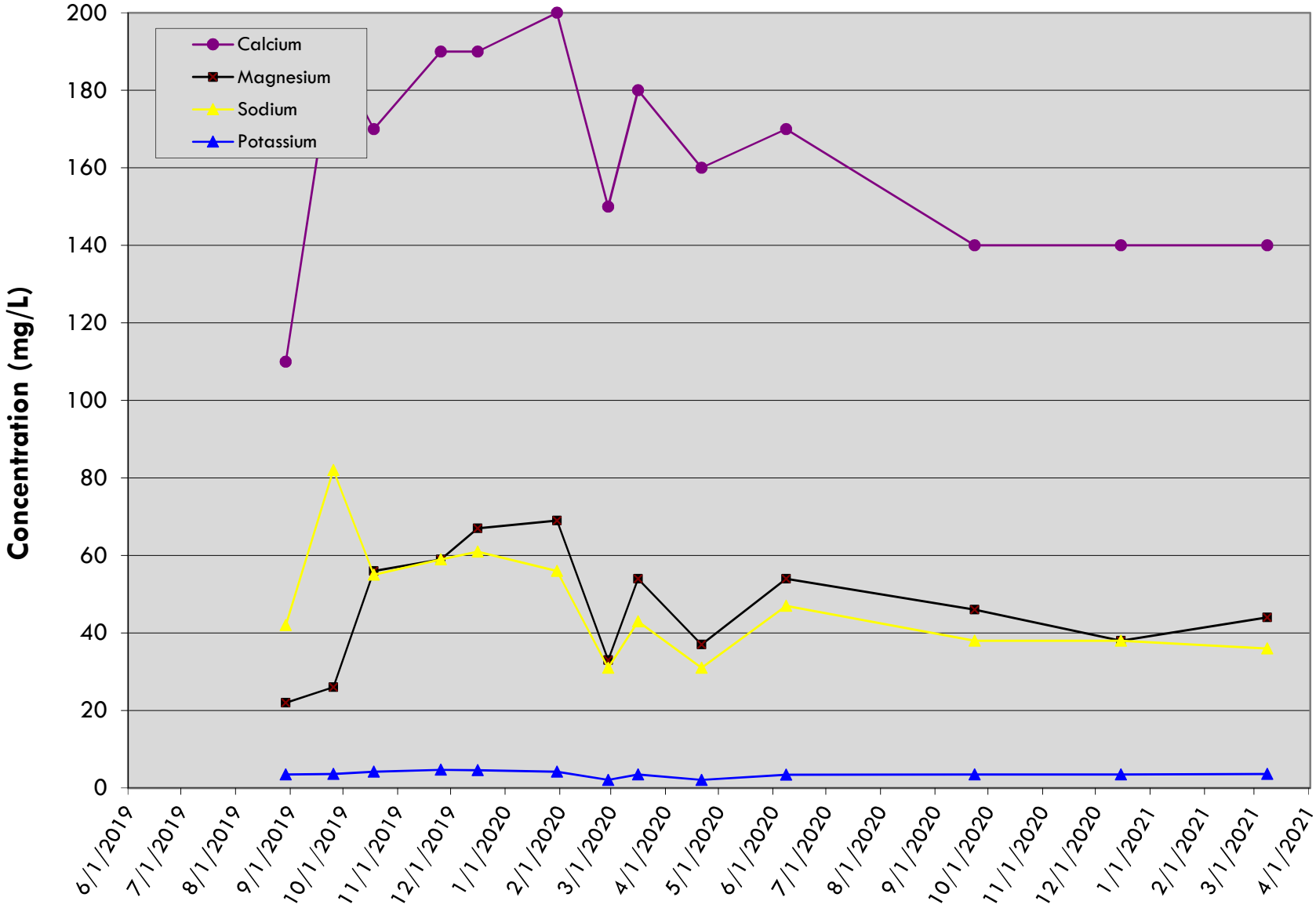
LDCS-7
LRI Landfill, Pierce County, Washington



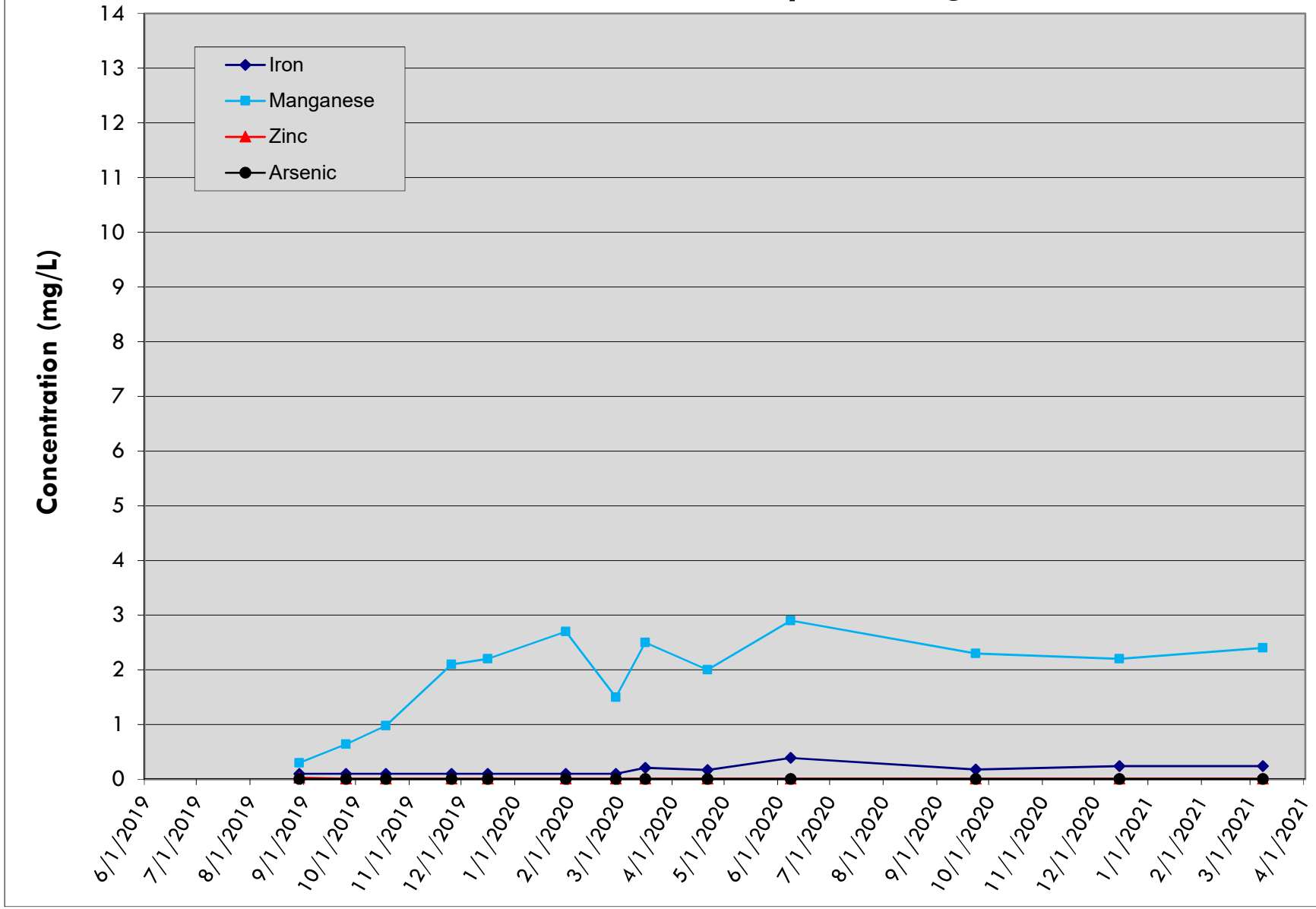
LDCS-7
LRI Landfill, Pierce County, Washington



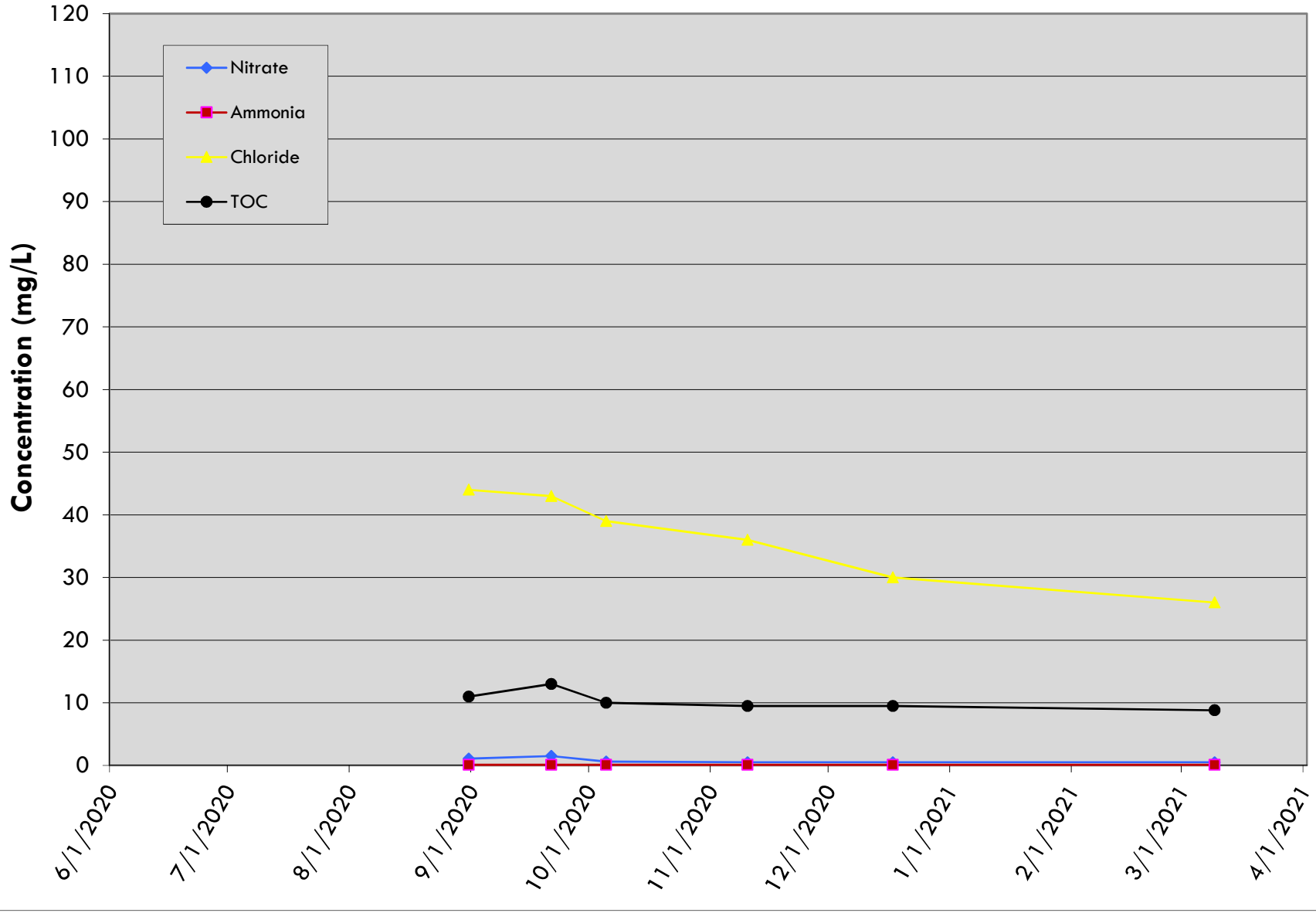
LDCS-7
LRI Landfill, Pierce County, Washington



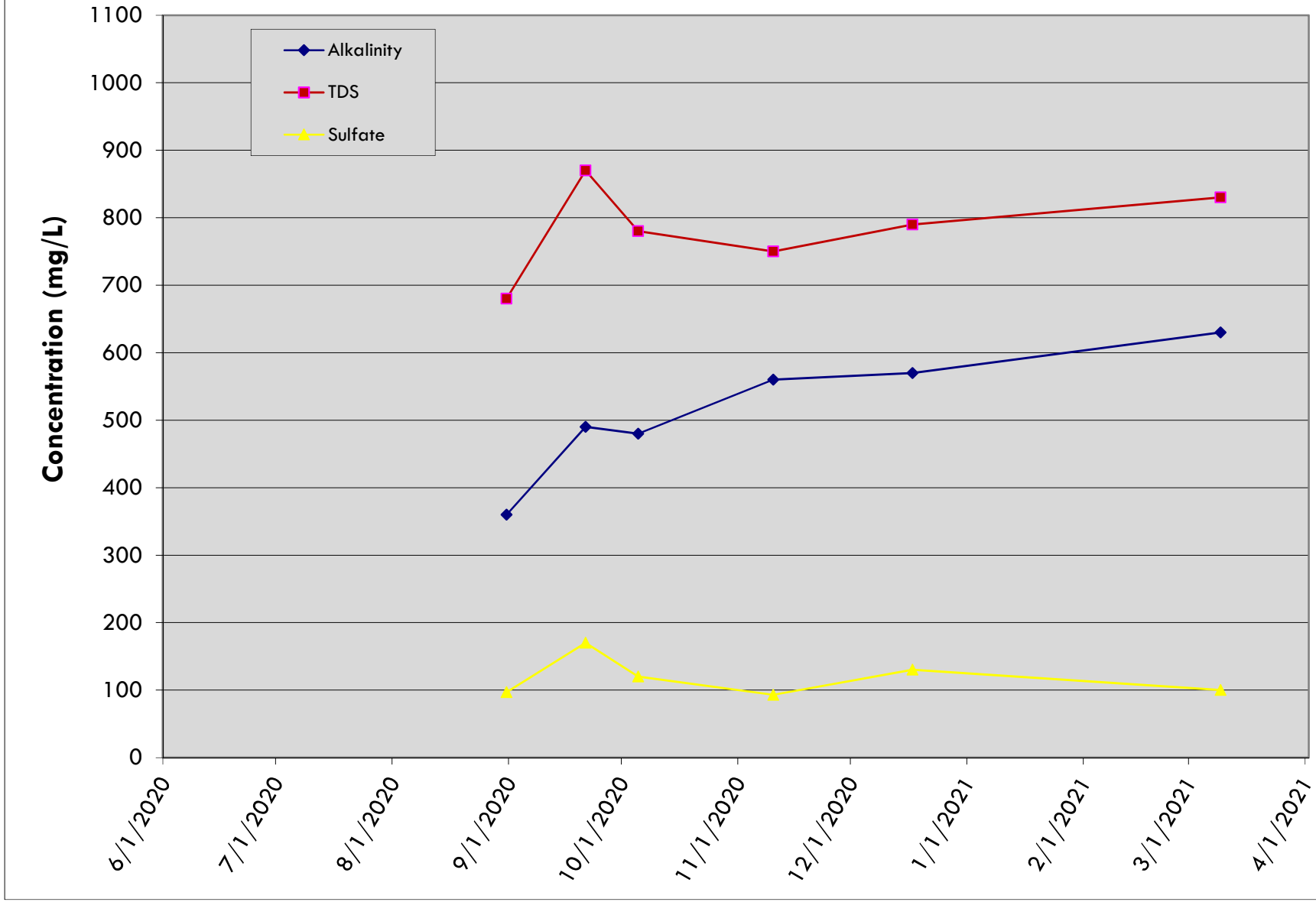
LDCS-7
LRI Landfill, Pierce County, Washington



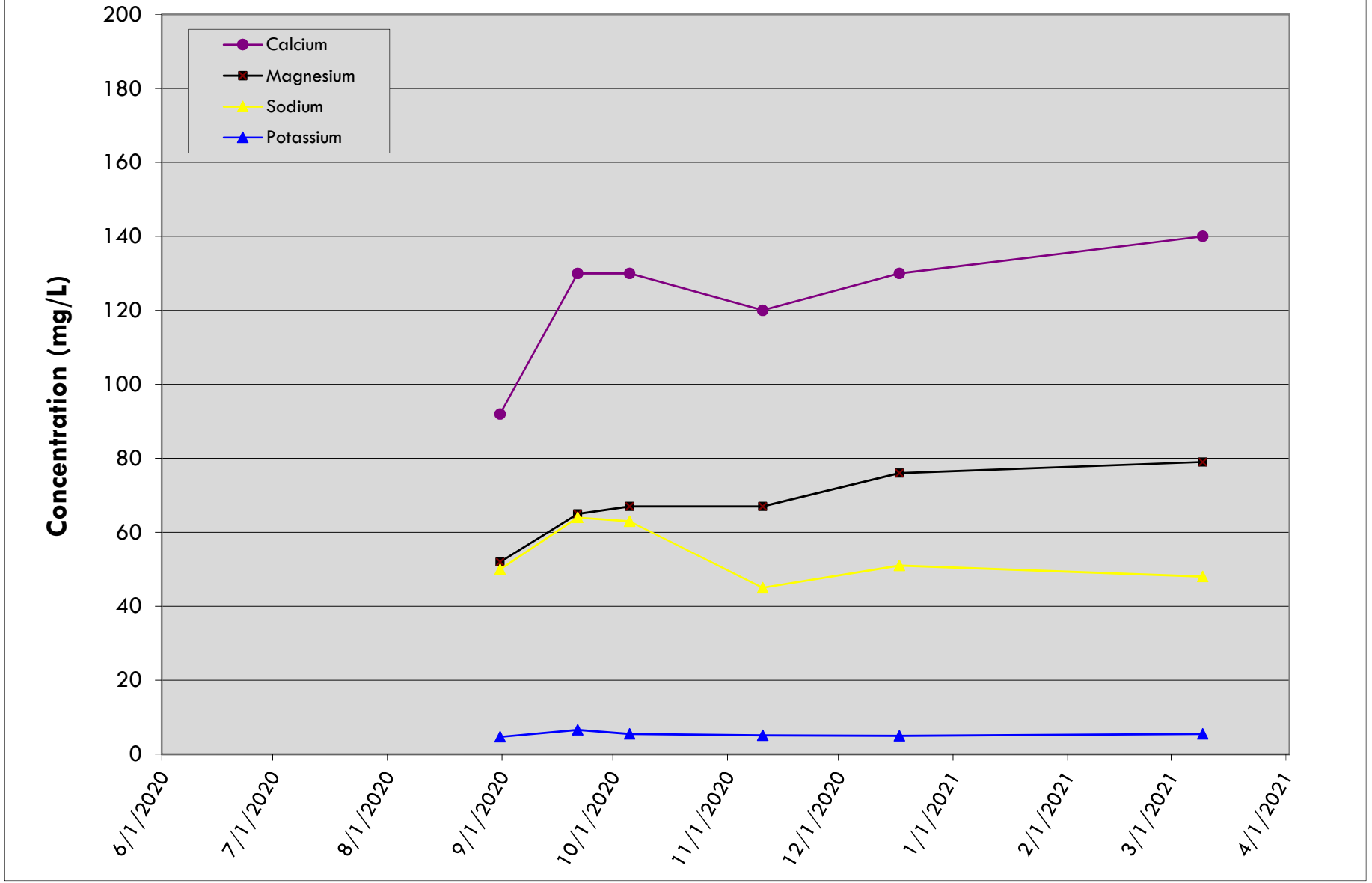
LDCS-8A
LRI Landfill, Pierce County, Washington

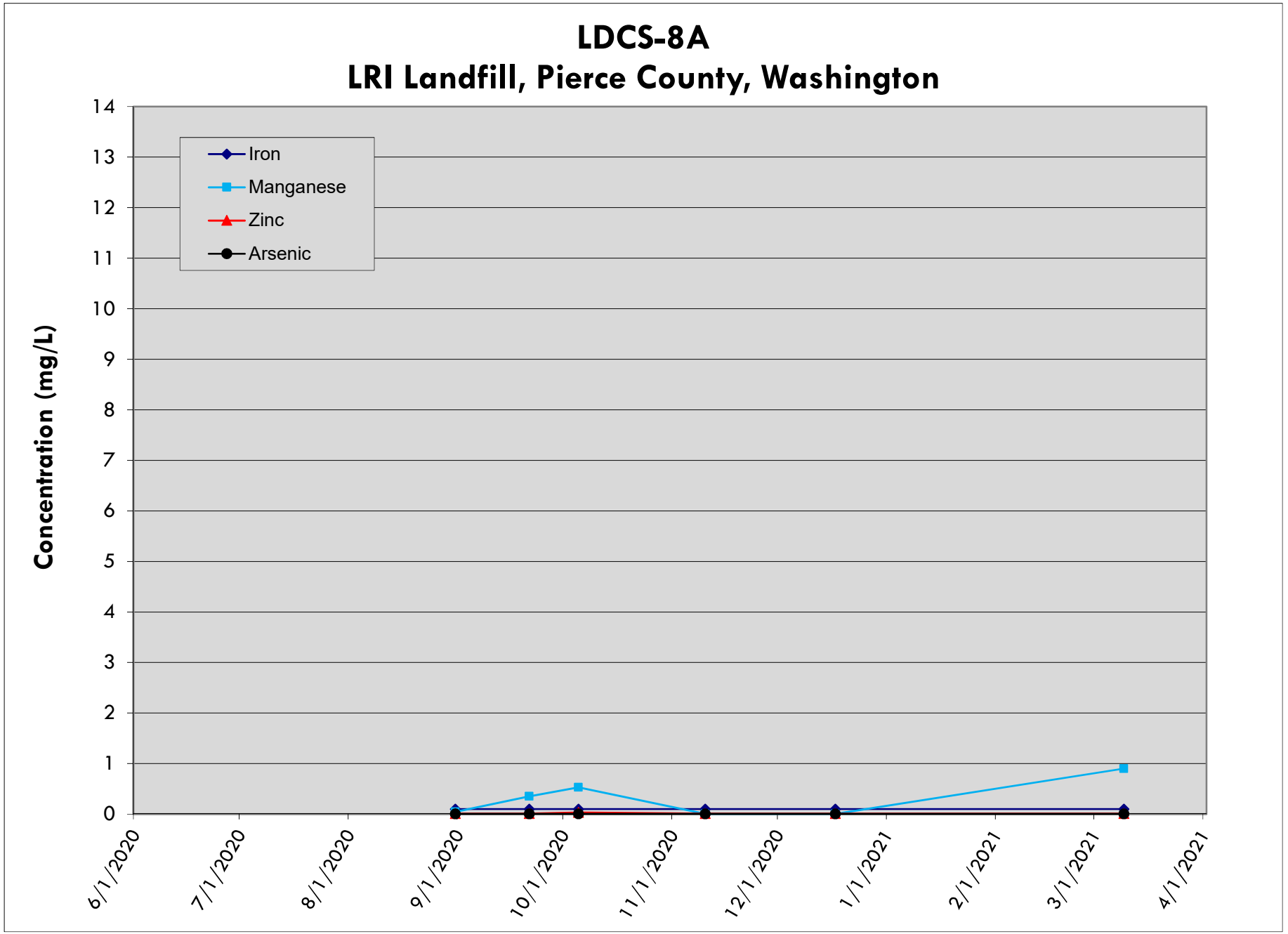


LDCS-8A
LRI Landfill, Pierce County, Washington



LDCS-8A
LRI Landfill, Pierce County, Washington




LDCS-8A
LRI Landfill, Pierce County, Washington
Concentration (mg/L)
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Iron
Manganese
Zinc
Arsenic
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

Attachment H

LDCS & Leachate Pumping Records and Conductivity Measurements

Summary of Leachate Volume and Depth Data
First Quarter 2021
LRI Landfill, Pierce County, Washington

Date	Cell 1* Leachate Volume (GPD)	Cell 1 Leachate Level (in.)	Cell 2A Leachate Volume (GPD)	Cell 2A Leachate Level (in.)	Cell 2B Leachate Volume (GPD)	Cell 2B Leachate Level (in.)	Cell 3A Leachate Volume (GPD)	Cell 3A Leachate Level (in.)	Cell 4A Leachate Volume (GPD)	Cell 4A Leachate Level (in.)	Cell 4B Leachate Volume (GPD)	Cell 4B Leachate Level (in.)	Cell 5 Leachate Volume (GPD)	Cell 5 Leachate Level (in.)	Cell 6 Leachate Volume (GPD)	Cell 6 Leachate Level (in.)	Cell 7 Leachate Volume (GPD)	Cell 7 Leachate Level (in.)	Cell 8A Leachate Volume (GPD)	Cell 8A Leachate Level (in.)
1/1/2021	1	15.0	0	35.7	2,478	34.4	8,225	13.7	2,847	13.2	717	19.0	20,504	14.3	12,589	17.3	20,574	22.0	9,140	11.2
1/2/2021	0	15.0	0	--	2,478	--	7,572	13.3	3,747	14.5	15,450	19.2	20,504	13.3	33,222	21.5	20,574	26.0	8,665	11.5
1/3/2021	0	15.0	0	--	2,478	--	8,086	13.8	5,401	16.6	7,477	18.9	20,504	13.2	22,585	31.2	20,574	34.8	43,784	29.8
1/4/2021	0	15.3	0	13.2	2,478	15.4	4,092	20.8	162	18.2	6,296	19.6	20,504	13.6	19,247	32.8	20,574	38.2	83,198	39.8
1/5/2021	1	15.0	0	9.0	2,478	13.3	5,962	21.7	34	19.8	9,732	19.9	20,646	15.7	22,717	33.7	15,147	40.5	59,718	37.6
1/6/2021	11	15.0	0	8.3	2,478	12.8	4,980	23.3	122	20.6	9,607	20.3	20,314	16.2	22,717	36.0	20,590	42.7	57,023	33.9
1/7/2021	1	15.0	0	9.3	2,478	14.0	10,580	20.4	10	20.9	8,227	21.0	16,856	16.6	0	36.6	19,427	43.8	49,500	27.7
1/8/2021	0	15.0	0	10.8	2,478	16.1	13,247	15.4	0	21.0	13,717	21.1	12,944	20.2	0	36.4	16,153	44.0	41,512	16.5
1/9/2021	8	15.5	0	13.4	2,478	16.3	7,720	10.6	0	21.0	16,699	20.7	0	19.7	42,000	35.7	0	43.9	1,598	11.5
1/10/2021	8	15.1	0	12.9	2,478	17.0	2,986	15.7	18	21.0	18,232	19.7	30,834	17.1	44,202	34.4	68,371	43.2	6	12.9
1/11/2021	19	15.7	0	14.1	2,478	17.4	8,793	17.0	8,808	21.1	3,662	19.5	20,227	17.8	0	33.5	38,863	42.7	0	15.2
1/12/2021	242	16.0	0	49.9	4,229	18.4	4,445	20.6	5,899	21.2	4,877	22.0	20,227	18.2	108,504	36.7	47,857	44.9	42,453	14.0
1/13/2021	0	16.0	0	15.0	4,251	18.0	4,445	26.0	5	22.0	3	23.0	20,227	8.0	40,772	40.0	31,409	47.0	0	11.3
1/14/2021	246	16.0	0	15.3	4,251	18.0	11,126	23.8	34	22.0	18,563	22.7	0	9.4	52,739	39.4	36,739	47.0	0	12.2
1/15/2021	214	16.0	0	17.3	3,959	18.0	9,312	19.6	449	21.8	20,145	20.2	27,016	19.3	56,040	35.9	39,142	46.9	0	17.1
1/16/2021	545	16.0	33,316	19.0	3,970	18.0	13,039	12.9	227	22.0	15,863	19.6	0	18.9	0	35.0	0	46.7	0	0.0
1/17/2021	650	16.0	13,770	19.0	3,969	18.0	5,111	10.5	27	22.0	18,411	18.9	29,394	16.1	104,381	33.7	76,559	46.3	0	0.0
1/18/2021	699	16.0	2,431	20.8	3,971	19.0	1	23.8	12,932	19.4	3,712	18.6	0	15.3	46,254	30.8	33,052	45.2	22	20.4
1/19/2021	758	16.0	19,062	14.2	3,971	20.6	5,292	23.8	8,859	19.0	0	20.6	18,804	19.5	53,529	29.0	43,992	44.6	36,473	14.8
1/20/2021	715	16.0	78	9.5	3,971	22.0	16,926	16.5	7,808	19.1	0	22.5	20	17.7	55,115	26.2	41,169	43.9	0	9.8
1/21/2021	550	16.0	29	10.6	3,970	15.7	879	18.3	2,840	22.0	13,353	23.3	25,392	19.9	46,655	24.4	33,488	43.8	0	11.4
1/22/2021	296	16.0	28	11.8	3,782	16.8	6,520	22.3	907	22.2	15,576	23.3	966	18.7	40,152	21.0	24,093	43.3	0	12.4
1/23/2021	392	16.0	193	12.8	3,462	17.5	5,559	23.9	392	22.1	20,239	22.8	17,716	17.9	49,429	16.0	42,492	42.2	0	12.5
1/24/2021	230	16.5	149	14.1	3,435	18.6	12,071	24.4	94	22.9	18,271	22.3	17,716	14.3	49,429	10.4	42,492	41.1	0	12.6
1/25/2021	3	16.0	182	14.8	3,358	19.0	17,137	11.3	81	23.0	20,441	21.7	17,716	20.0	49,429	8.9	42,492	39.9	0	13.1
1/26/2021	520	16.9	161	16.5	3,356	12.9	0	15.9	74	23.0	20,215	21.0	14	17.7	21,589	9.1	63,391	37.0	0	13.5
1/27/2021	539	16.9	155	17.0	3,355	14.4	11,325	18.2	67	23.1	18,387	20.8	27,626	19.2	15,246	9.2	62,595	33.9	0	14.0
1/28/2021	515	16.7	155	17.8	3,353	17.0	3,469	19.6	0	23.0	4,417	21.5	14	19.4	19,414	10.0	54,054	31.6	49,731	4.0
1/29/2021	260	16.9	152	18.8	3,353	17.8	11,563	19.2	0	23.0	16,854	22.6	17,778	22.2	12,603	9.8	18,223	29.2	2,906	0.0
1/30/2021	189	16.8	133	20.5	3,352	18.0	9,233	11.4	0	23.0	14,553	21.9	0	25.8	12,962	9.4	7,745	21.6	0	1.0
1/31/2021	532	17.0	10,656	18.7	3,352	15.2	8,126	10.3	2,902	23.1	19,198	21.9	0	26.8	12,962	9.3	7,745	13.7	0	3.9
2/1/2021	345	17.0	262	7.7	3,352	9.9	8,799	10.2	18,964	19.8	8,814	22.1	22,246	17.4	12,962	9.2	7,745	12.3	0	6.5
2/2/2021	145	17.0	304	9.1	3,597	9.1	4,857	9.7	9,375	20.9	26,133	20.6	19,674	12.0	32,830	8.5	23,898	12.1	13	8.9
2/3/2021	17	17.0	147	10.0	1,753	8.0	4,784	8.9	932	21.3	8,072	19.0	11,424	9.9	21,653	8.2	11,378	9.2	0	11.0
2/4/2021	102	17.0	8,257	8.8	3,970	8.0	4,784	9.4	11,107	20.7	12,046	18.7	9,946	10.4	29,259	8.2	25,946	9.7	0	11.2
2/5/2021	96	17.0	683	7.2	3,910	9.0	9,368	10.3	18,467	18.0	5,750	18.5	0	14.7	14,477	9.3	8,169	11.6	8,502	10.2
2/6/2021	1	17.0	203	8.8	3,378	9.3	4,224	9.5	12,205	17.0	30,124	15.6	0	12.9	14,477	9.0	8,169	12.2	7,822	10.8
2/7/2021	0	17.0	317	9.9	3,353	9.1	8,222	9.5	21,449	15.3	16,288	10.2	0	14.6	14,477	9.0	8,169	12.6	0	10.0
2/8/2021	2	17.0	4,473	6.9	3,353	9.2	8,074	9.7	21,814	12.1	0	12.2	46,904	10.6	14,477	9.2	8,169	10.8	7,608	10.8
2/9/2021	1	17.0	289	7.5	3,353	9.2	4,276	9.4	28,002	9.3	0	14.7	6,002	13.9	16,136	9.0	8,682	12.7	0	10.0
2/10/2021	1	17.0	305	8.9	3,354	9.3	8,020	9.4	21,775	8.5	0	16.8	11,934	13.1	16,888	9.2	353	11.3	7,245	11.0
2/11/2021	0	17.0	327	9.9	3,354	9.4	8,234	9.6	20,973	7.1	1,324	18.7	10,456	14.3	11,376	8.9	19,223	10.8	0	9.8
2/12/2021	8,396	14.5	3,639	10.4	3,355	9.1	4,366	9.7	3,632	13.6	26,956	16.5	19,794	9.9	26,566	8.5	20,628	10.0	7,004	10.9
2/13/2021	30	15.3	334	7.5	3,354	13.9	116	21.1	1,935	18.9	0	15.9	0	9.3	18,778	12.2	14,481	14.5	0	9.9
2/14/2021	9,399	14.0	2,483	7.4	3,354	13.0	10,081	23.7	48	19.9	1,441	18.5	0	8.8	18,778	18.7	14,481	21.3	7,009	10.7
2/15/2021	0	14.9	214	7.0	3,353	15.9	12,856	14.7	121	21.0	4,262	20.6	67,534	12.4	18,778	24.2	14,481	27.6	4,214	14.6
2/16/2021	0	15.5	192	7.6	3,355	17.0	8,486	15.3	5	21.6	5,295	21.8	28,316	13.2	36,769	25.7	49,055	28.9	0	18.5
2/17/2021	0	16.0	567	9.3	3,355	17.1	0	17.8	0	22.0	17,811	21.5	4	12.3	41,051	21.9	47,634	23.1	0	19.5
2/18/2021	9,317	13.6	147	10.9	3,355	13.0	8,963	19.3	0	22.0	9,611	21.0	45,376	9.0	39,184	18.3	51,768	16.3	25,033	17.1
2/19/2021	9,690	12.9	3,677	9.0	3,352	10.2	5,929	18.2	15	22.6	8,412	21.9	0	8.0	33,046	17.0	24,836	12.5	8,331	10.3
2/20/2021	8,606	12.3	0	6.5	3,353	10.7	6,555	19.2	15	23.0	8,613	22.1	0	8.0	33,046	17.5	24,836	11.7	0	11.3
2/21/2021	15,414	11.3	0	8.6	3,353	10.8	10,921	12.7	298	23.0	15,777	22.6	0	7.8	33,046	15.5	24,836	11.2	7,871	10.2
2/22/2021	7,522	11.8	0	9.5	3,360	10.3	5,250	11.6	36	23.6	7,596	22.5	109,070	9.9	33,046	22.9	24,836	24.1	19,161	10.6
2/23/2021	21	13.6	0	10.5	3,353	15.7	9,740	12.6	6,327	22.2	14,881	22.7	33,252	14.7	22,492	27.4	31,113	29.2	1,556	12.0
2/24/2021	0	14.0	4	11.5	3,353	16.8	1,039	17.4	7,170	21.3	15,857	22.2	16	17.0	34,049	26.0	37,718	26.9	0	13.5
2/25/2021	0	14.9	22	13.4	3,353	17.9	12,103	13.4	5,064	23.5	13,411	21.8	25,024	14.2	34,416	26.2	38,031	24.0	0	15.2
2/26/2021	0	15.0	64	14.0	3,353	17.9	7,660	14.5	5,150	24.2	15,009	22.5	23,380	20.0	33,416	28.0	48,530	22.0	0	17.7
2/27/2021	0	15.0	46	14.5	3,353	17.3	8,019	10.1	7,440	22.4	16,648	22.6	16,369	31.1	12,674	26.3	4,766	15.7	0	19.2
2/28/2021	0	15.0	189	16.1	3,352	18.0	8,342	10.6	11,055	21.4	19,115	22.0	16,369	36.0	12,674	23.3	4,766	11.2	0	20.3

Summary of Leachate Volume and Depth Data
First Quarter 2021
LRI Landfill, Pierce County, Washington

Date	Cell 1* Leachate Volume (GPD)	Cell 1 Leachate Level (in.)	Cell 2A Leachate Volume (GPD)	Cell 2A Leachate Level (in.)	Cell 2B Leachate Volume (GPD)	Cell 2B Leachate Level (in.)	Cell 3A Leachate Volume (GPD)	Cell 3A Leachate Level (in.)	Cell 4A Leachate Volume (GPD)	Cell 4A Leachate Level (in.)	Cell 4B Leachate Volume (GPD)	Cell 4B Leachate Level (in.)	Cell 5 Leachate Volume (GPD)	Cell 5 Leachate Level (in.)	Cell 6 Leachate Volume (GPD)	Cell 6 Leachate Level (in.)	Cell 7 Leachate Volume (GPD)	Cell 7 Leachate Level (in.)	Cell 8A Leachate Volume (GPD)	Cell 8A Leachate Level (in.)
3/1/2021	11,467	12.5	8,193	12.9	3,350	14.2	8,103	9.8	1,641	23.0	9,001	21.9	16,369	31.9	12,674	19.5	4,766	11.3	0	21.4
3/2/2021	9,162	12.1	963	6.9	3,352	15.9	4,508	12.1	2,779	22.7	10,634	22.3	14,260	14.5	27,331	16.7	15,158	11.2	0	22.3
3/3/2021	11,173	11.6	13	8.7	3,352	17.7	10,834	12.2	3,249	22.9	12,766	22.8	11,890	14.3	32,742	14.3	12,041	11.1	17,967	21.7
3/4/2021	9,159	11.4	0	9.4	3,353	18.0	5,137	12.2	1,065	23.2	10,787	22.9	12,212	14.9	26,709	12.1	12,117	11.0	22,907	12.6
3/5/2021	14,180	10.3	0	7.7	3,352	18.6	10,216	12.1	4,214	23.4	16,661	23.1	12,261	14.7	22,124	10.2	12,122	11.1	0	11.0
3/6/2021	14,909	9.3	0	7.6	3,352	19.0	8,001	9.9	9,922	22.2	20,908	22.4	12,261	15.2	22,124	9.5	12,122	11.2	6,695	10.1
3/7/2021	13,733	8.6	207	8.7	3,352	19.0	7,370	9.7	9,725	22.2	18,428	20.9	12,261	15.0	22,124	9.4	12,122	11.3	0	10.9
3/8/2021	11,174	9.0	0	10.5	3,320	16.5	7,786	10.0	5,368	22.9	14,671	20.3	0	14.8	0	9.7	0	11.4	5,992	10.1
3/9/2021	10,845	8.8	0	10.4	3,332	12.6	7,361	9.6	5,040	23.0	13,713	20.3	24,828	15.1	36,713	9.5	15,447	11.1	0	10.9
3/10/2021	9,546	8.7	0	7.5	3,280	11.0	7,981	9.8	7,615	22.4	17,719	20.3	9,566	14.9	16,054	9.5	7,124	11.1	5,433	10.1
3/11/2021	0	10.4	8	6.8	3,302	9.3	6,866	9.3	12,615	20.6	23,769	18.8	10,012	15.1	18,719	9.4	9,929	10.8	0	11.0
3/12/2021	11,221	8.8	0	8.9	3,322	9.4	6,306	8.8	16,251	16.7	31,573	13.1	11,553	14.8	17,452	9.1	7,531	10.2	4,865	9.7
3/13/2021	0	10.4	0	10.4	3,351	16.2	9,620	8.9	35,541	10.9	1,527	10.7	11,553	15.3	17,452	9.2	7,531	10.3	0	11.1
3/14/2021	0	11.0	0	11.3	2,061	17.9	6,117	8.8	33,397	9.3	0	13.2	11,553	15.1	17,452	8.9	7,531	10.5	4,863	9.8
3/15/2021	7,941	9.3	0	8.0	2,299	12.9	5,854	8.6	33,886	5.7	0	15.7	0	15.1	0	9.3	0	10.1	4,490	11.0
3/16/2021	0	10.6	0	7.9	2,966	9.6	8,900	8.7	26,172	0.8	0	18.0	12,242	15.3	28,592	9.2	11,455	10.4	0	9.9
3/17/2021	9,977	9.0	911	9.5	2,563	11.4	6,179	8.7	7,762	4.3	24,216	17.4	0	14.9	0	9.2	0	10.6	4,275	10.9
3/18/2021	1	10.5	1,206	10.9	1,918	16.2	9,346	8.7	18,456	8.3	22,553	10.8	30,612	14.8	28,976	9.2	22,562	10.5	0	10.1
3/19/2021	8,018	9.4	721	9.5	1,235	11.7	6,119	8.6	24,338	0.9	0	11.5	10,705	15.3	16,603	9.2	11,382	10.0	3,831	10.4
3/20/2021	0	10.0	999	6.6	1,185	8.9	8,690	8.7	10,638	1.4	13,479	13.1	10,705	15.2	16,603	9.3	11,382	10.5	0	10.8
3/21/2021	8,019	11.3	1,720	11.8	--	17.9	7,915	10.9	29,525	6.0	6,999	11.0	10,705	17.6	16,603	9.9	11,382	9.9	6,255	11.2
3/22/2021	0	11.7	0	9.9	--	7.1	0	7.8	0	4.1	0	12.0	0	7.1	0	7.9	0	10.9	6,255	11.2
3/23/2021	7,957	11.7	7,841	9.9	--	7.1	14,876	7.8	60	4.1	26,600	12.0	23,800	7.1	42,278	7.9	31,735	10.9	6,255	11.2
3/24/2021	10,189	11.8	193	6.5	--	10.2	6,338	7.9	14,972	26.8	22,185	13.0	16,700	7.1	32,979	7.6	13,319	8.9	7,678	10.7
3/25/2021	0	9.8	191	7.4	--	6.7	3,062	8.2	12,128	22.5	19,916	13.0	13,692	14.8	32,683	9.4	11,429	9.9	3,735	9.8
3/26/2021	0	10.8	0	8.3	--	15.2	7,911	19.7	9,399	20.1	14,795	16.0	12,852	17.2	17,824	10.7	11,485	11.3	5,067	11.4
3/27/2021	0	10.8	0	8.3	--	15.2	7,911	19.7	9,399	20.1	14,795	16.0	12,852	17.2	17,824	10.7	11,485	11.3	5,067	11.4
3/28/2021	7,327	10.8	361	8.3	--	15.2	7,911	19.7	9,399	20.1	14,795	16.0	12,852	17.2	17,824	10.7	11,485	11.3	5,067	11.4
3/29/2021	6,780	11.1	0	6.3	--	17.2	7,786	11.1	14,944	21.0	12,410	15.0	12,664	17.7	29,808	12.0	18,027	14.9	0	9.0
3/30/2021	0	10.2	0	8.6	--	17.7	6,330	10.9	13,552	18.1	22,137	14.0	9,800	16.7	17,646	9.1	5,731	11.5	3,370	11.5
3/31/2021	7,378	11.1	0	10.0	--	11.7	10,476	11.7	31,868	18.1	0	10.0	10,820	16.7	17,682	8.2	10,429	11.6	0	10.9

- = No data collected

Summary of LDCS Volumes Pumped and Conductivity Data
First Quarter 2021
LRI Landfill, Pierce County, Washington

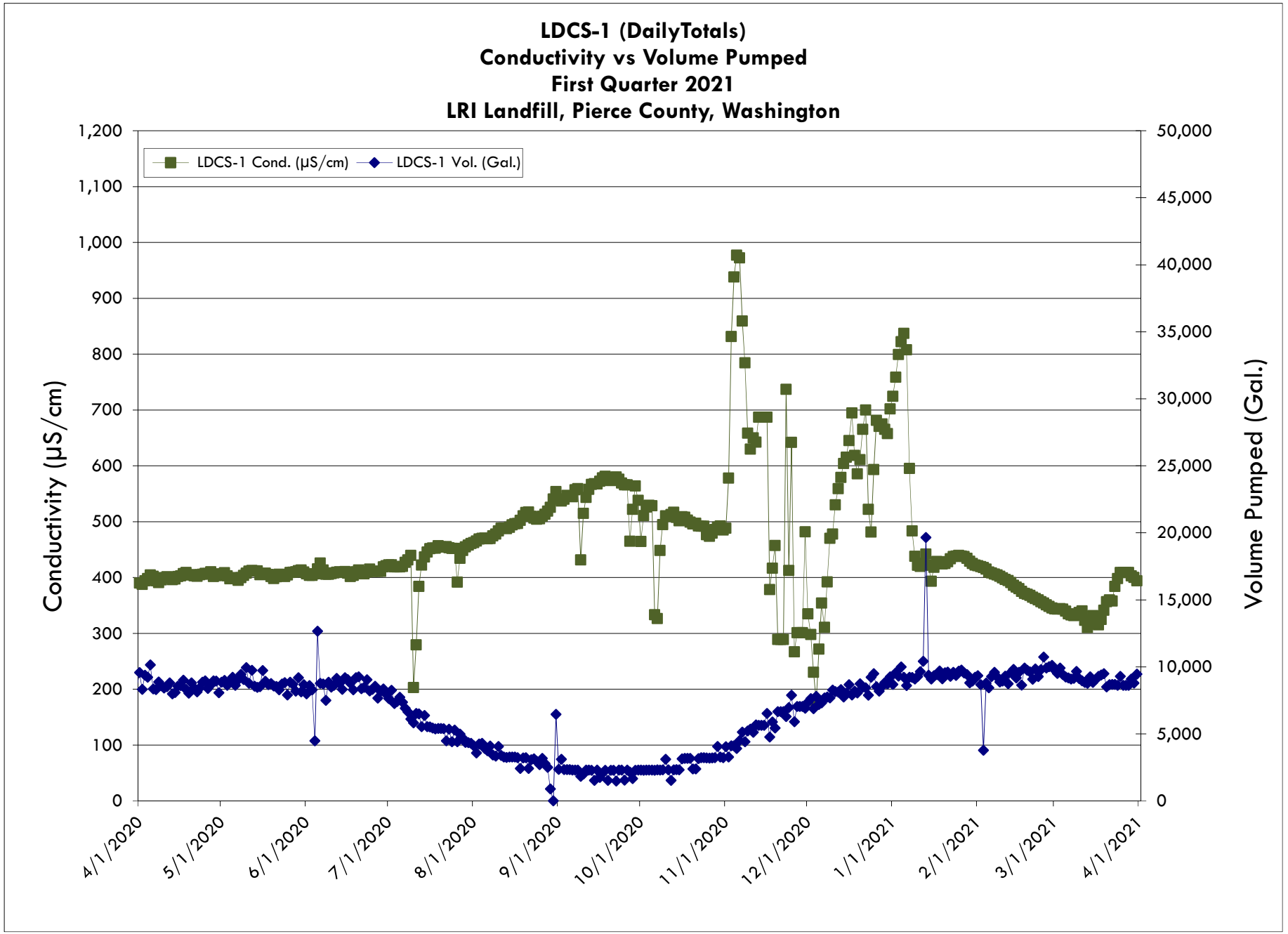
Date	Rainfall	LDCS-1 Vol. (Gal.)	LDCS-1 Cond. (µS/cm)	LDCS-2A Vol. (Gal)	LDCS-2A Cond. (µS/cm)	LDCS-2B* Vol. (Gal)	LDCS-2B Cond. (µS/cm)	LDCS-3A Vol. (Gal)	LDCS-3A Cond. (µS/cm)	LDCS-4A Vol. (Gal)	LDCS-4A Cond. (µS/cm)	LDCS-4B Vol. (Gal)	LDCS-4B Cond. (µS/cm)	LDCS-5 Vol. (Gal)	LDCS-5 Cond. (µS/cm)	LDCS-6 Vol. (Gal)	LDCS-6 Cond. (µS/cm)	LDCS-7 Vol. (Gal)	LDCS-7 Cond. (µS/cm)	LDCS-8A Vol. (Gal)	LDCS-8A Cond. (µS/cm)
1/1/2021	0.43	8,690	724	770	761	--	956	518	738	6,520	--	8,286	430	667	721	3,953	859	0	910	1,440	--
1/2/2021	1.02	9,560	758	770	--	--	957	518	733	8,160	--	8,193	419	736	772	4,436	848	0	914	1,441	--
1/3/2021	0.39	9,310	799	770	--	--	957	518	735	10,910	--	15,673	416	1,450	750	12,763	826	0	876	41,707	--
1/4/2021	0.42	9,990	822	770	772	--	964	517	733	8,380	853	13,225	420	791	756	7,833	838	7,310	827	87,976	--
1/5/2021	0.38	9,220	837	780	722	--	960	432	723	6,050	794	10,259	443	728	867	4,102	852	13,358	863	74,516	--
1/6/2021	0.28	8,610	808	780	752	--	954	601	726	8,620	833	15,587	459	855	865	6,331	809	1	768	74,752	--
1/7/2021	0.00	9,220	595	780	724	--	619	601	726	4,570	1344	10,318	461	602	892	2,500	774	1	721	73,926	--
1/8/2021	0.26	9,210	483	830	760	--	649	419	729	5,550	1339	9,594	418	420	919	2,001	735	6,869	682	24,399	--
1/9/2021	0.01	9,100	438	670	760	--	649	663	720	4,550	1339	9,095	411	478	931	2,402	735	112	674	1,968	--
1/10/2021	0.04	9,270	422	330	760	--	651	1592	731	4,510	1339	9,092	376	359	905	1,840	620	0	683	1,842	--
1/11/2021	0.91	9,640	420	330	767	--	653	370	740	9,260	1195	13,654	374	541	812	4,199	720	0	686	1,769	--
1/12/2021	1.20	10,420	426	340	778	--	591	370	734	13,100	1862	26,138	366	1,442	748	10,837	752	6,597	688	1,964	--
1/13/2021	0.93	19,653	442	2800	723	--	650	370	689	60	1381	124	374	0	615	10,894	737	10,725	573	0	--
1/14/2021	0.00	9,370	422	780	764	--	648	472	715	4,620	620	11,846	393	572	655	10,894	740	7,480	583	1,570	--
1/15/2021	0.08	9,090	393	710	686	--	597	579	663	4,730	1137	11,232	532	419	895	1,735	626	0	634	524	--
1/16/2021	0.00	9,350	418	720	726	--	634	544	708	4,410	1137	9,668	575	358	928	1,629	688	0	650	0	--
1/17/2021	0.09	9,420	429	790	743	--	650	544	731	4,810	560	9,579	597	359	885	1,553	718	0	667	0	--
1/18/2021	0.00	9,700	428	770	740	--	655	543	735	4,480	560	8,318	608	358	903	1,494	738	6,622	686	6,150	--
1/19/2021	0.00	9,110	424	740	748	--	655	482	739	4,650	1209	7,432	627	357	931	1,426	755	6,636	694	1,635	--
1/20/2021	0.01	9,560	425	720	759	--	657	686	741	4,790	726	6,974	651	357	954	1,353	771	0	700	1,771	--
1/21/2021	0.16	9,620	428	810	765	--	661	672	740	5,570	920	9,272	645	358	950	1,489	785	1,272	715	1,641	592
1/22/2021	0.00	9,300	433	800	764	--	666	534	741	4,520	909	8,452	633	419	951	1,664	801	5,576	725	1,637	638
1/23/2021	0.01	9,600	438	720	745	--	668	685	741	4,710	909	7,051	643	359	950	1,568	815	0	752	1,504	681
1/24/2021	0.18	9,360	438	810	751	--	667	685	744	5,440	909	7,080	656	418	928	1,513	826	0	742	1,706	693
1/25/2021	0.03	9,680	440	810	749	--	666	686	739	5,020	1197	7,681	639	479	926	2,074	830	6,786	763	1,571	699
1/26/2021	0.01	9,760	438	790	750	--	663	554	738	5,010	1183	7,274	648	419	925	1,880	843	3,185	771	1,639	698
1/27/2021	0.04	9,540	438	910	751	--	662	677	733	5,280	1357	6,824	665	418	896	1,667	851	3,619	762	1,704	678
1/28/2021	0.08	9,430	434	800	737	--	661	671	734	5,770	1296	7,752	642	419	904	1,772	859	0	779	1,506	682
1/29/2021	0.00	8,800	429	730	735	--	655	537	737	5,070	1160	7,946	616	479	937	1,936	898	6,634	754	1,439	696
1/30/2021	0.01	8,940	425	800	746	--	650	164	740	4,970	1160	6,825	636	479	938	1,672	937	0	769	1,438	707
1/31/2021	0.07	9,230	422	770	751	--	648	164	741	4,710	1160	5,634	655	419	918	1,562	947	0	762	1,374	710
2/1/2021	0.14	9,350	421	740	755	--	650	163	739	6,170	1273	8,104	607	542	907	2,458	948	0	746	1,527	705
2/2/2021	0.24	8,670	420	730	751	--	652	634	728	5,300	1343	7,730	526	729	932	4,802	958	6,751	772	1,441	708
2/3/2021	0.06	3,780	418	360	746	--	656	475	726	2,400	1143	3,758	509	364	905	2,249	962	0	747	590	717
2/4/2021	0.14	8,790	415	730	737	--	658	459	719	5,130	1201	7,608	528	1,153	839	3,392	940	0	744	1,308	766
2/5/2021	0.02	8,440	410	750	744	--	320	348	718	4,630	1264	7,936	564	603	882	2,531	897	0	754	1,506	792
2/6/2021	0.10	9,280	408	750	745	--	466	348	723	5,060	1264	7,979	584	603	918	2,006	864	0	726	1,572	759
2/7/2021	0.01	9,590	406	730	749	--	595	348	729	4,480	1264	7,528	590	603	926	2,333	846	0	712	1,572	726
2/8/2021	0.01	9,240	405	730	750	--	646	348	733	3,850	1236	6,504	612	481	938	1,957	839	0	745	1,506	697
2/9/2021	0.01	8,880	402	750	738	--	667	348	742	3,870	1235	5,539	655	419	931	1,599	834	9,268	738	1,503	692
2/10/2021	0.00	8,950	399	740	733	--	674	552	747	3,960	1365	4,636	682	419	887	1,486	830	5,403	742	1,502	685
2/11/2021	0.04	9,310	397	760	744	--	677	682	745	4,750	1263	4,799	700	419	877	1,473	831	1,338	759	1,509	663
2/12/2021	0.00	8,740	394	740	745	--	681	578	735	5,570	1350	6,638	641	793	929	3,770	845	0	734	1,504	642
2/13/2021	0.05	9,580	391	800	742	--	684	572	727	5,780	1350	9,945	598	3,449	876	5,719	886	6,749	755	1,636	641
2/14/2021	0.51	9,810	386	790	730	--	683	0	713	6,160	1350	10,606	592	2,003	782	9,064	980	0	744	1,506	652
2/15/2021	0.35	9,170	383	870	745	--	676	1801	720	7,340	1404	8,942	621	1,805	745	10,059	1,025	6,711	735	1,573	640
2/16/2021	0.00	9,590	380	730	729	--	668	690	714	4,730	1114	8,792	632	1,231	743	6,938	930	9,602	707	1,440	660
2/17/2021	0.00	8,640	375	770	717	--	660	536	703	3,910	1118	6,948	754	668	717	2,272	861	0	662	1,374	727
2/18/2021	0.08	9,920	372	780	738	--	657	577	709	3,900	1192	6,042	791	482	840	1,741	831	0	656	1,573	730
2/19/2021	0.19	9,750	370	760	742	--	661	567	723	4,340	1192	6,495	760	543	920	1,895	819	0	672	1,569	685
2/20/2021	0.08	9,630	368	740	733	--	667	567	729	5,130	1192	6,967	708	730	931	3,873	831	0	689	1,505	672
2/21/2021	0.67	9,070	365	790	730	--	671	567	726	4,800	1192	6,947	669	666	923	3,017	843	0	695	1,438	696
2/22/2021	0.71	9,850	362	730	745	--	674	567	731	9,150	1209	9,639	615	1,113	922	9,588	838	13,150	698	1,635	686
2/23/2021	0.04	9,270	360	750	737	--	676	714	722	4,720	1278	8,010	586	795	912	6,128	801	9,516	668	1,568	666
2/24/2021	0.16	9,800	357	730	727	--	681	517	714	4,440	1299	7,726	615	653	896	2,646	773	150	632	1,499	674
2/25/2021	0.49	10,730	354	780	737	--	684	680	716	5,650	1233	8,768	569	666	868	4,040	761	982	637	1,766	659
2/26/2021	0.00	9,910	351	800	744	--	687	672	719	6,570	1260	12,344	538	855	862	5,794	773	5,761	648	1,760	607
2/27/2021	0.04	10,010	348	880	727	--	689	164	713	4,210	1260	12,547	579	605	908	2,319	793	0	669	1,636	585
2/28/2021	0.00	10,110	345	780	724	--	691	164	706	4,080	1260	12,327	591	540	913	1,753	784	0	681	1,567	606

Summary of LDCS Volumes Pumped and Conductivity Data
First Quarter 2021
LRI Landfill, Pierce County, Washington

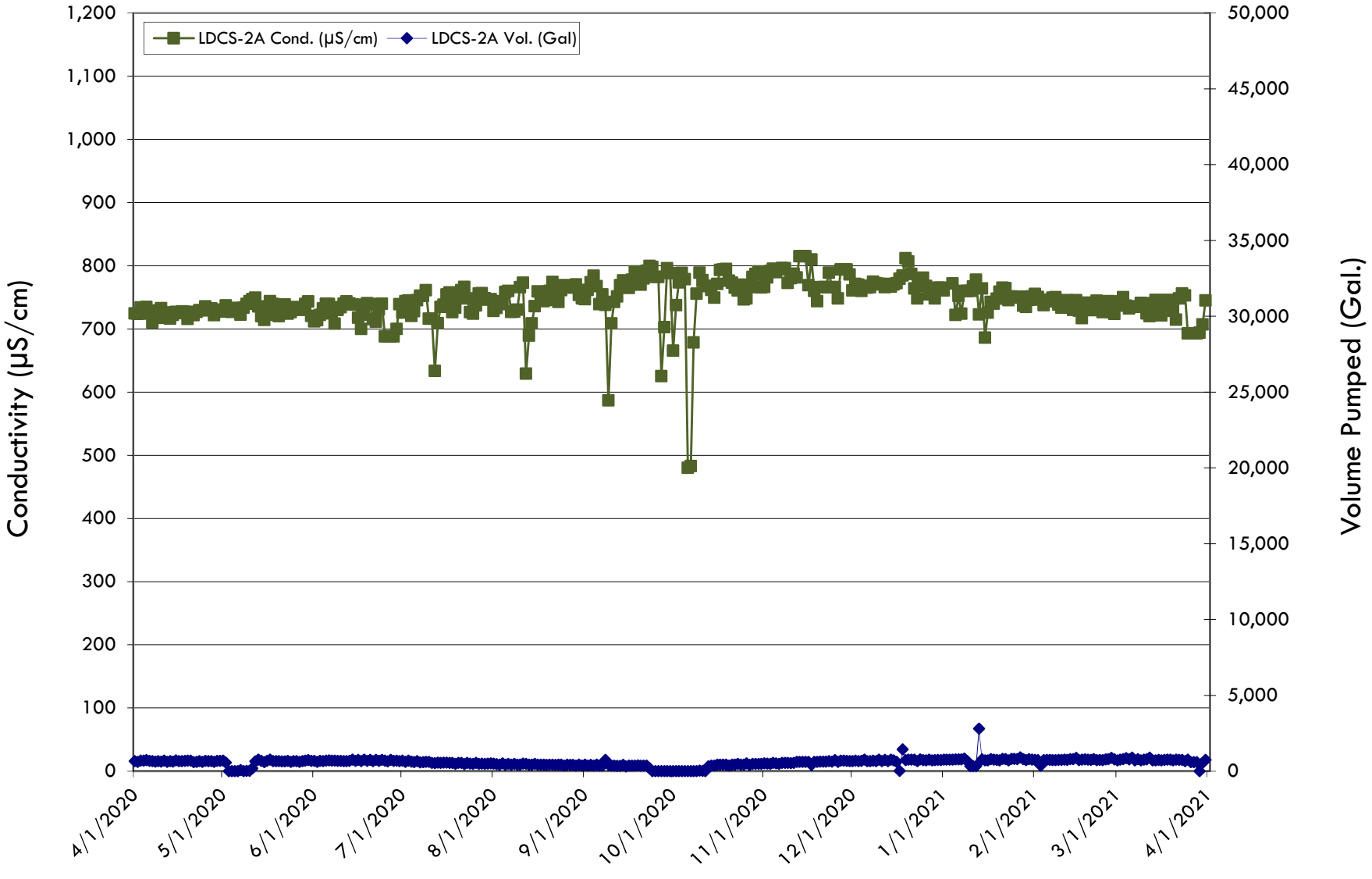
Date	Rainfall	LDCS-1 Vol. (Gal.)	LDCS-1 Cond. (µS/cm)	LDCS-2A Vol. (Gal)	LDCS-2A Cond. (µS/cm)	LDCS-2B* Vol. (Gal)	LDCS-2B Cond. (µS/cm)	LDCS-3A Vol. (Gal)	LDCS-3A Cond. (µS/cm)	LDCS-4A Vol. (Gal)	LDCS-4A Cond. (µS/cm)	LDCS-4B Vol. (Gal)	LDCS-4B Cond. (µS/cm)	LDCS-5 Vol. (Gal)	LDCS-5 Cond. (µS/cm)	LDCS-6 Vol. (Gal)	LDCS-6 Cond. (µS/cm)	LDCS-7 Vol. (Gal)	LDCS-7 Cond. (µS/cm)	LDCS-8A Vol. (Gal)	LDCS-8A Cond. (µS/cm)
3/1/2021	0.00	9,760	344	720	741	--	692	165	716	3,900	1329	10,949	599	420	941	1,600	776	6,825	699	1,697	586
3/2/2021	0.00	9,510	343	770	743	--	697	678	721	3,730	1241	9,872	596	419	939	1,471	774	0	708	1,698	554
3/3/2021	0.00	9,920	344	790	750	--	702	687	719	3,590	1205	10,018	601	330	930	1,449	778	6,854	747	1,770	530
3/4/2021	0.04	9,420	343	860	737	--	707	671	715	3,660	1221	16,262	635	370	956	1,347	788	1	739	1,567	517
3/5/2021	0.06	9,240	340	780	732	--	711	476	712	3,810	1250	20,798	660	432	973	1,388	801	0	761	1,633	529
3/6/2021	0.00	9,170	335	900	736	--	711	476	711	3,720	1250	17,484	644	367	983	1,423	814	0	766	1,499	534
3/7/2021	0.10	9,090	333	720	735	--	710	476	711	3,940	1250	19,506	667	429	963	1,394	827	0	746	1,502	538
3/8/2021	0.01	9,150	332	800	735	--	710	476	711	3,690	1226	20,278	623	427	944	1,641	838	6,639	770	1,630	558
3/9/2021	0.00	9,670	332	720	741	--	712	633	717	3,410	1226	15,944	604	441	942	1,549	847	0	737	1,570	531
3/10/2021	0.00	9,120	337	770	741	--	710	633	723	3,420	1319	14,218	609	426	953	1,457	851	6,756	772	1,503	512
3/11/2021	0.00	8,960	340	780	724	--	710	546	714	3,360	1044	12,486	629	363	958	1,377	853	1,172	772	1,371	544
3/12/2021	0.00	8,840	323	900	720	--	712	568	711	3,560	1025	11,580	646	424	966	1,281	853	5,325	751	1,439	586
3/13/2021	0.00	8,770	311	720	736	--	712	869	723	3,630	1025	11,768	660	363	978	1,239	853	0	780	1,508	557
3/14/2021	0.14	9,260	318	720	746	--	716	869	725	4,110	1025	13,640	671	362	984	1,204	855	6,682	748	1,509	514
3/15/2021	0.00	8,840	332	740	727	--	719	628	713	3,640	1380	18,368	653	422	986	1,347	861	0	771	1,311	520
3/16/2021	0.01	9,070	323	720	721	--	717	628	714	3,450	1380	13,350	634	421	995	1,363	868	6,540	779	1,370	545
3/17/2021	0.00	9,300	315	740	739	--	715	608	723	3,460	1551	12,394	635	420	998	1,287	874	0	750	1,442	506
3/18/2021	0.04	9,390	325	760	746	--	720	608	719	3,680	1551	12,568	641	419	999	1,264	878	6,649	779	1,510	471
3/19/2021	0.01	9,490	341	760	733	--	724	586	717	3,830	1859	15,386	644	480	1,000	1,251	879	0	752	1,308	470
3/20/2021	0.02	8,500	357	720	728	--	725	586	719	4,070	1859	14,482	645	418	1,000	1,194	879	0	788	1,309	488
3/21/2021	0.17	8,673	360	760	715	--	725	586	709	4,430	1859	16,128	639	479	1,000	1,287	879	6,423	802	1,403	546
3/22/2021	0.08	8,698	358	740	748	--	720	615	714	5,730	879	23,594	397	785	1,000	2,731	883	0	774	1,403	478
3/23/2021	0.01	8,698	384	740	756	--	724	614	660	5,730	1141	23,594	626	785	1,000	2,731	892	5,496	855	1,403	474
3/24/2021	0.45	8,618	398	660	753	--	730	536	706	6,810	1387	24,848	385	791	985	2,828	860	1,102	787	1,403	381
3/25/2021	0.09	9,295	409	760	693	--	727	538	691	5,770	949	29,852	432	1,232	942	7,798	792	3,585	702	1,512	515
3/26/2021	0.00	8,620	409	600	693	--	727	605	691	4,130	949	19,365	0	581	942	455	792	0	0	1,371	515
3/27/2021	0.00	8,620	409	600	693	--	727	605	691	4,130	949	19,365	0	581	942	455	792	0	0	1,372	515
3/28/2021	0.44	8,620	409	590	693	--	727	605	691	4,140	949	19,365	0	581	942	455	792	10,191	702	1,372	515
3/29/2021	0.00	9,095	403	0	694	--	719	558	671	3,660	1958	19,742	431	599	989	8,579	845	0	646	1,372	525
3/30/2021	0.00	8,790	400	540	707	--	716	351	717	3,280	1631	18,650	637	478	1,000	1,859	800	2,175	801	1,276	525
3/31/2021	0.00	9,468	394	740	745	--	709	880	688	3,390	1579	16,742	667	476	1,000	1,582	784	4,419	703	1,276	437

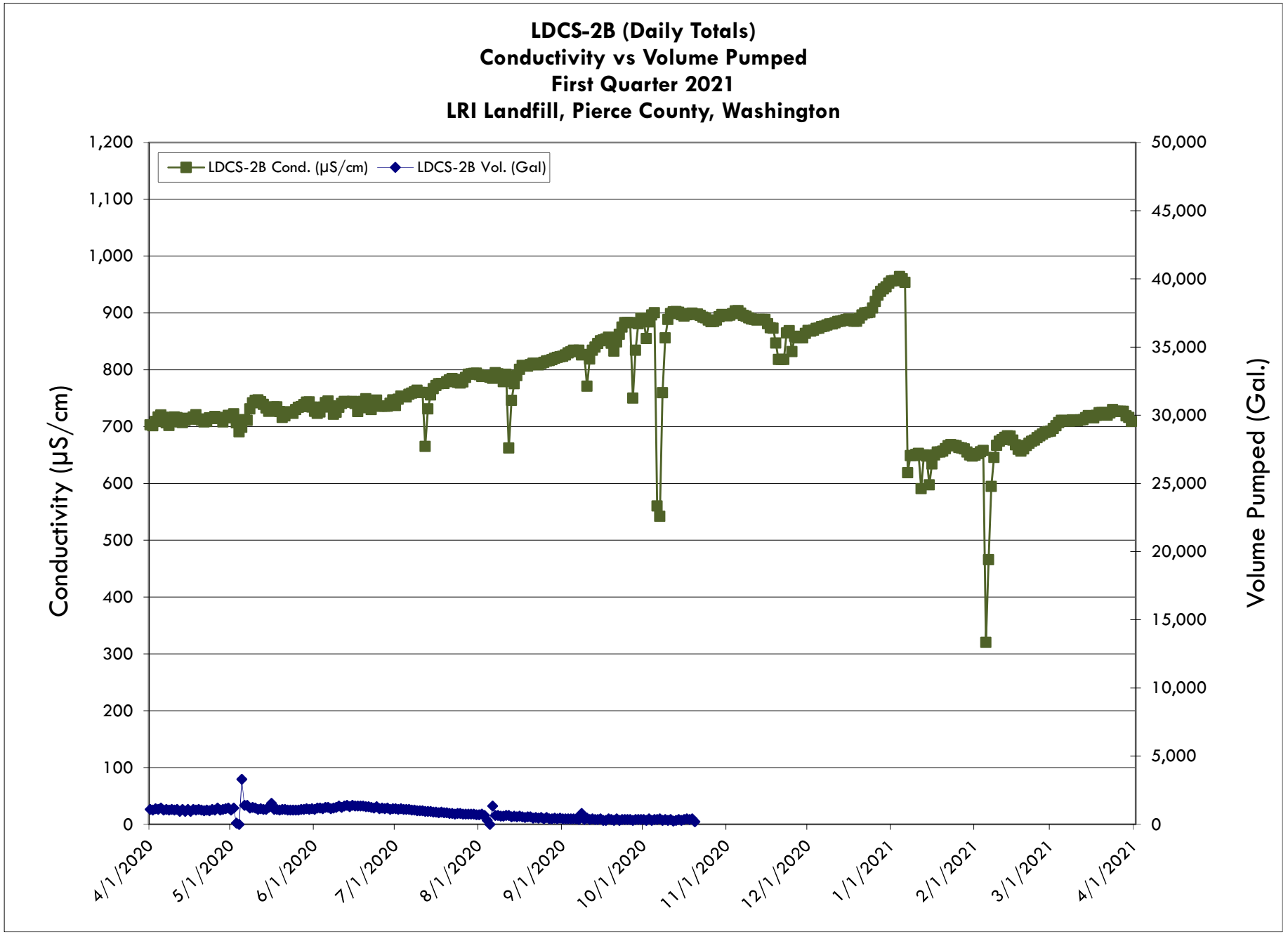
-- = No data collected

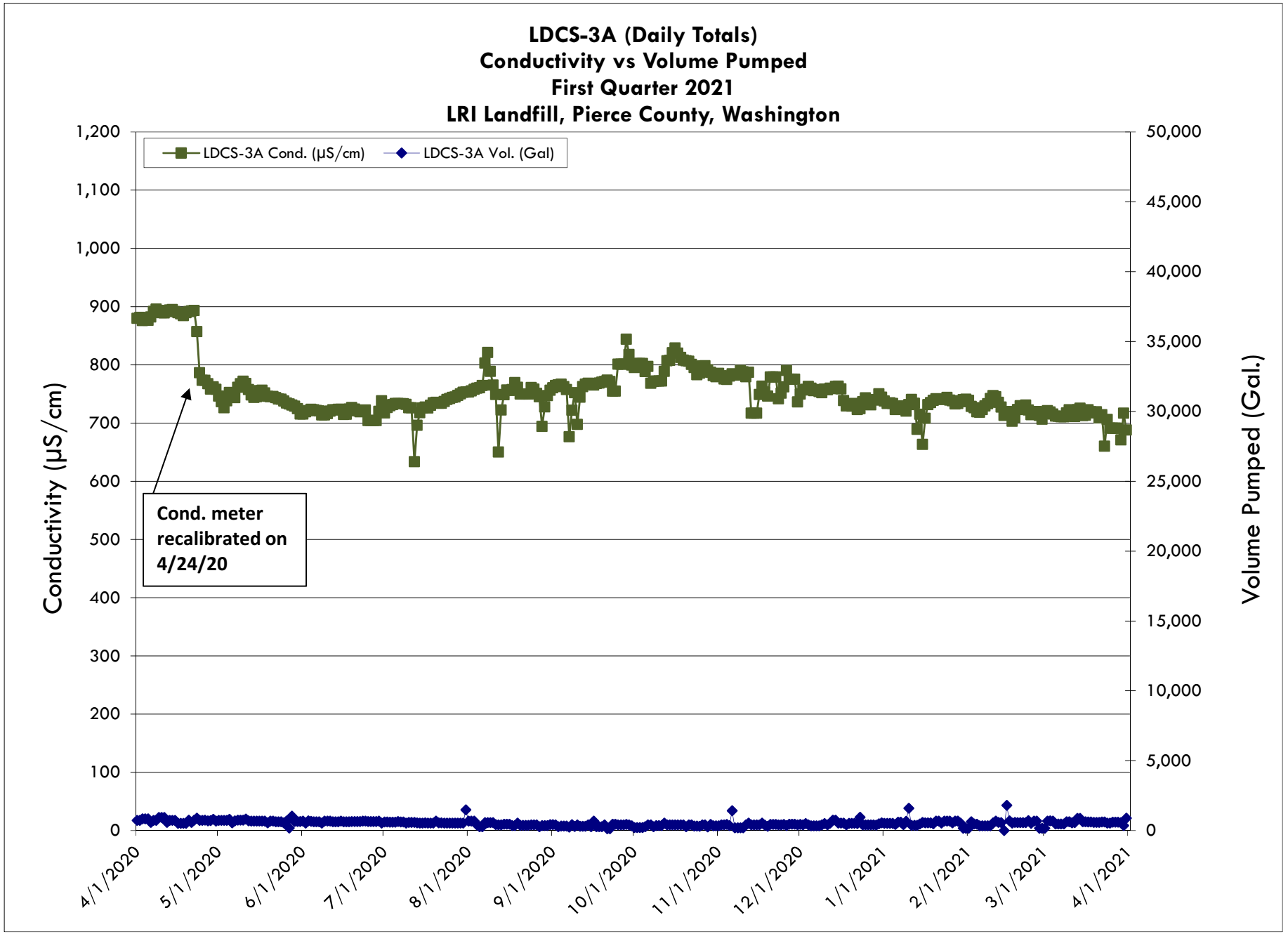
* = Due to a meter malfunction, no volume data was available for LDCS-2B during the First Quarter.


LDCS-1 (DailyTotals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-1 Cond. (µS/cm)
LDCS-1 Vol. (Gal.)
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

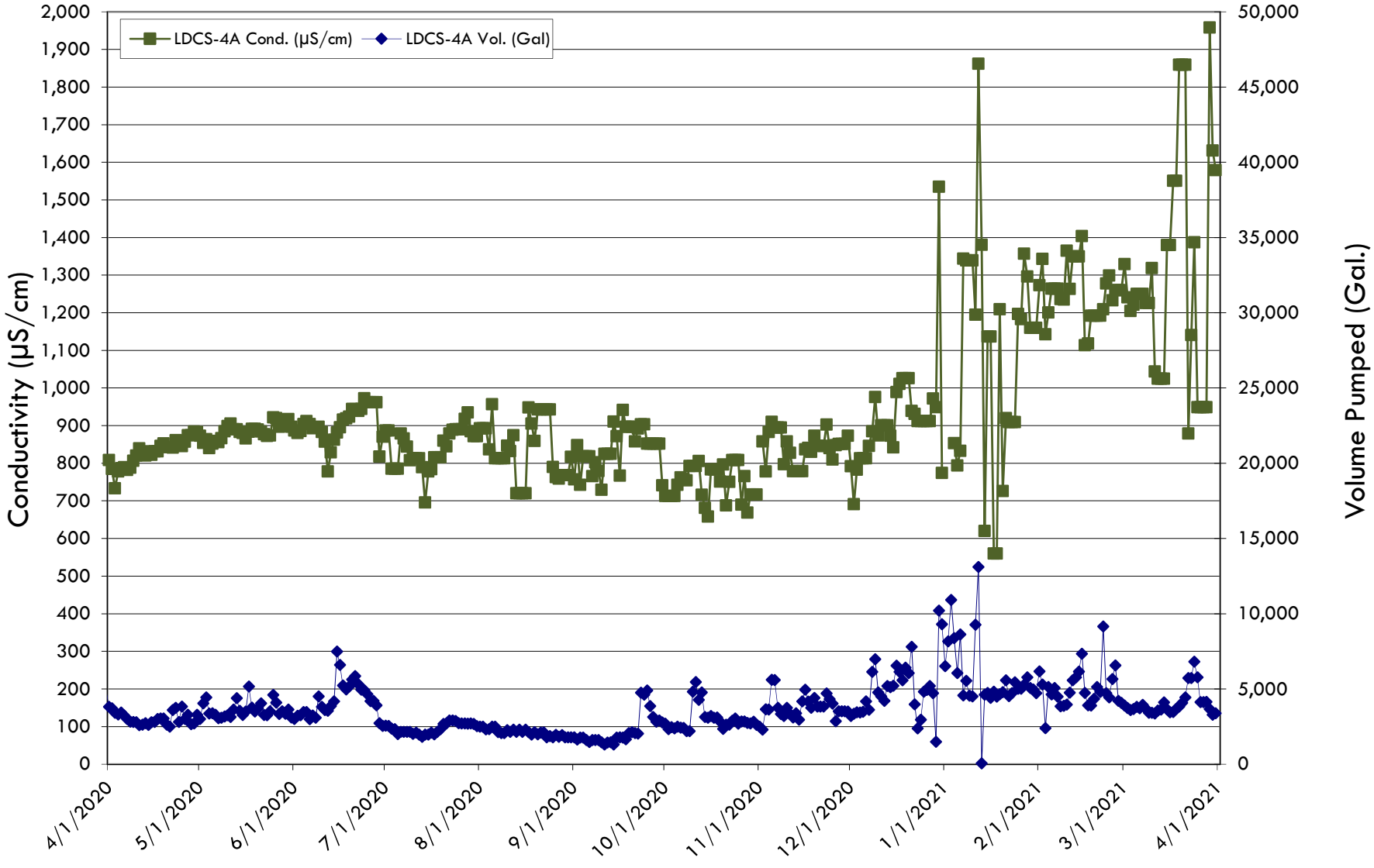
LDCS-2A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington



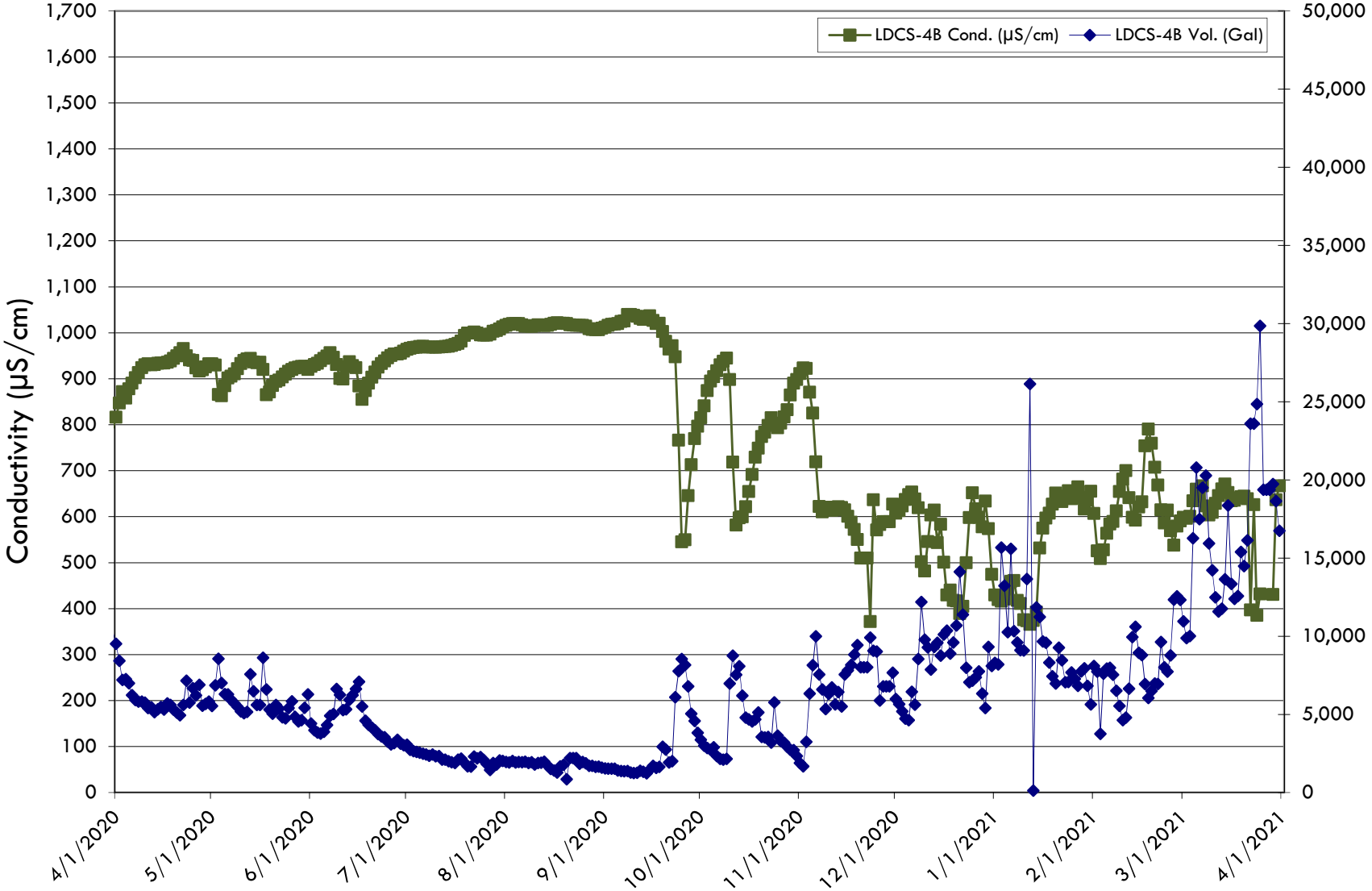

LDCS-2B (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-2B Cond. (µS/cm)
LDCS-2B Vol. (Gal)
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

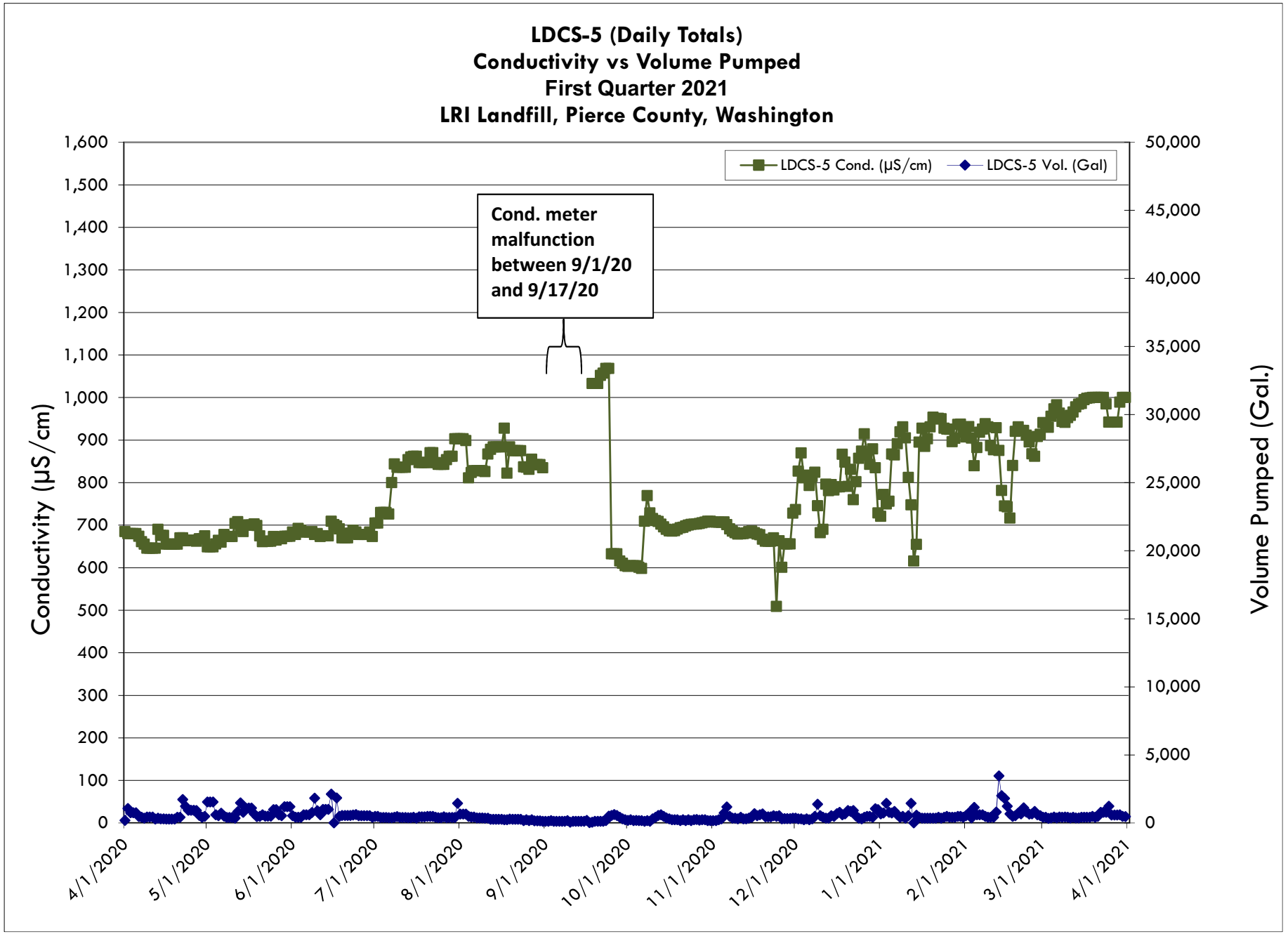

LDCS-3A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-3A Cond. (µS/cm)
LDCS-3A Vol. (Gal)
Conductivity (µS/cm)
Volume Pumped (Gal.)
Cond. meter recalibrated on 4/24/20
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

LDCS-4A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington

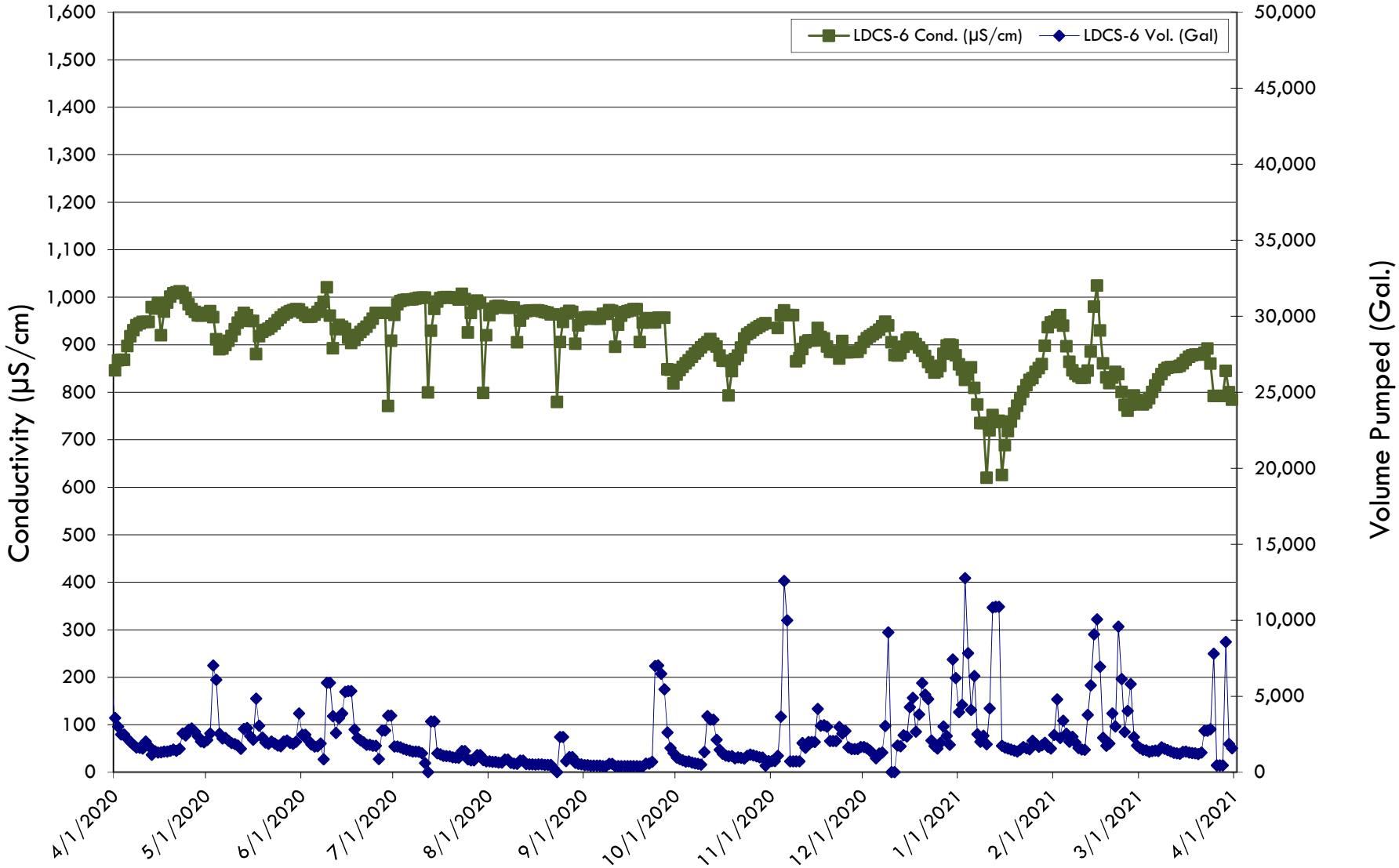


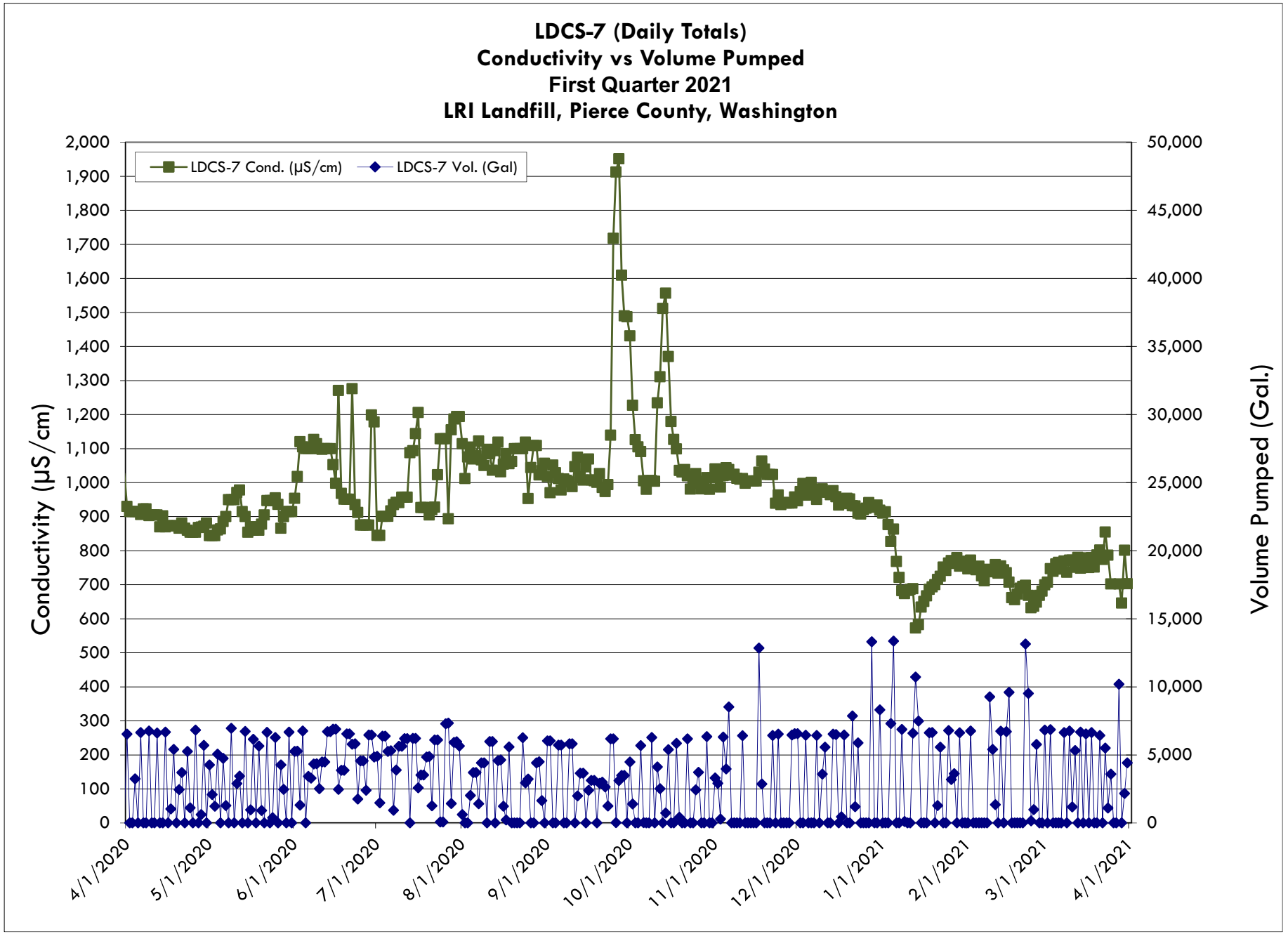
LDCS-4B (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington

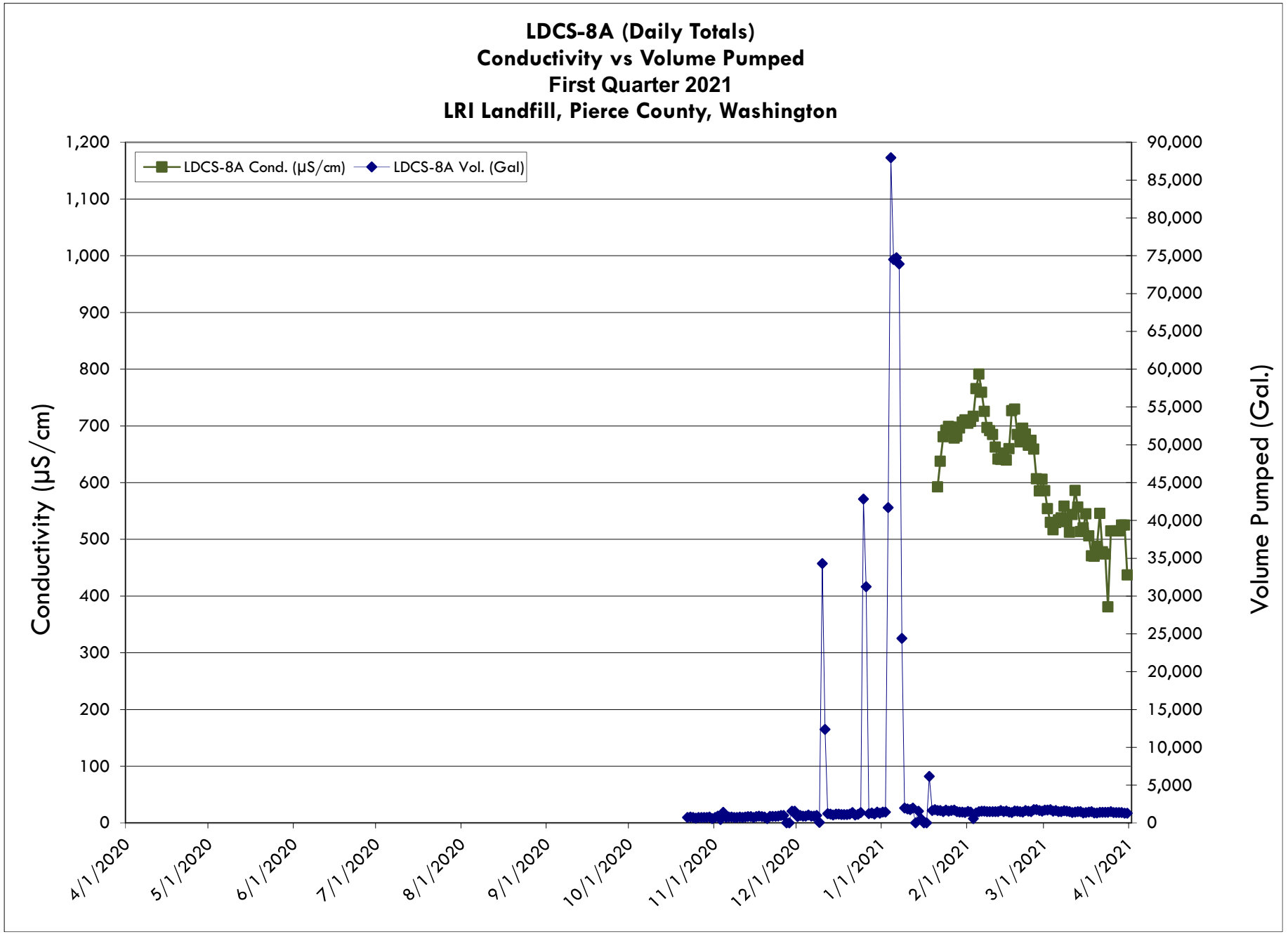


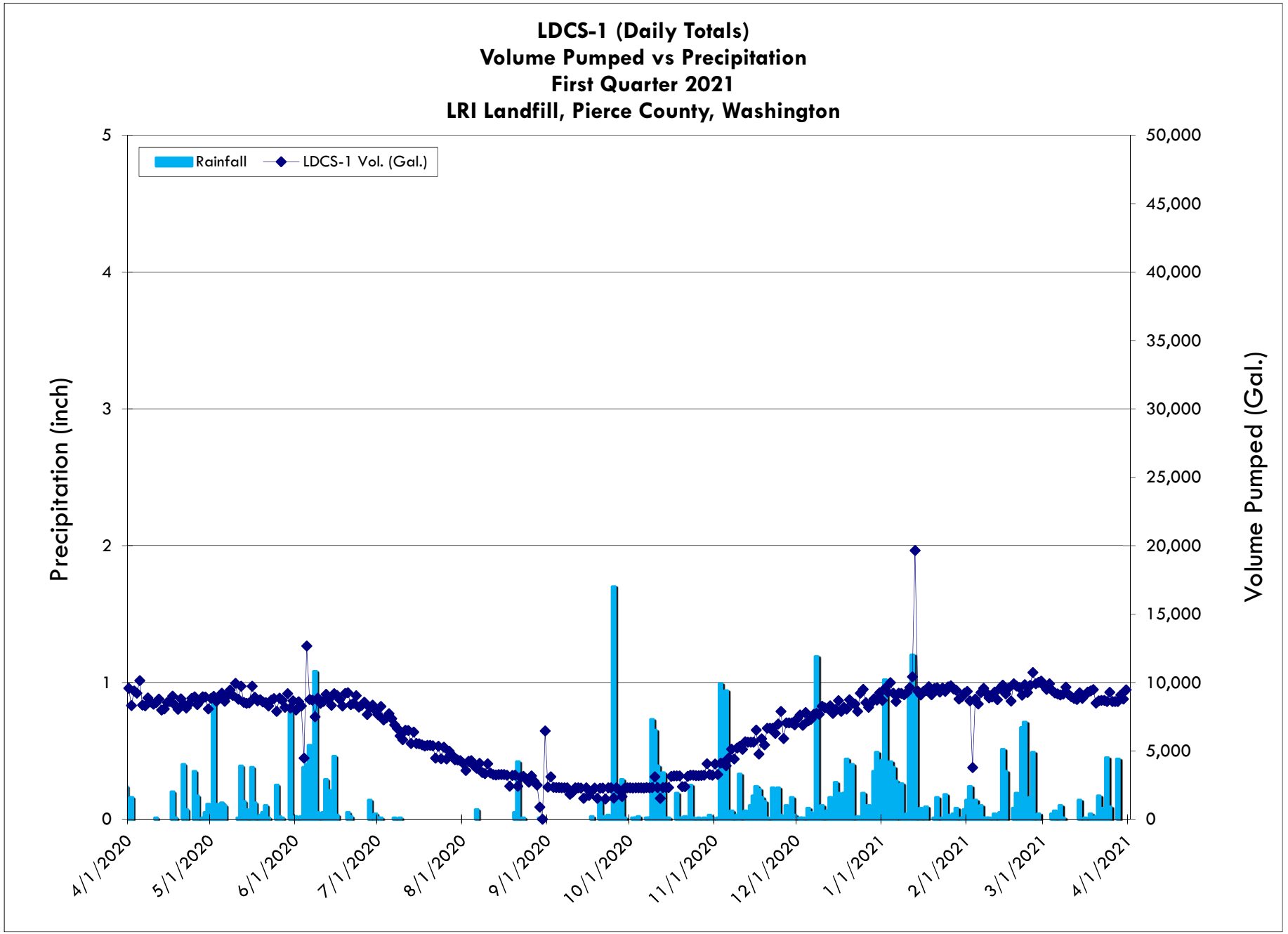

LDCS-5 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-5 Cond. (µS/cm)
LDCS-5 Vol. (Gal)
Cond. meter malfunction between 9/1/20 and 9/17/20
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

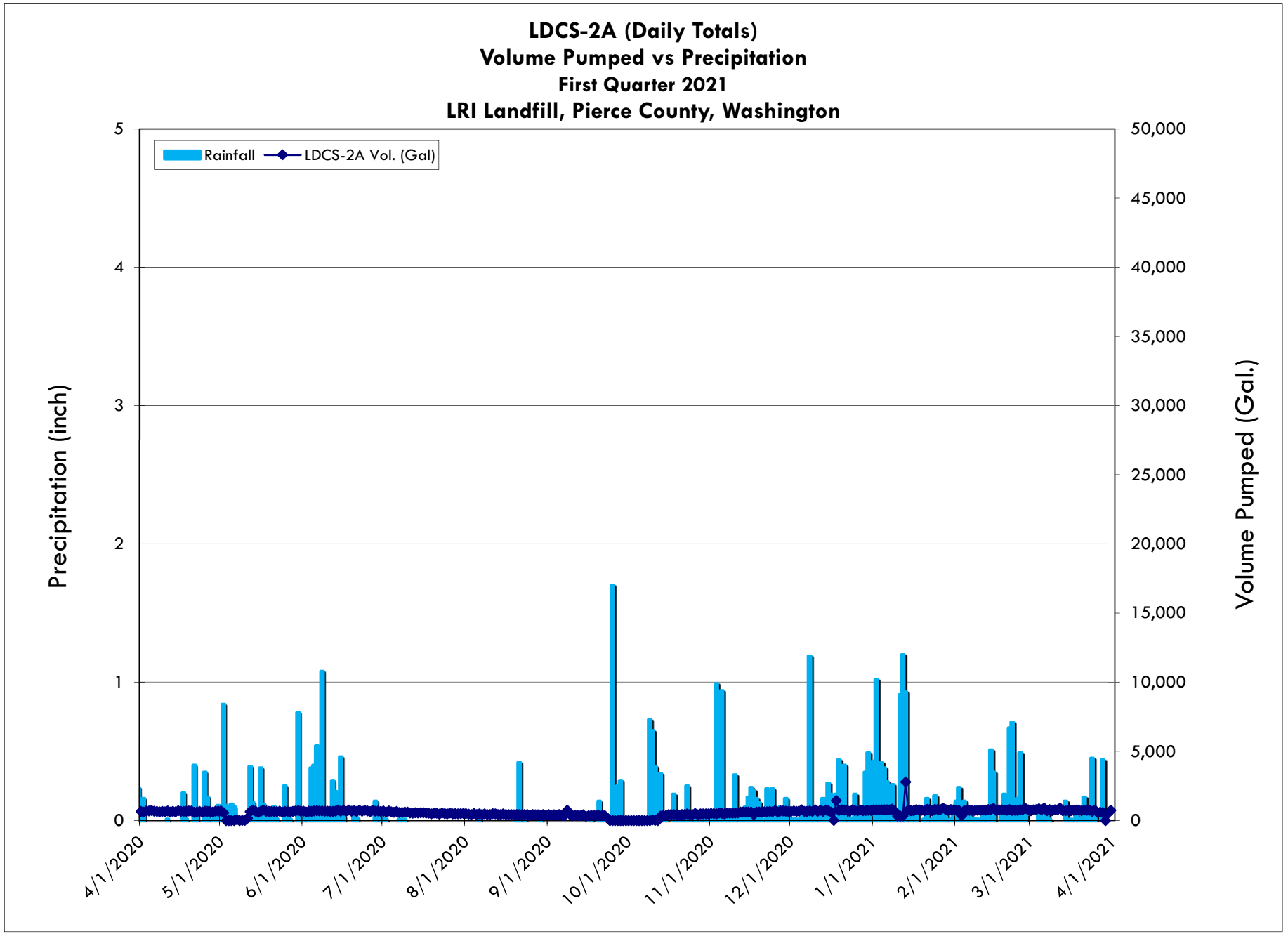
LDCS-6 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington

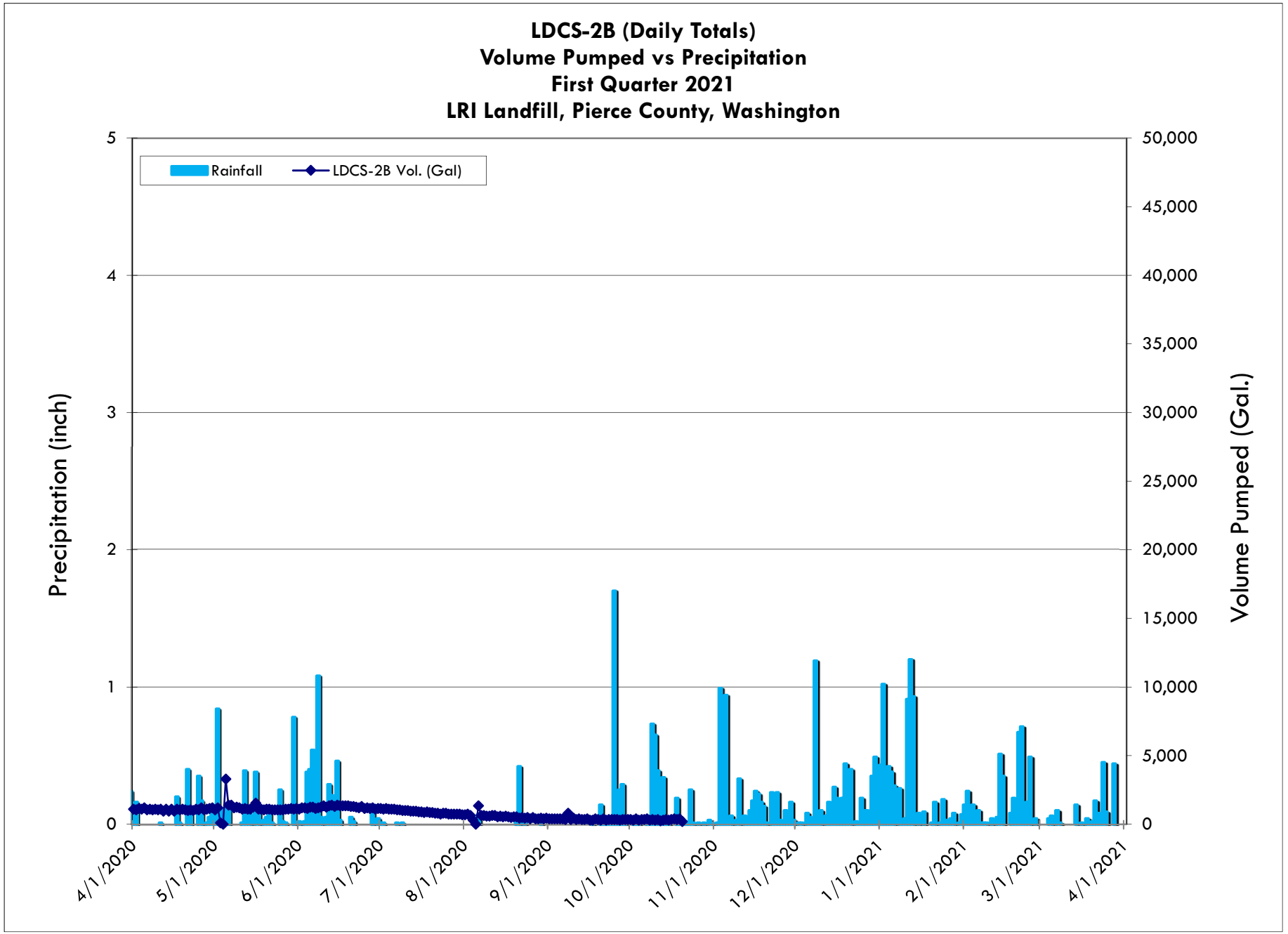


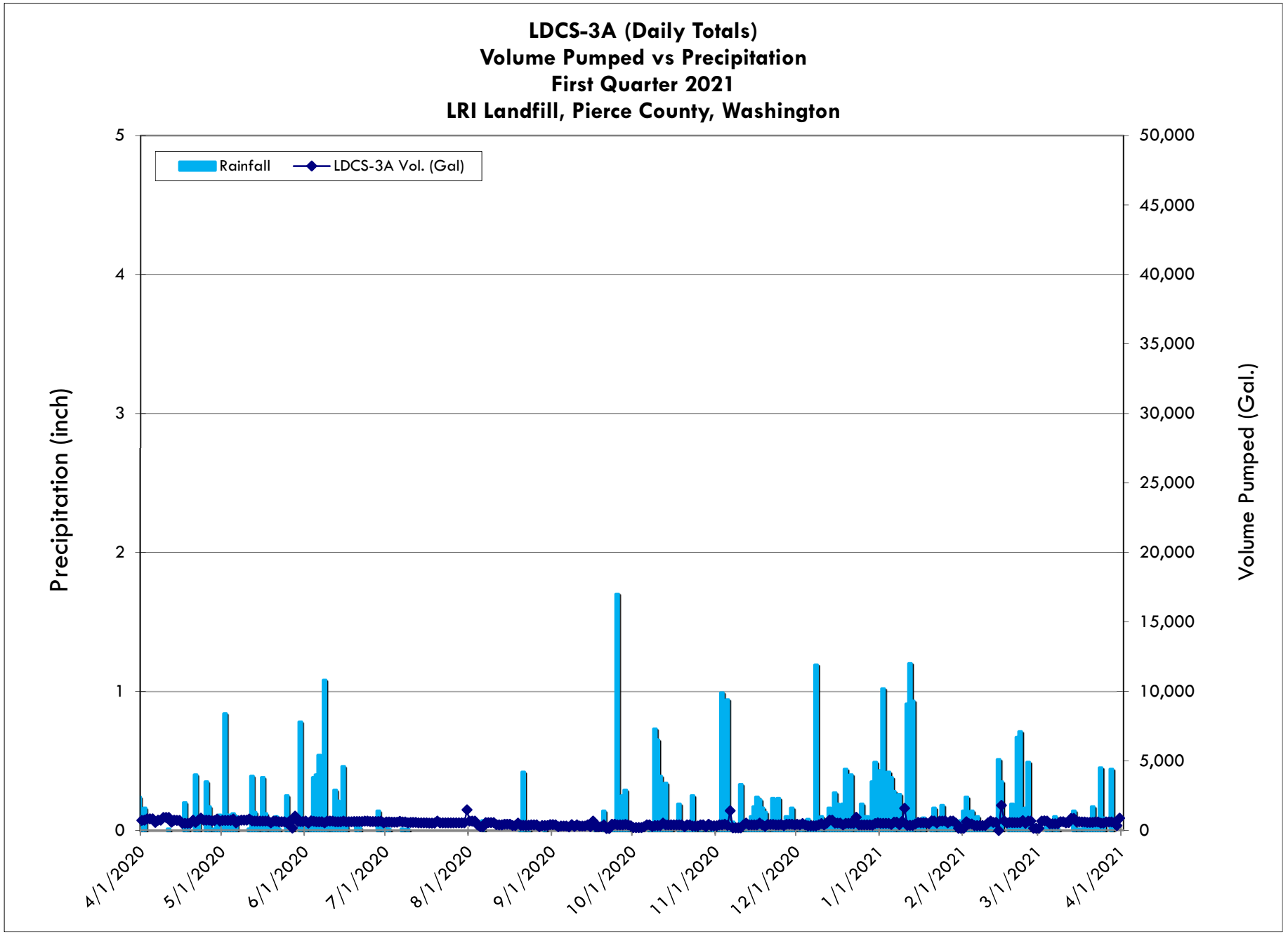

LDCS-7 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-7 Cond. (µS/cm)
LDCS-7 Vol. (Gal)
Conductivity (µS/cm)
Volume Pumped (Gal.)
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

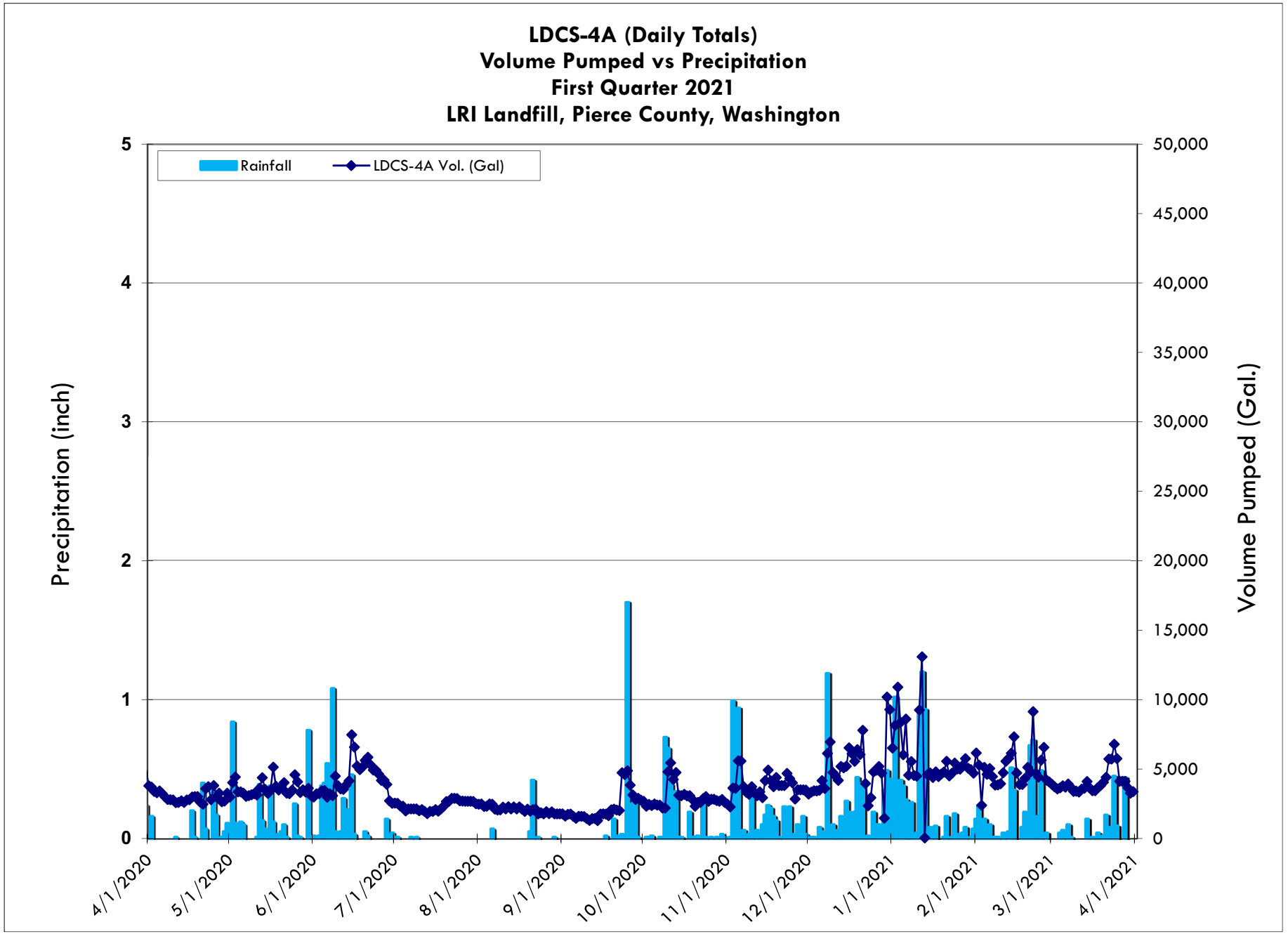

LDCS-8A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-8A Cond. (µS/cm)
LDCS-8A Vol. (Gal)
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
90,000
85,000
80,000
75,000
70,000
65,000
60,000
55,000
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

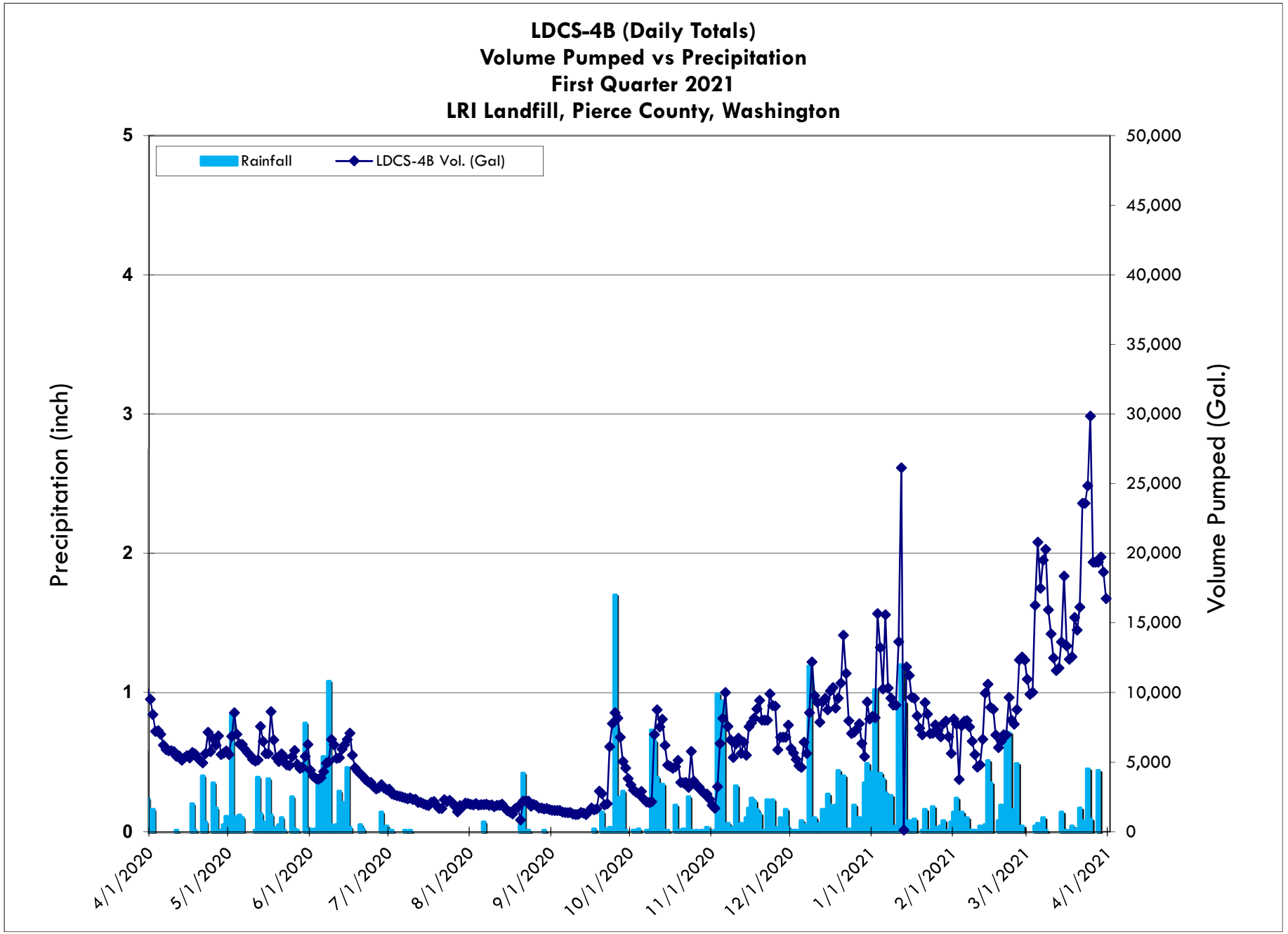

LDCS-1 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-1 Vol. (Gal.)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

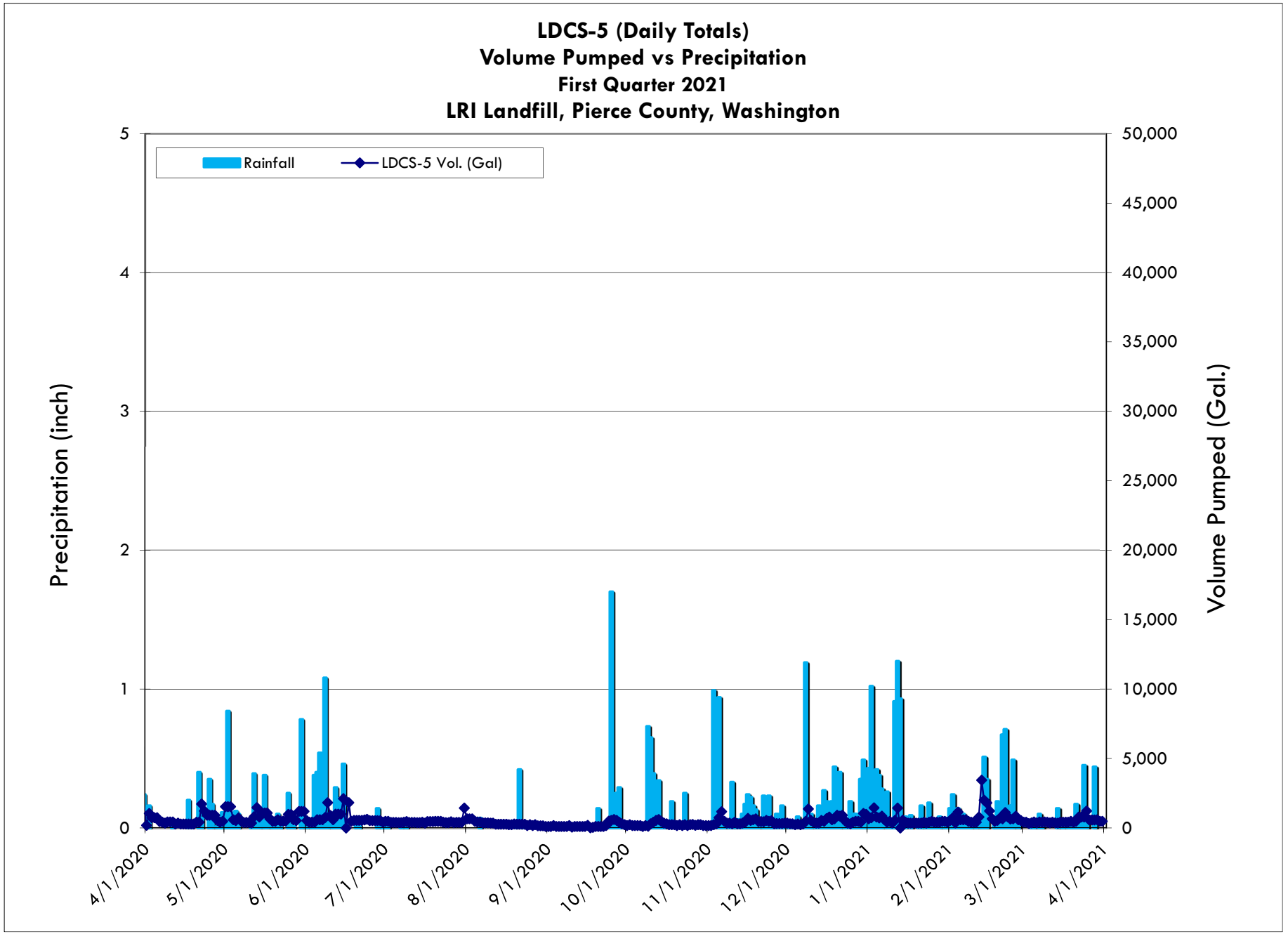

LDCS-2A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-2A Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

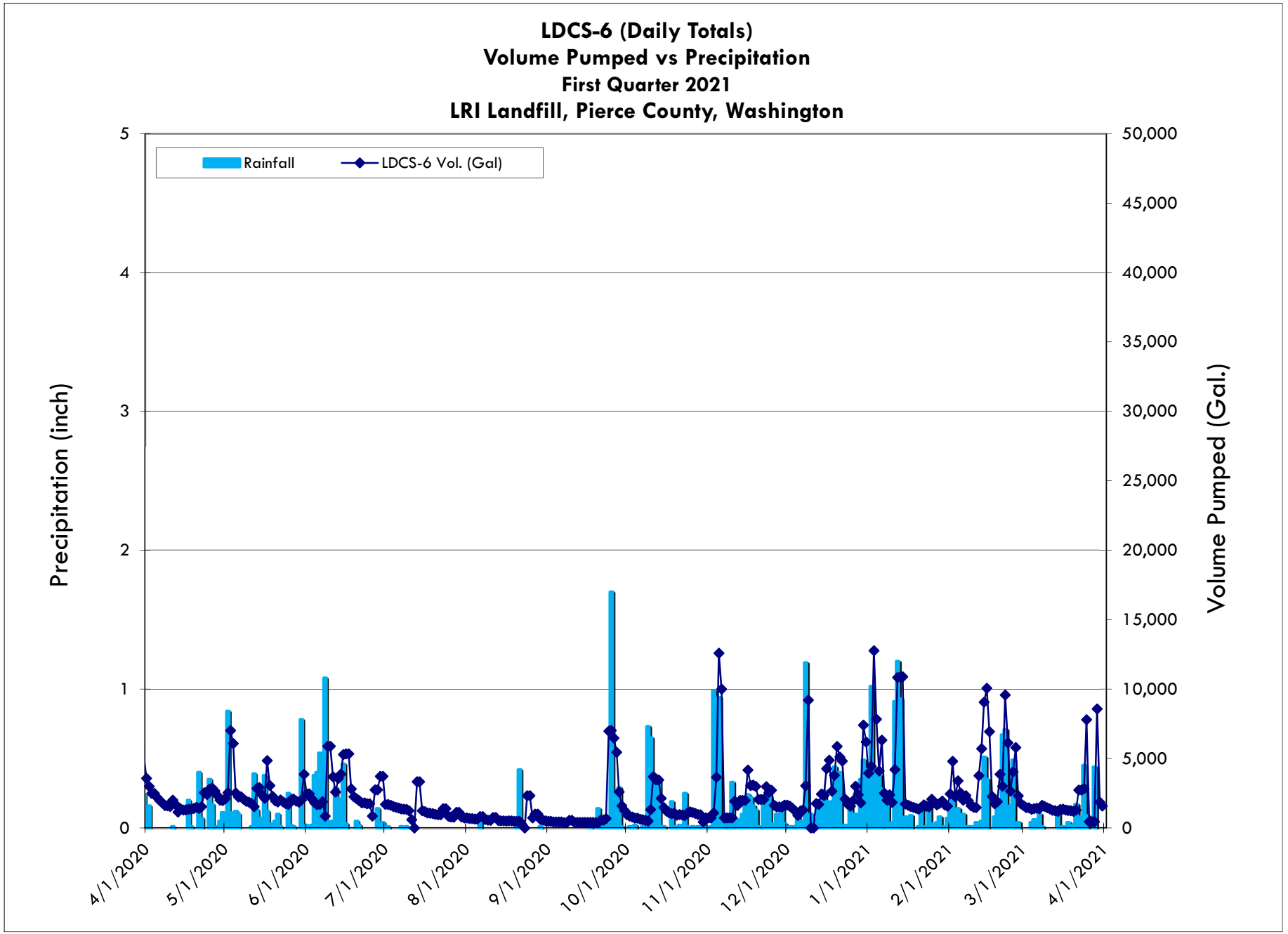

LDCS-2B (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-2B Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

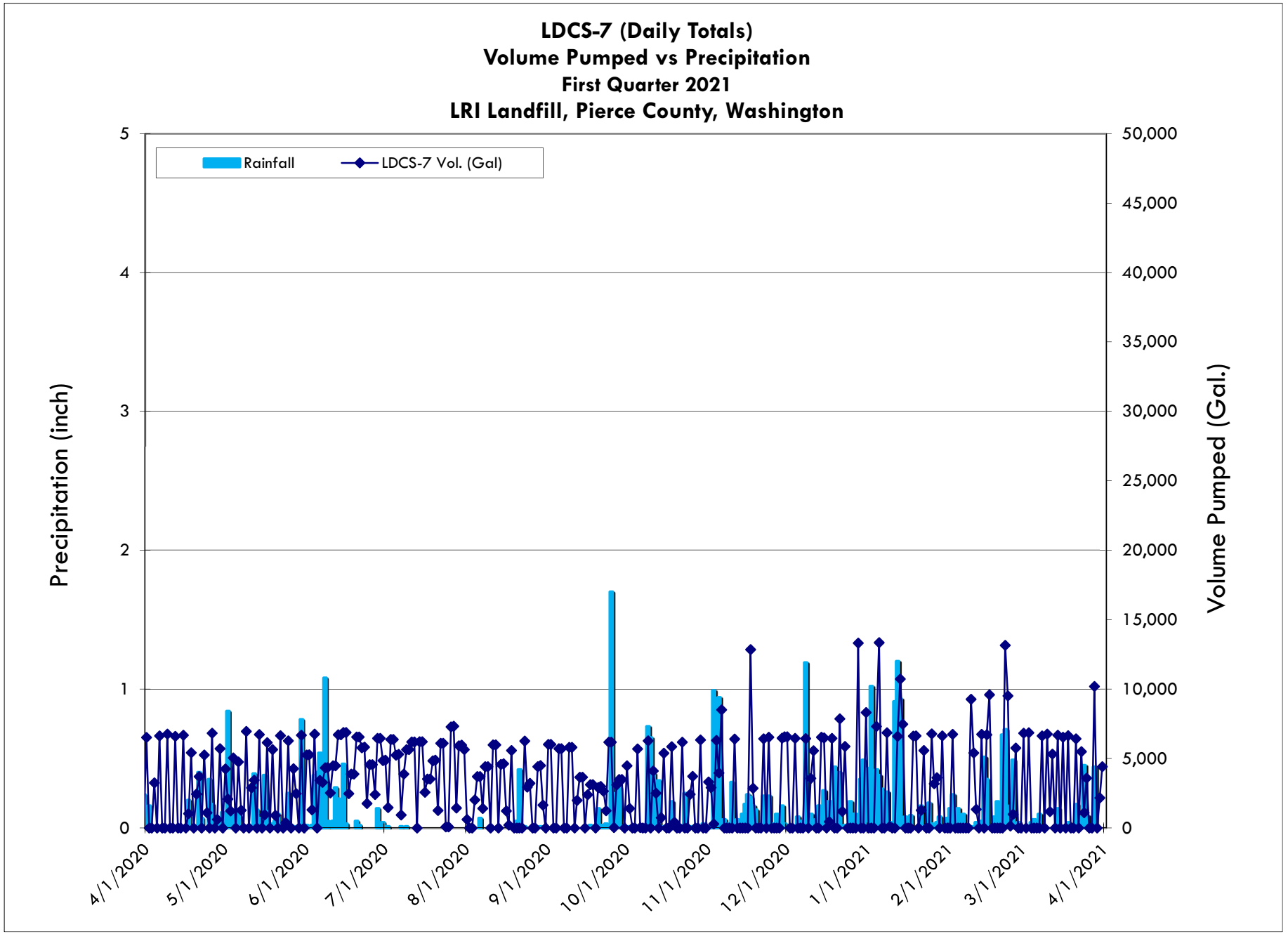

LDCS-3A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-3A Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
5
4
3
2
1
0
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

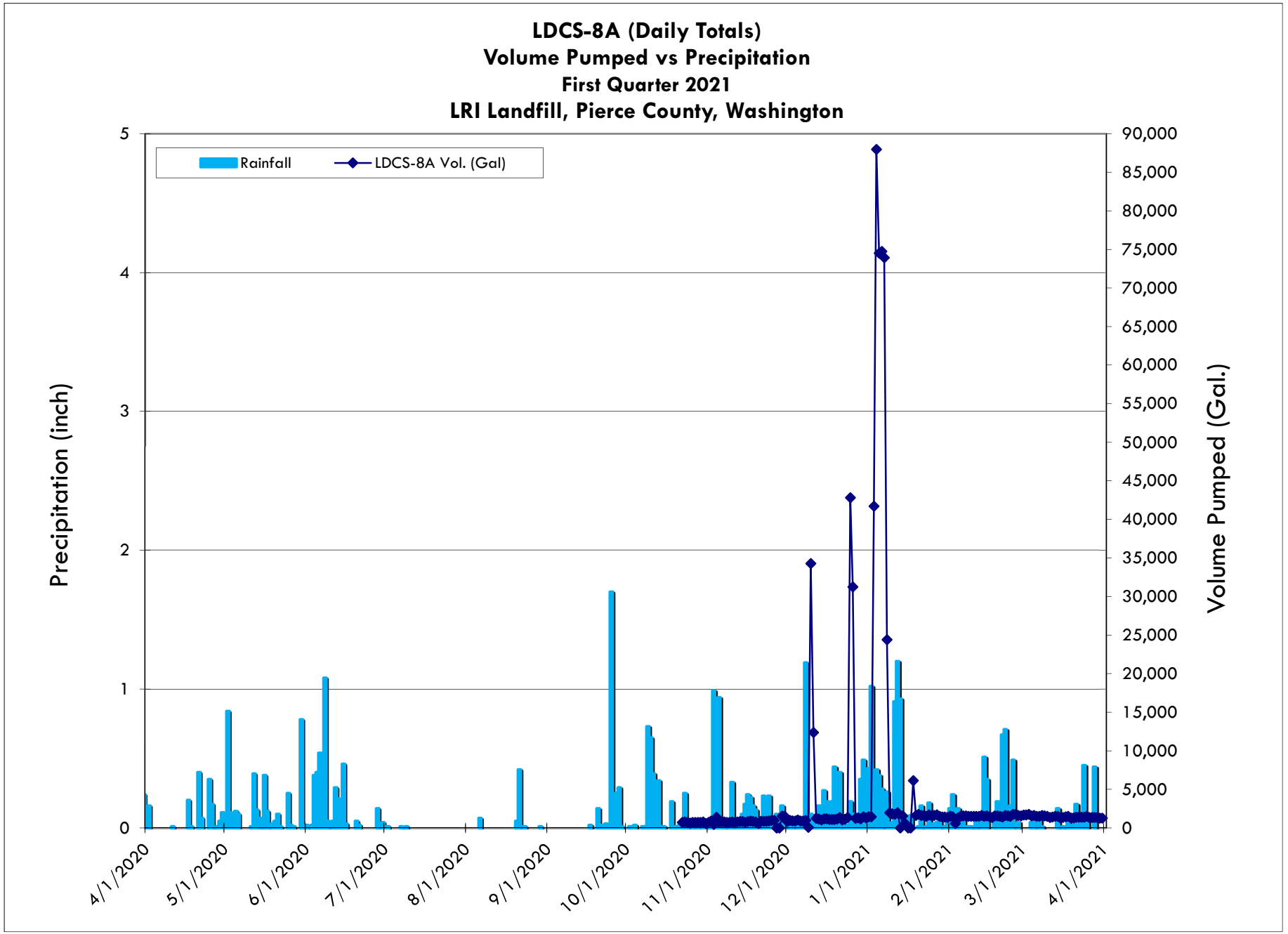

LDCS-4A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-4A Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021


LDCS-4B (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-4B Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

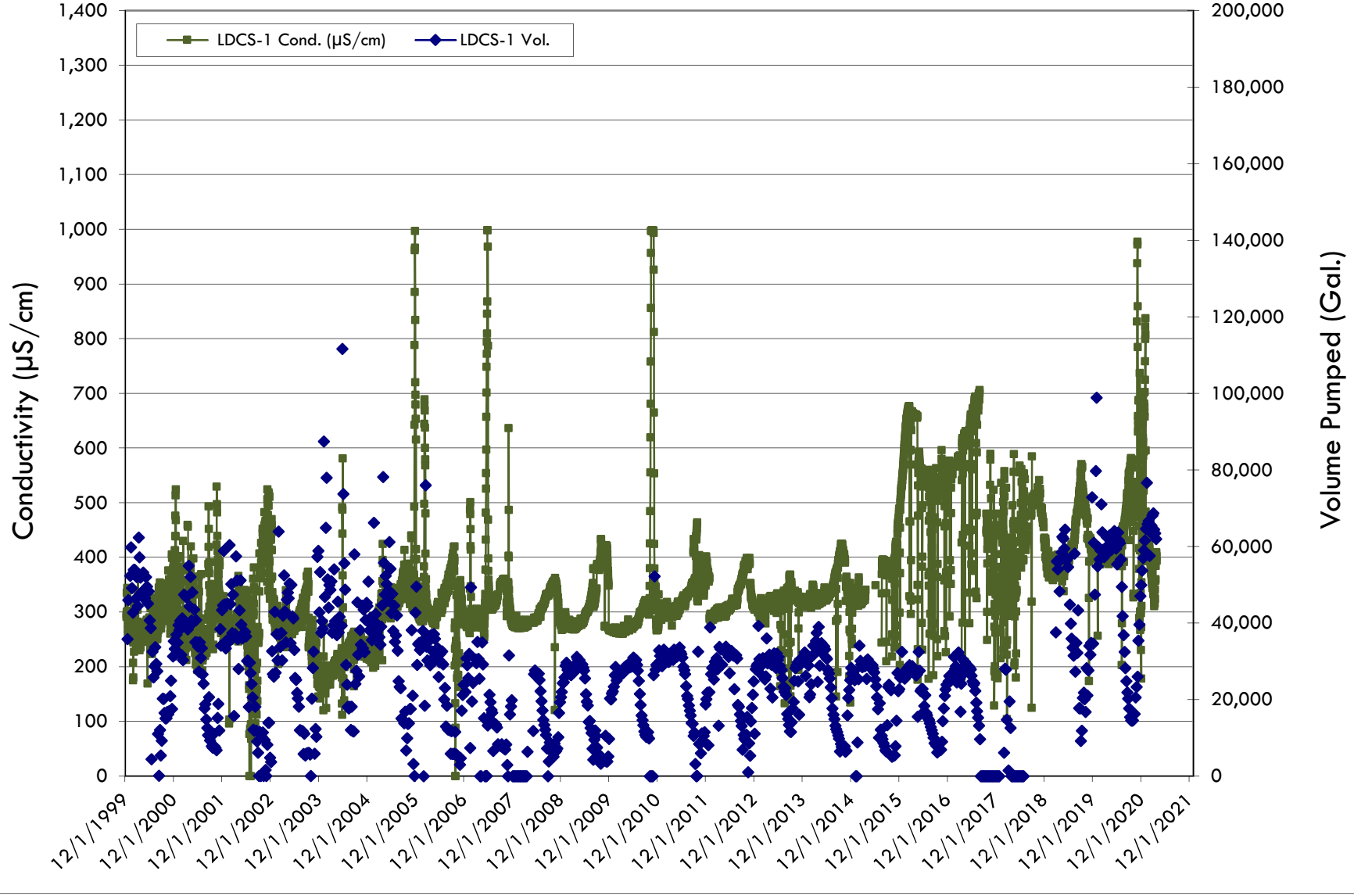

LDCS-5 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-5 Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

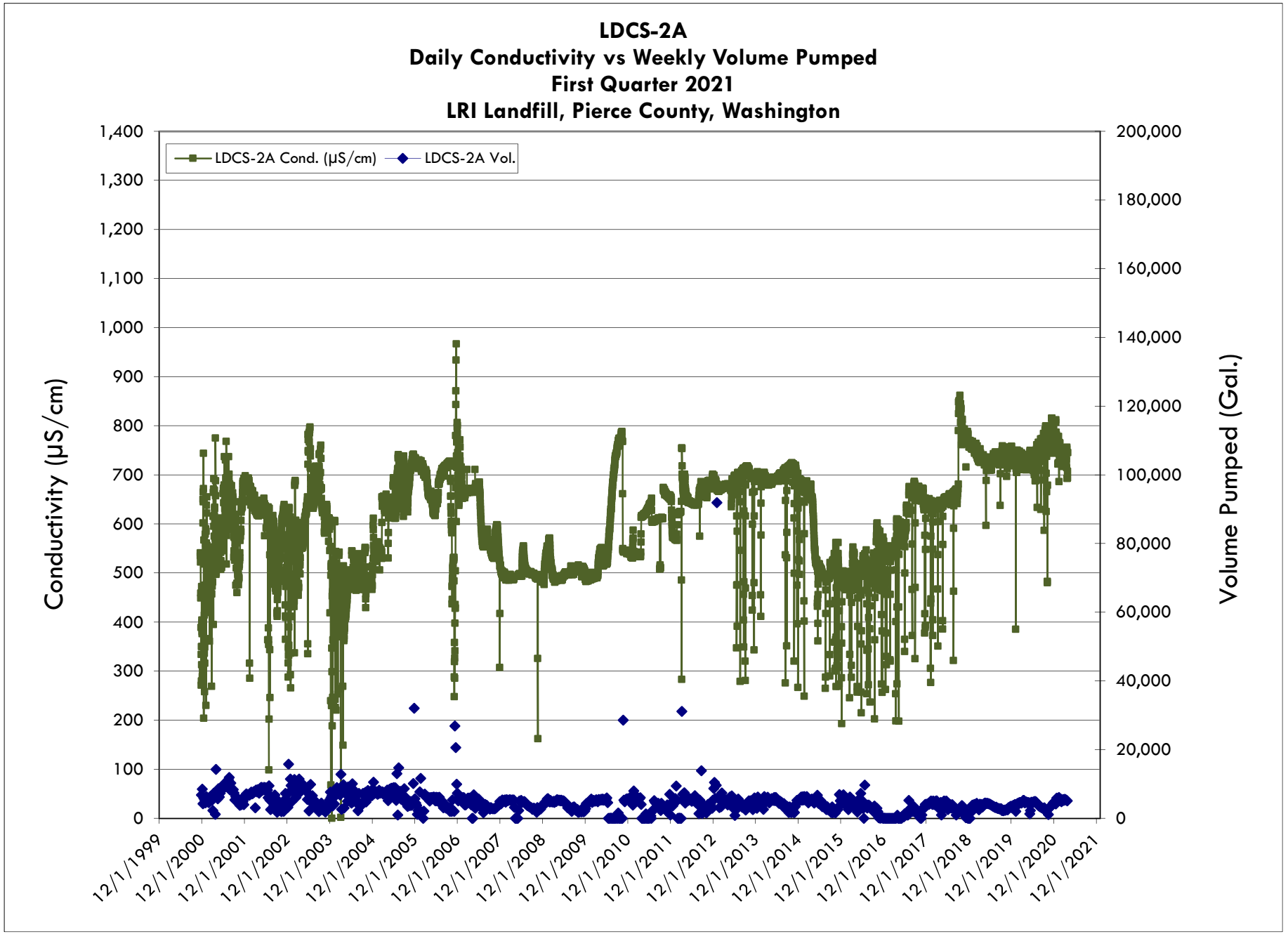

LDCS-6 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-6 Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

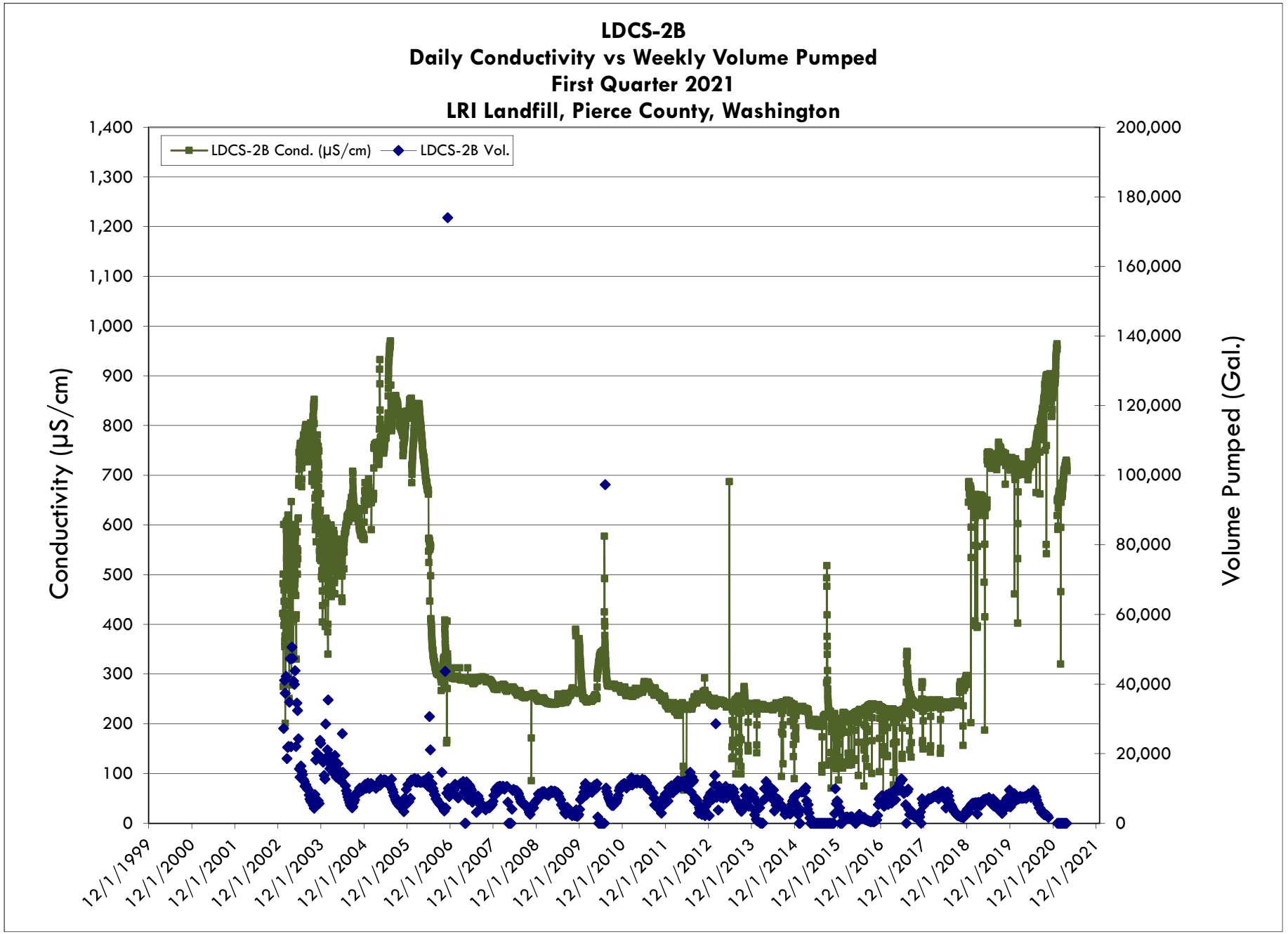

LDCS-7 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-7 Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021


LDCS-8A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2021
LRI Landfill, Pierce County, Washington
Rainfall
LDCS-8A Vol. (Gal)
Precipitation (inch)
Volume Pumped (Gal.)
0
1
2
3
4
5
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
85,000
90,000
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020
1/1/2021
2/1/2021
3/1/2021
4/1/2021

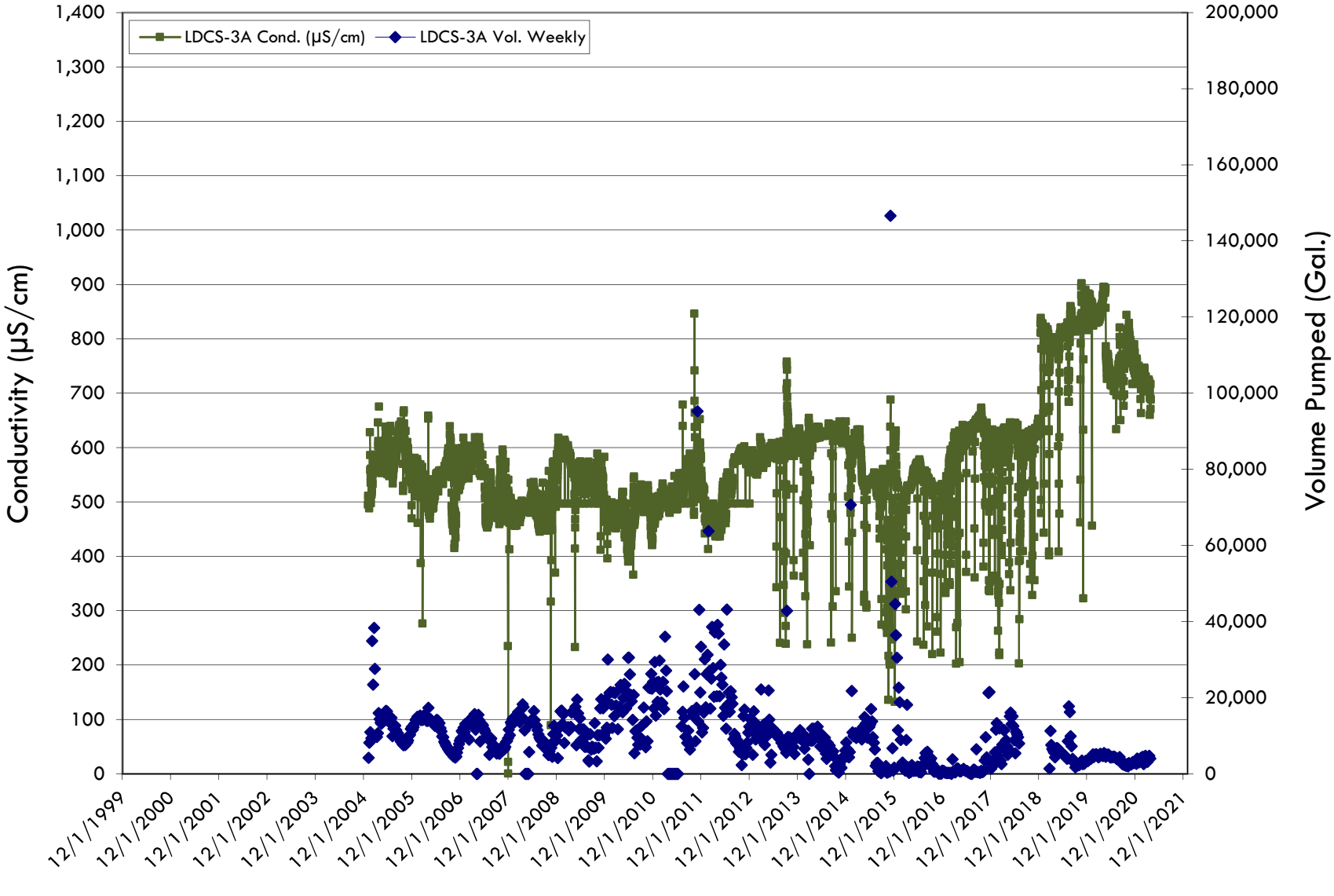
LDCS-1
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington



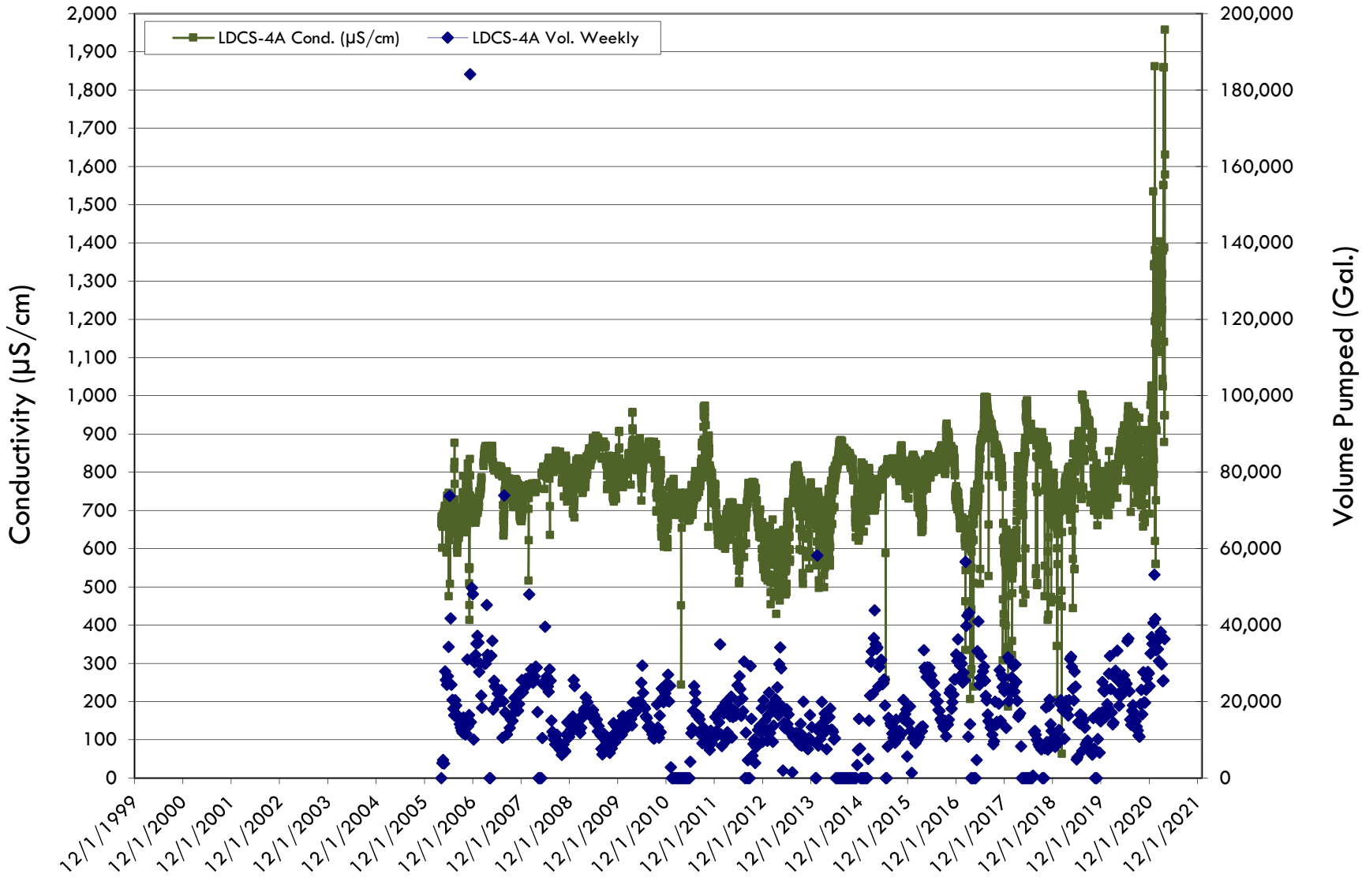

LDCS-2A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-2A Cond. (µS/cm)
LDCS-2A Vol.
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
12/1/1999
12/1/2000
12/1/2001
12/1/2002
12/1/2003
12/1/2004
12/1/2005
12/1/2006
12/1/2007
12/1/2008
12/1/2009
12/1/2010
12/1/2011
12/1/2012
12/1/2013
12/1/2014
12/1/2015
12/1/2016
12/1/2017
12/1/2018
12/1/2019
12/1/2020
12/1/2021

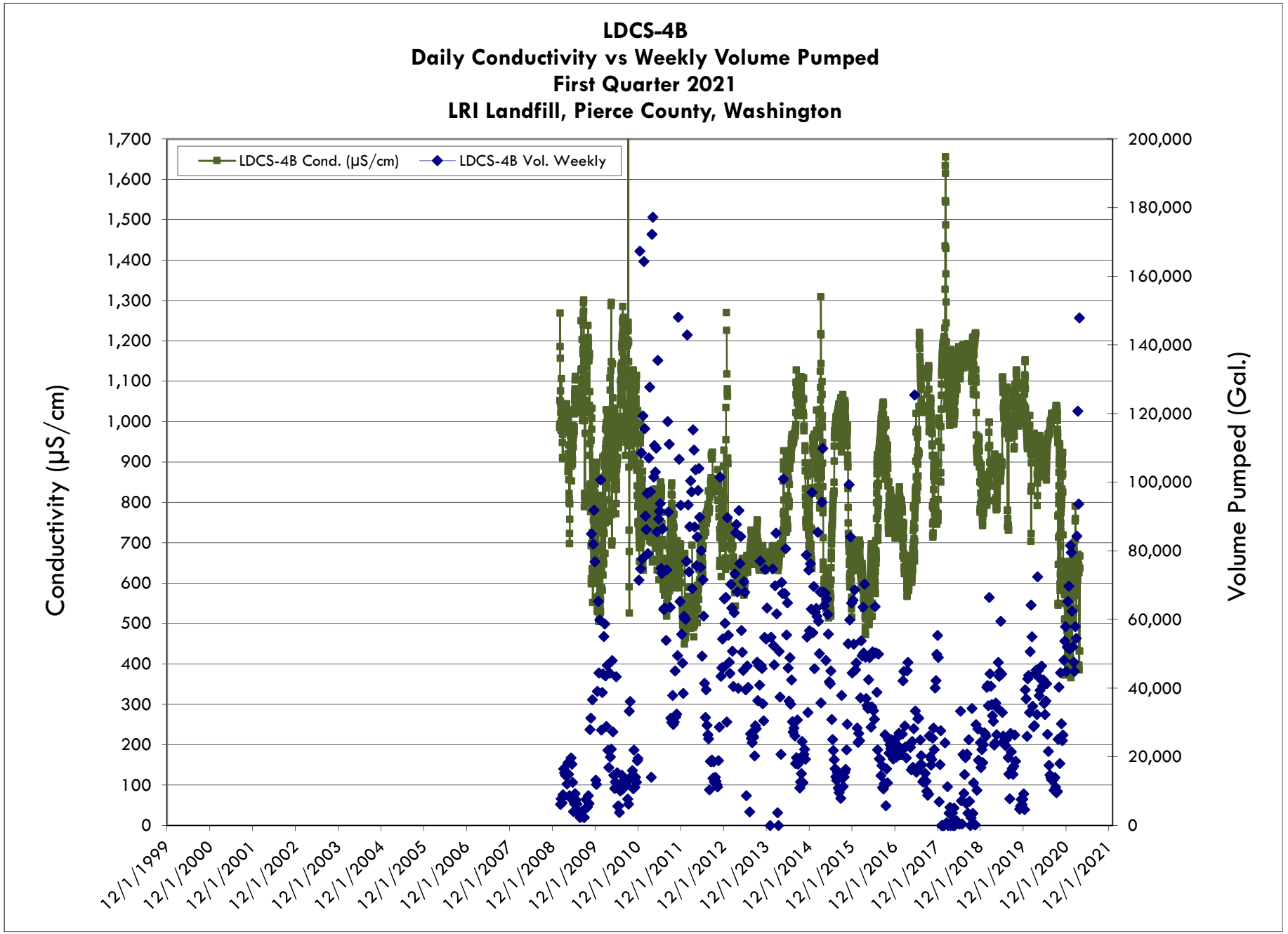

LDCS-2B
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-2B Cond. (µS/cm)
LDCS-2B Vol.
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
12/1/1999
12/1/2000
12/1/2001
12/1/2002
12/1/2003
12/1/2004
12/1/2005
12/1/2006
12/1/2007
12/1/2008
12/1/2009
12/1/2010
12/1/2011
12/1/2012
12/1/2013
12/1/2014
12/1/2015
12/1/2016
12/1/2017
12/1/2018
12/1/2019
12/1/2020
12/1/2021

LDCS-3A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington

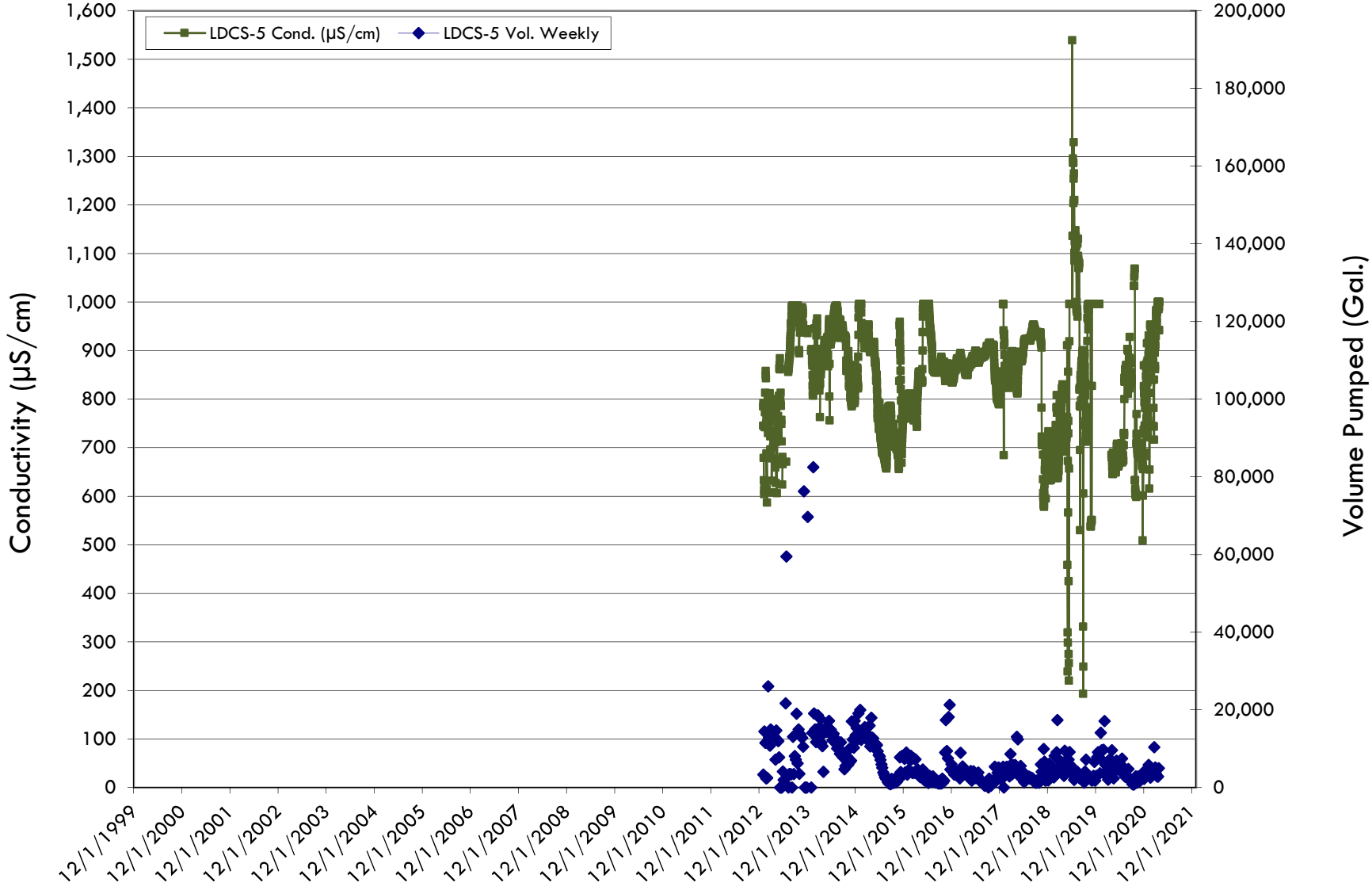


LDCS-4A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington

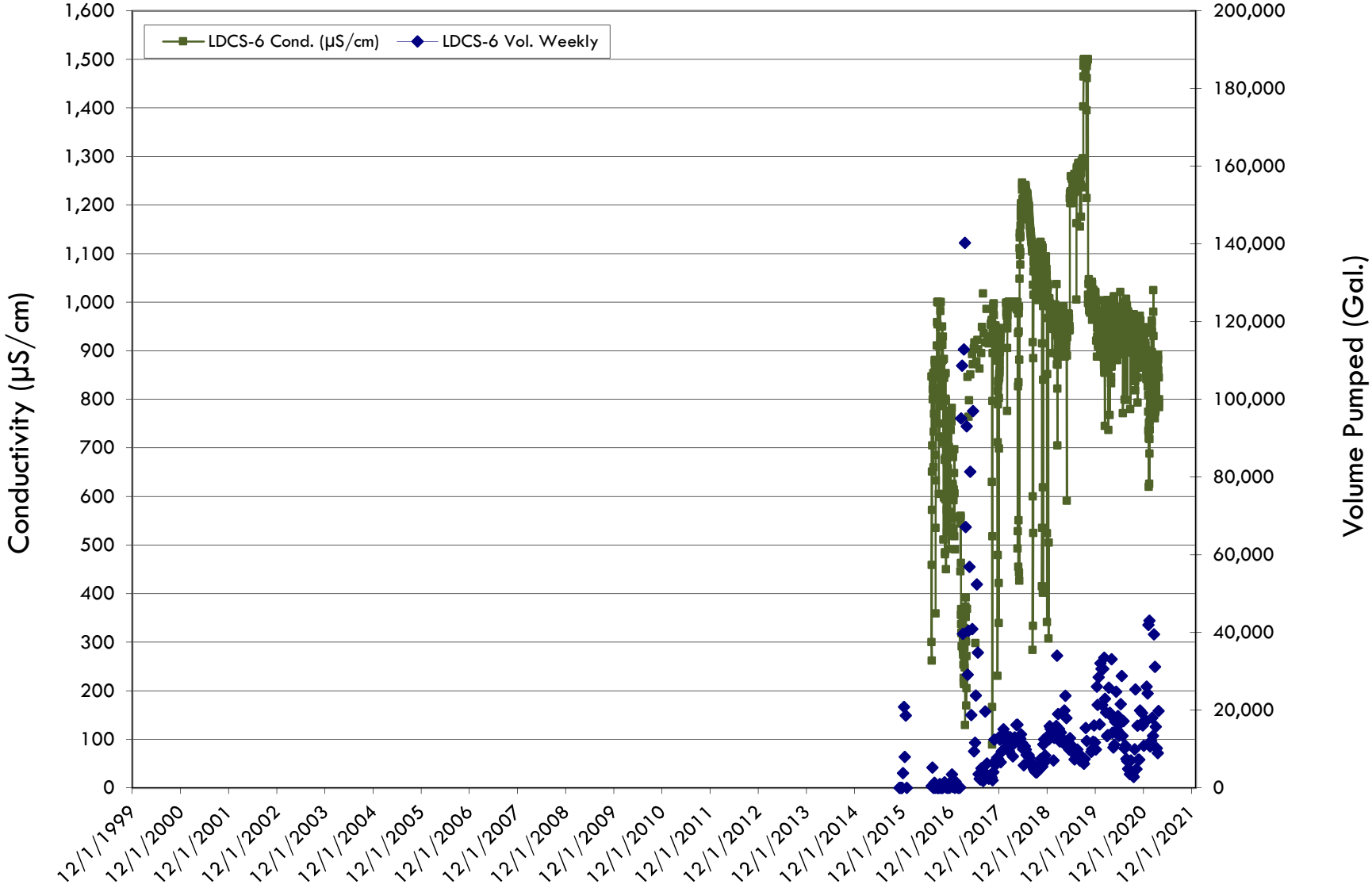



LDCS-4B
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-4B Cond. (µS/cm)
LDCS-4B Vol. Weekly
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
12/1/1999
12/1/2000
12/1/2001
12/1/2002
12/1/2003
12/1/2004
12/1/2005
12/1/2006
12/1/2007
12/1/2008
12/1/2009
12/1/2010
12/1/2011
12/1/2012
12/1/2013
12/1/2014
12/1/2015
12/1/2016
12/1/2017
12/1/2018
12/1/2019
12/1/2020
12/1/2021

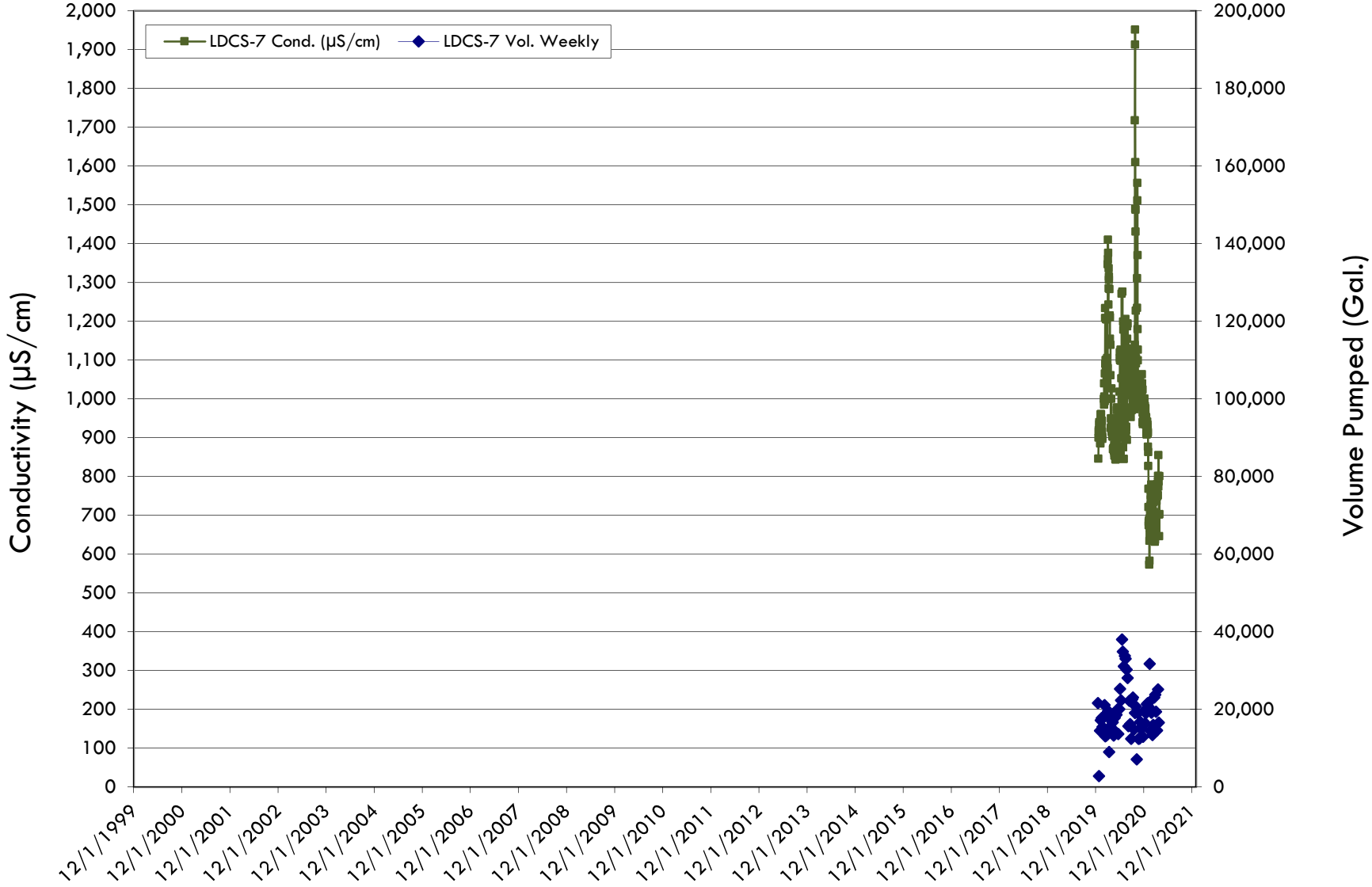
LDCS-5
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington

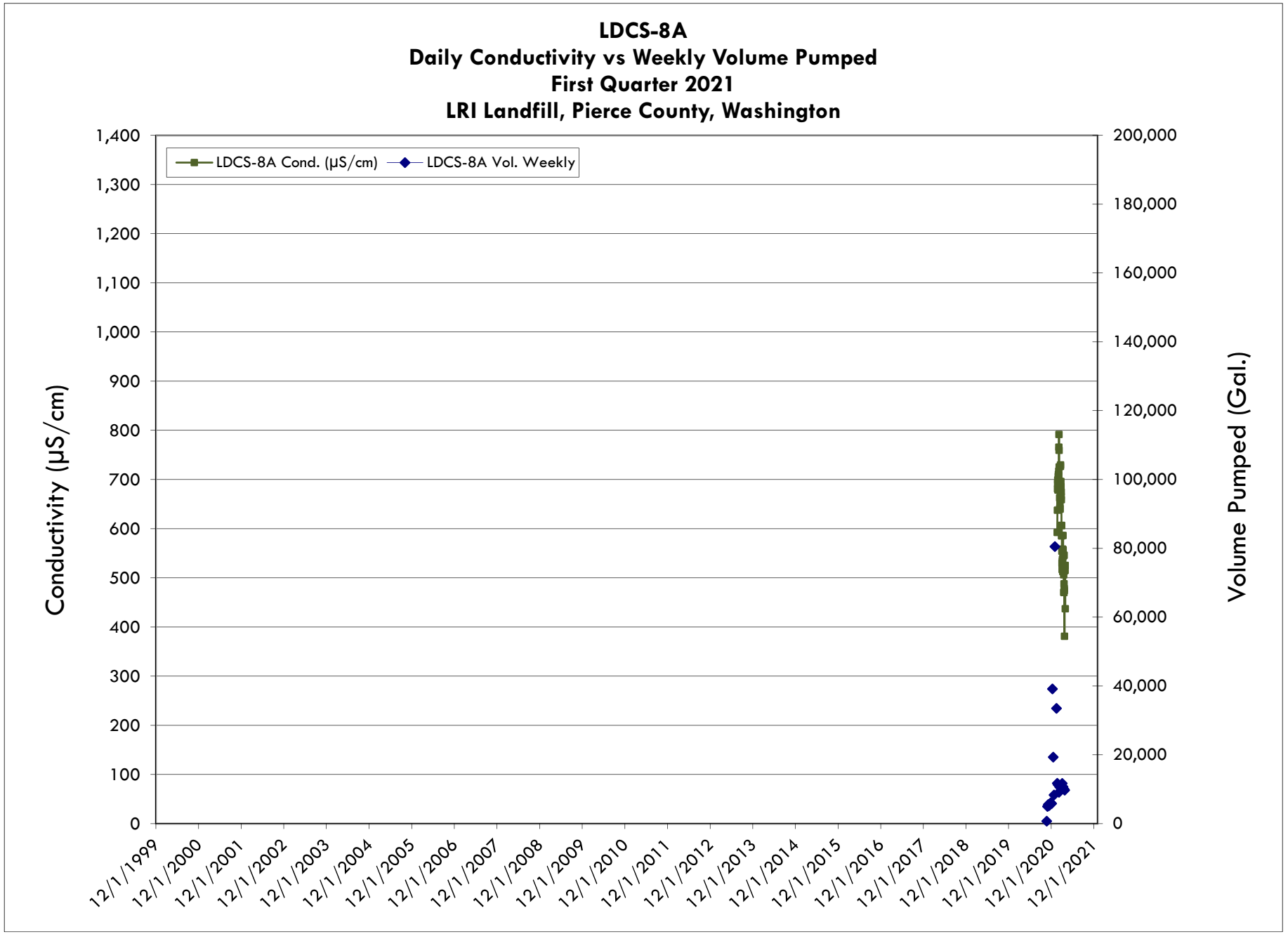


LDCS-6
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington



LDCS-7
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington




LDCS-8A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2021
LRI Landfill, Pierce County, Washington
LDCS-8A Cond. (µS/cm)
LDCS-8A Vol. Weekly
Conductivity (µS/cm)
Volume Pumped (Gal.)
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
12/1/1999
12/1/2000
12/1/2001
12/1/2002
12/1/2003
12/1/2004
12/1/2005
12/1/2006
12/1/2007
12/1/2008
12/1/2009
12/1/2010
12/1/2011
12/1/2012
12/1/2013
12/1/2014
12/1/2015
12/1/2016
12/1/2017
12/1/2018
12/1/2019
12/1/2020
12/1/2021

Attachment I

Surface Water Monitoring Data

Washington State Department of Ecology **Discharge Monitoring Report (DMR)**

Permit Number: WAR002603 **Permittee:** LRI 304th Street Landfill

Facility County: Pierce **Receiving Waterbody:** South Creek

Monitoring Period: 01/01/2021 - 01/31/2021 **Outfall:** UNK - South Creek **Version:** 2

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1
1-F	**1/1/21**	1.0	M
1-Sa	**1/2/21**	1.8	M
2-Su	**1/3/21**	3.2	M
2-M	**1/4/21**	3.1	M
2-T	**1/5/21**	2.3	M
2-W	**1/6/21**	3.2	M
2-Th	**1/7/21**	4.3	M
2-F	**1/8/21**	2.1	M
2-Sa	**1/9/21**	2.4	M
3-M	**1/11/21**	0.8	M
3-T	**1/12/21**	1.2	M
3-W	**1/13/21**	4.4	M
3-Th	**1/14/21**	0.9	M
3-F	**1/15/21**	9.2	M
4-Su	**1/17/21**	0.8	M
4-M	**1/18/21**	0.8	M
4-Sa	**1/23/21**	7.7	M
5-Su	**1/24/21**	3.7	M
5-M	**1/25/21**	3.0	M
5-T	**1/26/21**	2.1	M
5-Sa	**1/30/21**	1.9	M
6-Su	**1/31/21**	0.7	M
Minimum			M
			BM: >= 6.5 (RO)
Maximum		9.2	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)

Reporting Codes Used: M - Monitoring Is Conditional/Not Req This MP

Overall DMR Notes/Comment

Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF). The averaged turbidity value is reported for each day that a discharge occurred.

BMPs

Monitoring Point	Week	BMP
C7-1		Check Dams
C7-1		Construction Stormwater Chemical Treatment
C7-1		Other
C7-1		Sediment Trap
C7-1		Silt Fence

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

George Duvendack — **Signature**

4/15/2021 3:53:19 PM — **Date**

Washington State Department of Ecology **Discharge Monitoring Report (DMR)**

Permit Number: WAR002603 **Permittee:** LRI 304th Street Landfill

Facility County: Pierce **Receiving Waterbody:** South Creek

Monitoring Period: 02/01/2021 - 02/28/2021 **Outfall:** UNK - South Creek **Version:** 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1
1-M	**2/1/21**	0.9	M
1-T	**2/2/21**	1.3	M
1-W	**2/3/21**	0.8	M
1-Th	**2/4/21**	0.8	M
1-F	**2/5/21**	0.8	M
2-Su	**2/7/21**	C	C
3-Su	**2/14/21**	5.3	M
3-M	**2/15/21**	5.9	M
3-T	**2/16/21**	4.0	M
3-W	**2/17/21**	0.9	M
3-Th	**2/18/21**	4.3	M
3-F	**2/19/21**	5.0	M
3-Sa	**2/20/21**	0.5	M
4-Su	**2/21/21**	0.3	M
4-M	**2/22/21**	4.8	M
4-T	**2/23/21**	5.2	M
4-Th	**2/25/21**	1.1	M
4-F	**2/26/21**	1.7	M
Minimum			M
			BM: >= 6.5 (RO)
Maximum		5.9	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)

Reporting Codes Used: C - No Discharge, M - Monitoring Is Conditional/Not Req This MP

Overall DMR Notes/Comment

Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF). The averaged turbidity value is reported for each day that a discharge occurred.

BMPs

Monitoring Point	Week	BMP
C7-1		Check Dams
C7-1		Construction Stormwater Chemical Treatment
C7-1		Other
C7-1		Sediment Trap
C7-1		Silt Fence

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

George Duvendack — **Signature**

3/15/2021 2:08:31 PM — **Date**

Washington State Department of Ecology **Discharge Monitoring Report (DMR)**

Permit Number: WAR002603 **Permittee:** LRI 304th Street Landfill

Facility County: Pierce **Receiving Waterbody:** South Creek

Monitoring Period: 03/01/2021 - 03/31/2021 **Outfall:** UNK - South Creek **Version:** 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1
1-W	**3/3/21**	0.3	M
2-Su	**3/7/21**	0.2	M
2-M	**3/8/21**	0.6	M
2-T	**3/9/21**	2.1	M
2-W	**3/10/21**	2.2	M
2-Sa	**3/13/21**	3.1	M
3-Th	**3/18/21**	5.5	M
4-W	**3/24/21**	1.3	M
4-Th	**3/25/21**	0.5	M
5-Su	**3/28/21**	0.6	M
Minimum			M
			BM: >= 6.5 (RO)
Maximum		5.5	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)

Reporting Codes Used: M - Monitoring Is Conditional/Not Req This MP

Overall DMR Notes/Comment

Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF). The averaged turbidity value is reported for each day that a discharge occurred.

BMPs

Monitoring Point	Week	BMP
C7-1		Check Dams
C7-1		Construction Stormwater Chemical Treatment
C7-1		Other
C7-1		Sediment Trap
C7-1		Silt Fence

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

George Duvendack — **Signature**

4/15/2021 3:53:16 PM — **Date**

Washington State Department of Ecology **Discharge Monitoring Report (DMR)**

Permit Number: WAR002557 **Permittee:** Pierce County Recycling - 304th Street L

Facility County: Pierce **Receiving Waterbody:**

Monitoring Period: 01/01/2021 - 03/31/2021 **Outfall:** SWPO - Discharge from SW pond **Version:** 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Quarterly Grab	pH Standard Units Quarterly Grab	Oil & Grease Yes/No Quarterly Visual Observation	Copper Total Micrograms/L (ug/L) Quarterly Grab	Zinc Total Micrograms/L (ug/L) Quarterly Grab	Total BOD5 Total Milligrams/L (mg/L) Quarterly Grab	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Quarterly Grab	Ammonia Total Milligrams/L (mg/L) Quarterly Grab	Alpha-terpineol (3-Cyclohexene-1-methanol,.alpha.,alpha.,trimethyl-) Micrograms/L (ug/L) Quarterly Grab	Benzoic Acid Micrograms/L (ug/L) Quarterly Grab	p-Cresol (4-methylphenol) Micrograms/L (ug/L) Quarterly Grab
		SWPO	SWPO	SWPO	SWPO	SWPO	SWPO	SWPO	SWPO	SWPO	SWPO	SWPO
Limit Set		ISGP Western WA - 2020 Permit	ISGP Western WA - 2020 Permit	ISGP Western WA - 2020 Permit	ISGP Western WA - 2020 Permit	ISGP Western WA - 2020 Permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit
2-T	**1/5/21**	8.9	7.33	No	5.5	9.8	B|2.0	14	B|0.50	B|9.7	B|58	B|9.7
Minimum			7.33									
			BM: >= 5.0 (RO)									
Average		8.9			5.5	9.8						
		BM: <= 25			BM: <= 14	BM: <= 117						
Maximum			7.33									
			BM: <= 9.0 (RO)									
Month 1 Average							B|2.0	14	B|0.50	B|9.7	B|58	B|9.7
							<= 37	<= 27	<= 4.9	<= 16	<= 71	<= 14
Month 2 Average							B|2.0	14	B|0.50	B|9.7	B|58	B|9.7
							<= 37	<= 27	<= 4.9	<= 16	<= 71	<= 14
Month 3 Average							B|2.9	14	B|0.50	B|9.7	B|58	B|9.7
							<= 37	<= 27	<= 4.9	<= 16	<= 71	<= 14

Reporting Codes Used: B - Below Detection Limit/No Detection

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

George Duvendack
Signature

5/13/2021 3:47:05 PM
Date

Week	Monitoring Point	Phenol Micrograms/L (ug/L) Quarterly Grab	Zinc Total Micrograms/L (ug/L) Quarterly Grab	pH Standard Units Quarterly Grab
		SWPO	SWPO	SWPO
Limit Set		ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit
2-T	**1/5/21**	B|9.7	9.8	7.33
Minimum				7.33
				>= 6.0 (RO)
Average				
Maximum				7.33
				<= 9.0 (RO)
Month 1 Average		B|9.7	9.8	
		<= 15	<= 110	
Month 2 Average		B|9.7	9.8	
		<= 15	<= 110	
Month 3 Average		B|9.7	9.8	
		<= 15	<= 110	

Attachment J

Landfill Gas Monitoring Data

Exhibit 3 - Results of Landfill Gas Probe Monitoring

SCS Engineers

Landfill Gas Control System

04221001.04

LRI Landfill

January-21

Location Refer *Design.*	Date	Time	$P_{(well)}$ (in W.C.)	Gas Composition - *Note 1*: CH_4 Spike (% by vol.)	CH_4 (% by vol.)	CO_2 (% by vol.)	O_2 (% by vol.)	Balance (N_2 & H_2O) (% by vol.)	Depth to Water *Note 2* (ft-TOC)	Exposed Portion of Perforations - *Note 3*: (ft)	(%)	Comments
Normal Operating Rage:												
(min)			-		0.3	0.3	-				20.0	
(max)			5.00		5.0	5.0	20.3				90.0	
Perimeter Gas Probes												
GP-1	1/16/2021	8:05	0.2	3.3	3.0	2.9	13.8	80.3	16.6	0.0	0.0	
GP-2	1/16/2021	8:13	0.2	3.3	3.0	16.3	0.2	80.5	15.3	0.0	0.0	
GP-3	1/16/2021	8:21	0.1	--	0.0	7.3	9.1	83.6	7.2	2.3	46.2	
GP-4	1/16/2021	8:26	0.2	--	0.0	2.6	17.4	80.0	9.2	0.0	0.0	
GP-9	1/16/2021	8:32	0.2	--	0.0	11.0	3.5	85.5	10.7	0.0	0.0	
GP-10	1/16/2021	7:59	0.2	--	0.0	12.2	9.1	78.7				
GP-10P	1/16/2021	7:55	0.2	13.1	13.1	26.2	3.5	57.2				*Note 5*
GP-11	1/16/2021	7:48	0.2	--	0.0	6.2	15.4	78.4				
GP-12	1/16/2021	7:37	0.3	28.6	23.5	55.2	0.0	21.3				
GP-13	1/16/2021	7:29	0.3	0.2	0.2	21.2	1.7	76.9				
GP-14	1/16/2021	8:57	0.2	--	0.0	0.2	21.2	78.6	10.3	0.0	0.0	
GP-15	1/16/2021	9:22	0.2	0.1	0.0	0.2	21.2	78.6	8.6	0.0	0.0	
GP-16	1/16/2021	8:41	0.2	--	0.0	1.1	20.6	78.3	18.6	11.3	75.1	

	Beginning	Ending	Average
Weather:	Drizzle and Fog	Light Drizzle	Drizzle
Temperature, T (deg F):	34	41	37.5
Wind Speed (mph):	0	0	0
Wind Direction:	0	0	0
Barometric Pressure, P (in Hg):	29.79	29.80	29.80
24hr Baro.Trend (rising / falling / steady / unsteady)	Rising		

Starting Date:	1/16/2021
Starting Time:	7:29
Finishing Date:	1/16/2021
Finishing Time:	9:22
Monitored by:	A. Lopez
Instruments:	GEM 2000
Calibration Date:	1/16/2021

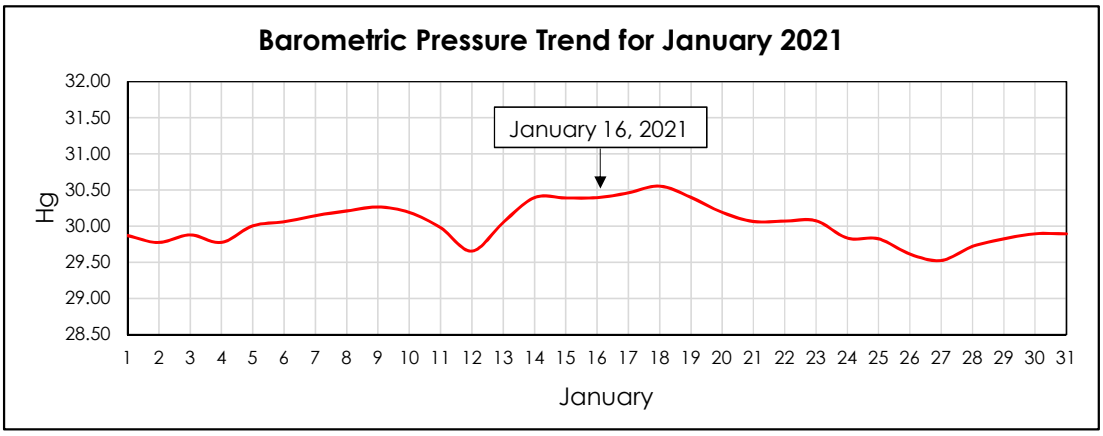
Headings:

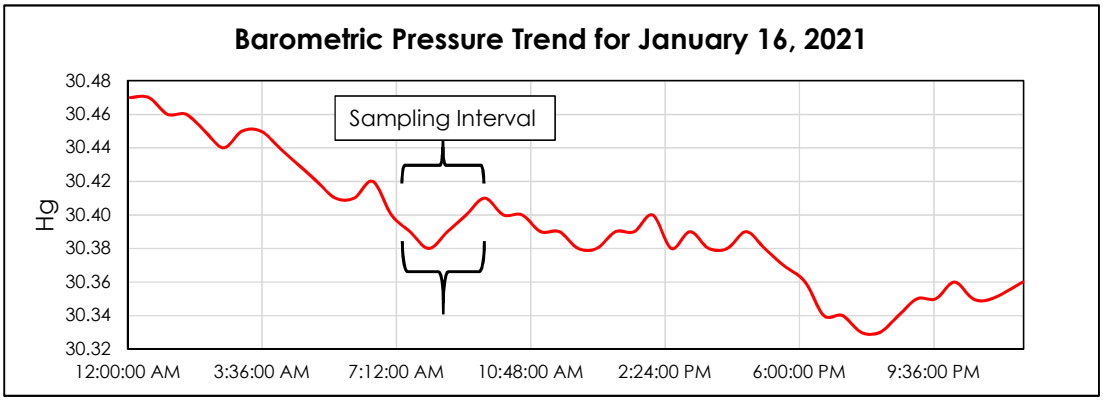
$P_{(well)}$	Relative Pressure
CH_4	Methane
CO_2	Carbon Dioxide
O_2	Oxygen
H_2O	Water Vapor
N_2	Nitrogen
TOC	Top of Casing

Notes:

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded as a comment if observed during sampling.
2. Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
3. Exposed Perforation = perforated pipe section not submerged by liquid.
4. GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
5. GP-10P connection repaired on October 23rd, 2020.

Barometric Pressure Trend - January 2021
LRI 304th Landfill, Washington





Monthly Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-01-16/2021-01-16/monthly

Daily Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-01-16/2021-01-16/daily

Exhibit 3 - Results of Landfill Gas Probe Monitoring

SCS Engineers

Landfill Gas Control System

04221001.04

LRI Landfill

February-21

Location Refer *Design.*	Date	Time	$P_{(well)}$ (in W.C.)	Gas Composition - *Note 1*					Depth to Water *Note 2* (ft-TOC)	Exposed Portion of Perforations - *Note 3*		Comments
				CH_4 Spike (% by vol.)	CH_4 (% by vol.)	CO_2 (% by vol.)	O_2 (% by vol.)	Balance (N_2 & H_2O) (% by vol.)		(ft)	(%)	
Normal Operating Rage:												
(min)			-		0.3	0.3	-				20.0	
(max)			5.00		5.0	5.0	20.3				90.0	
Perimeter Gas Probes												
GP-1	2/20/2021	9:02	0.2	1.2	1.2	2.0	16.7	80.1	16.2	0.0	0.0	
GP-2	2/20/2021	9:08	0.2	2.3	2.1	14.7	0.6	82.6	15.4	0.0	0.0	
GP-3	2/20/2021	9:15	0.2	--	0.0	6.6	8.7	84.7	8.0	0.0	0.0	
GP-4	2/20/2021	9:20	0.1	--	0.0	3.2	13.6	83.2	9.3	0.0	0.0	
GP-9	2/20/2021	9:26	0.1	--	0.0	9.4	6.8	83.8	10.9	0.0	0.0	
GP-10	2/20/2021	8:54	0.2	1.7	0.1	6.7	16.6	76.6				
GP-10P	2/20/2021	8:51	0.2	9.3	9.3	20.7	6.6	63.4				*Note 5*
GP-11	2/20/2021	8:44	0.2	--	0.0	4.3	17.6	78.1				
GP-12	2/20/2021	8:33	0.2	32.1	27.6	50.5	0.0	21.9				
GP-13	2/20/2021	8:18	0.1	--	0.0	12.8	7.9	79.3				
GP-14	2/20/2021	9:56	0.0	--	0.0	0.2	21.0	78.8				
GP-15	2/20/2021	10:16	0.0	--	0.0	0.1	21.0	78.9	8.6	0.0	0.0	
GP-16	2/20/2021	9:38	0.2	--	0.0	0.3	21.0	78.7	19.0	11.9	79.1	

	Beginning	Ending	Average
Weather:	Mostly Cloudy	Mostly Cloudy	Mostly Cloudy
Temperature, T (deg F):	39	38.7	38.85
Wind Speed (mph):	3.8	2	2.9
Wind Direction:	202	202	202
Barometric Pressure, P (in Hg):	30.17	30.20	30.19
24hr Baro.Trend (rising / falling / steady / unsteady)	Rising		

Starting Date:	2/20/2021
Starting Time:	8:18
Finishing Date:	2/20/2021
Finishing Time:	10:16
Monitored by:	A. Lopez
Instruments:	GEM 2000
Calibration Date:	2/20/2021

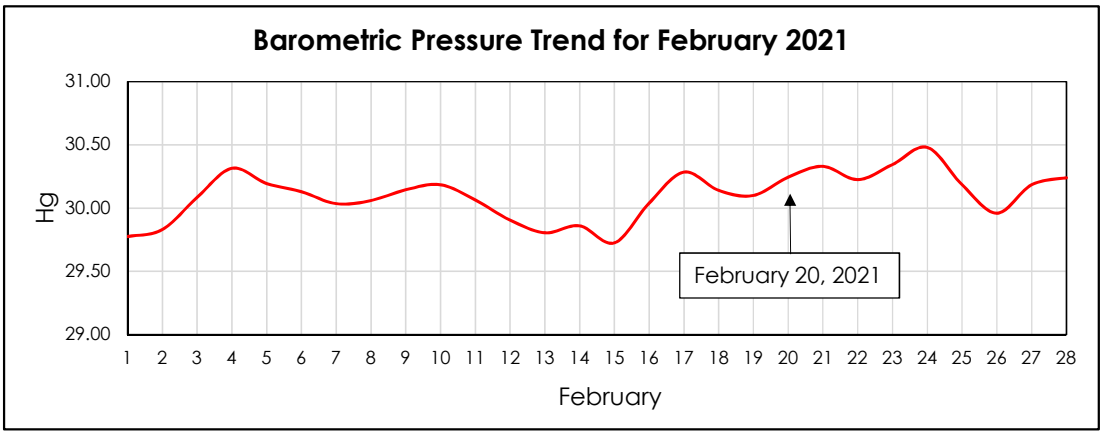
Headings:

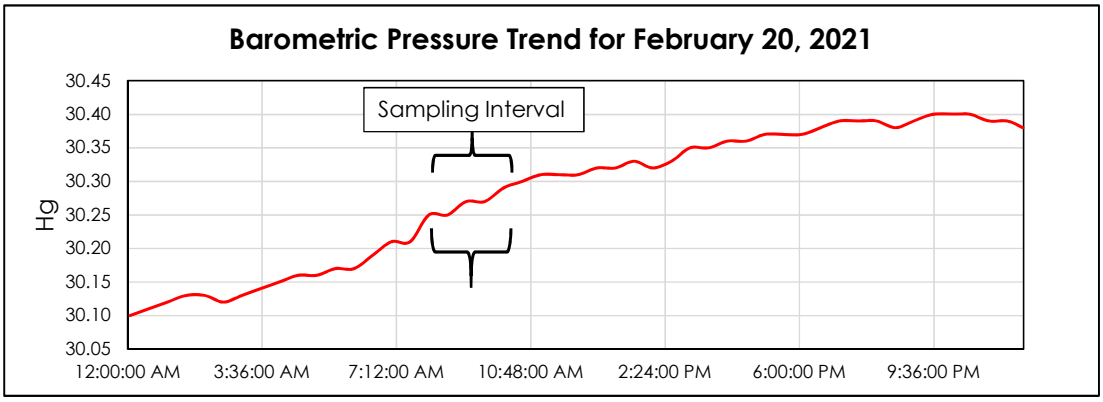
$P_{(well)}$	Relative Pressure
CH_4	Methane
CO_2	Carbon Dioxide
O_2	Oxygen
H_2O	Water Vapor
N_2	Nitrogen
TOC	Top of Casing

Notes:

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded as a comment if observed during sampling.
2. Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
3. Exposed Perforation = perforated pipe section not submerged by liquid.
4. GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
5. GP-10P connection repaired on October 23rd, 2020.

Barometric Pressure Trend - February 2021
LRI 304th Landfill, Washington





Monthly Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-02-16/2021-02-16/monthly

Daily Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-02-20/2021-02-20/daily

Exhibit 3 - Results of Landfill Gas Probe Monitoring

SCS Engineers

Landfill Gas Control System

04221001.04

LRI Landfill

March-21

Location Refer *Design.*	Date	Time	$P_{(well)}$ (in W.C.)	Gas Composition - *Note 1*					Depth to Water *Note 2* (ft-TOC)	Exposed Portion of Perforations - *Note 3*		Comments
				CH_4 Spike (% by vol.)	CH_4 (% by vol.)	CO_2 (% by vol.)	O_2 (% by vol.)	Balance (N_2 & H_2O) (% by vol.)		(ft)	(%)	
Normal Operating Rage:												
(min)			-		0.3	0.3	-				20.0	
(max)			5.00		5.0	5.0	20.3				90.0	
Perimeter Gas Probes												
GP-1	3/8/2021	8:21	0.2	4,5	1.8	2.7	15.4	80.1	16.2	9.2	100.0	
GP-2	3/8/2021	16:01	0.2	2.2	2.0	15.8	0.0	82.2	15.1	8.1	100.0	
GP-3	3/8/2021	8:31	0.2	--	0.0	2.7	15.5	81.8	7.5	3.5	70.0	
GP-4	3/8/2021	8:36	0.2	--	0.0	3.2	14.4	82.4	9.3	5.3	100.0	
GP-9	3/8/2021	8:40	0.2	--	0.0	9.6	7.8	82.6	11.1	0.0	0.0	
GP-10	3/8/2021	8:15	0.2	1.6	1.6	17.6	5.6	75.2				
GP-10P	3/8/2021	8:09	0.2	15.5	14.8	23.2	6.4	55.6				*Note 5*
GP-11	3/8/2021	8:04	0.2	--	0.0	13.3	8.3	78.4				
GP-12	3/8/2021	7:54	0.0	32.2	3.6	7.6	17.9	70.9				
GP-13	3/8/2021	7:42	0.2	--	0.0	15.1	6.4	78.5				
GP-14	3/8/2021	9:37	0.2	--	0.0	0.3	20.7	79.0	10.6	0.0	0.0	
GP-15	3/8/2021	8:54	0.2	--	0.0	0.3	21.1	78.6				
GP-16	3/8/2021	8:46	0.2	--	0.0	2.4	19.3	78.3	19.0	12.0	80.0	

	Beginning	Ending	Average
Weather:	Patches of Fog	Cloudy	Cloudy
Temperature, T (deg F):	34	50	42
Wind Speed (mph):	5	3	4
Wind Direction:	65	270	167.5
Barometric Pressure, P (in Hg):	29.53	29.47	29.50
24hr Baro.Trend (rising / falling / steady / unsteady)	Falling		

Starting Date:	3/8/2021
Starting Time:	7:42
Finishing Date:	3/8/2021
Finishing Time:	16:01
Monitored by:	A. Lopez
Instruments:	GEM 2000
Calibration Date:	3/8/2021

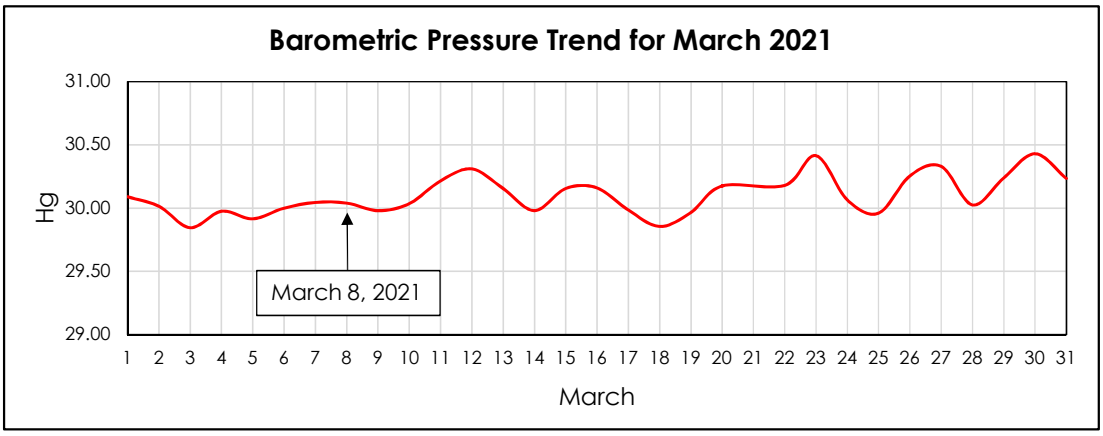
Headings:

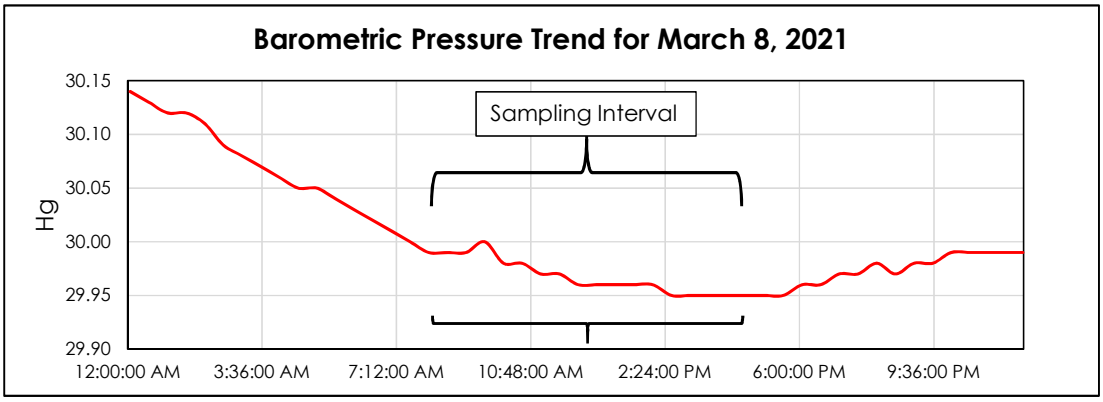
$P_{(well)}$	Relative Pressure
CH_4	Methane
CO_2	Carbon Dioxide
O_2	Oxygen
H_2O	Water Vapor
N_2	Nitrogen
TOC	Top of Casing

Notes:

1. Measurement for spike concentrations of CH_4 and CO_2 are recorded as a comment if observed during sampling.
2. Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
3. Exposed Perforation = perforated pipe section not submerged by liquid.
4. GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
5. GP-10P connection repaired on October 23rd, 2020.

Barometric Pressure Trend - March 2021
LRI 304th Landfill, Washington





Monthly Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-03-16/2021-03-16/monthly

Daily Data Source: Wunderground.com (Puyallup)
Lat: 47.10 Long: 122.29 Elev: 535 ft-AMSL
Data Source: https://www.wunderground.com/dashboard/pws/KWAPUYAL102/table/2021-03-8/2021-03-8/daily

[redacted]

LRI 304th Street Landfill Project Number: 04221001.04
Landfill Gas Monitoring of On-site Buildings

Date: 3/4/21
Weather Conditions: Mostly Sunny
Instrument: Micro FID
Measured By: AEL

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**.

Outside		Inside
5.5 ppm ☐	Main Office - individual office spaces, storage areas and within open crawl-space area.	16 ppm (B)
10.1 ppm ☐	Repair Shop – survey atmosphere conditions throughout (lower height levels).	13.6 ppm (A) (right side of garage door)
5.8 ppm ☐	Pay/Scale Booth – interior of building.	7.0 ppm (bathroom cabinet)
12.9 ppm ☐	Work Shop - interior of shed adjacent to stormwater ponds.	12.0 ppm (under table near west window)

[redacted]
Signature

(A) near bench grinder
(B) Men's bathroom

Range / Approx. Outside	Inside
3-5	12-14
8-10	11-13
4-6	5-6
9-12	10-11

April 21, 2021
File No. 04221001.10

Mr. George Duvendack
Site Manager
Pierce County Recycling, Composting and Disposal, LLC dba LRI
17925 Meridian Street East
Puyallup, Washington 98375

Subject: **March 2021 Gas Extraction Well Installation Report**
LRI Landfill, Graham, Washington

Dear George:

This letter report presents a summary of field activities and observations performed by SCS Engineers (SCS) during the installation of 13 new landfill gas (LFG) extraction wells at the LRI Landfill located in Graham, Washington. The LFG extraction wells were installed in general accordance with the 2021 Gas System Expansion design plans, approved well construction variance, and well completion schedule issued by SCS on March 9, 2021. Following completion of the well installation work, each well was given a standard well designation consistent with LRI naming convention as shown in Table 1. Drawings showing the well locations and boring/well completion logs for each completed well are enclosed with this report.

Summary

SCS personnel were onsite from March 10, 2021 through March 16, 2021 to observe drilling and installation of 13 new LFG extraction wells performed by DBM Contractors, Inc. (DBM). Observations of the cuttings from well drilling were logged for each boring and are included on the attached boring logs. The following table presents a summary of the completed well installation data.

Table 1: Summary of Well Completion

Well ID	Design ID	Surface Elevation (ft-msl)[1]	Well Material	ECY Well Tag[3]	Design Depth (ft)	Installed Depth (ft)	Length of Screen (ft)
WE-280	8-0305	848.2	HDPE	BLP-614	40.0	40.0	18.0
WE-281	9-0305	847.6	HDPE	BLP-615	40.0	40.5	18.0
WE-282	10-0305	847.4	HDPE	BLP-616	40.0	40.0	18.0
WE-283	11-0305	845.2	HDPE	BLP-617	40.0	42.0	18.0
WE-284	12-0305	842.4	HDPE	BLP-619	40.0	42.0	18.0
WE-285	13-0305	837.9	HDPE	BLP-620	40.0	43.0	18.0
WE-286	5-0305	779.7	HDPE	BLP-618	40.0	42.0	18.0
WE-287	6-0305	774.9	HDPE	BLP-622	40.0	41.0	18.0
WE-288	7-0305	768.5	HDPE	BLP-623	40.0	40.0	18.0
WE-290	3-0305	713.1	HDPE	BLP-625	40.0	41.0	18.0
WE-291	4-0305	714.3	HDPE	BLP-626	40.0	42.0	18.0
WE-292	2-0305	708.1	HDPE	BLP-621	34.0	33.5	12.0
WE-293	1-0305	703.4	HDPE	BLP-624	40.0	38.5	18.0

Notes:

1. Survey data provided by HRK Engineering & Field Services prior to drilling and installation. Elevations are for the original staked locations and do not account for minor relocation at time of installation.
2. ECY Well Tags were provided by DBM upon completion of each well.

LFG Extraction Well Drilling and Installation

The borings for the LFG extraction wells were drilled using an IMT AF240 drill rig with a 10 foot long, 36-inch diameter bucket auger. For each of the extraction wells, the borings were advanced to within 1.0 to 2.0 feet of the design depths. The extraction wells were then constructed using 6-inch diameter SDR 11 high-density polyethylene (HDPE) pipe and fittings. Backfill was completed with 2-inch minus round rock, hydrated bentonite chips, and clean soil as shown on the attached logs. All construction materials were provided by DBM and verified by SCS prior to use, with the exception of clean soil backfill which was obtained from onsite sources. Drilling and installation of each well was completed in one day. No boreholes were left open overnight.

The wells were completed with approximately 7 feet of pipe stickup above the ground surface to allow for grading and connection to the existing LFG collection system. Upon completion, each well was issued a Washington State Department of Ecology (ECY) Well Tag in accordance with state regulations.

The following variations to design were completed in conjunction with the well installations. Borings that were completed to within 2.0 feet of the design depth are not included on the following list.

- **WE-285** (13-0305): The boring was completed to 43.0 feet-bgs, exceeding the design depth by 3 feet, resulting in a clearance of 140.6 feet from the operations layer.
- **WE-292** (2-0305): The boring location was moved 20 feet east to be further away from the subgrade divide (berm) between Cell 7 and Cell 8A. The relocated boring was completed to 33.5 feet-bgs, resulting in a clearance of 10.2 feet from the operations layer.

Closing

If you have any questions regarding the information presented in this letter or the attached boring logs, please do not hesitate to contact us.

Sincerely,

Andres Lopez
Associate Professional
SCS Engineers

Alexa Deep, EIT
Staff Engineer
SCS Engineers

Kevin Lakey, PE, LHG,
Project Director
SCS Engineers

AL/AD

cc: David Bosch, TPCDH
Olivier Moi, LRI

Attachments:

LFG Extraction Boring/Well Completion Logs
Site Plan of Well Locations

Legend:

- E-1 Existing Vertical Gas Extraction Well
- OCE-1 Existing Odor Control Well
- HE-01 Existing Horizontal Gas Extraction Well
- LP4AN Existing Leachate Pipe Connection
- 01 2021 Vertical Gas Extraction Well

CELL 1

CELL 2A

CELL 2B

CELL 3A

CELL 4A

CELL 4B

CELL 5

CELL 6

CELL 7

CELL 8A

FUTURE CELL 8B

EXISTING PHASE I CLOSURE

EXISTING PHASE IIA CLOSURE

EXISTING PHASE IIB CLOSURE

EXISTING PHASE IIC CLOSURE

EXISTING PHASE IIIA CLOSURE

EXISTING PHASE IVA CLOSURE

FUTURE PHASE IVB CLOSURE

FLARE STATION

ENERGY PLANT

TRUCK WASH

SCALE HOUSE AND SCALES

OFFICE

FACILITY ENTRANCE

GENERAL NOTES:

1. EXISTING TOPOGRAPHY BY MILLER CREEK ASSOCIATES, SEATAC, WA. SURVEY DATE JANUARY 14, 2021. HORIZONTAL DATUM: ASSUMED LOCAL COORDINATE SYSTEM VERTICAL DATUM: BASED ON PIERCE COUNTY BENCH No 112-28, ELEVATION 660.29 NGVD 1929
2. LFG WELL LOCATIONS AND GCCS BY SCS ENGINEERS, BELLEVUE, WA. BASED ON AS-BUILT LOCATIONS AND FIELD LOCATION BY LRI STAFF. UPDATED FEBRUARY 15, 2021.

0 150 300 450

APPROXIMATE SCALE IN FEET

RECORD DRAWING

THIS DRAWING IS A RECORD COMPILING THE DESIGN INFORMATION, FIELD CHANGES, AND SURVEY INFORMATION USED DURING CONSTRUCTION OF THE FACILITY. THE INTENT IS TO PROVIDE THE OWNER WITH A DOCUMENT TO FACILITATE THE OPERATION, MAINTENANCE, AND POSSIBLE FUTURE MODIFICATIONS DURING THE LIFE OF THE FACILITY. THIS RECORD DRAWING MAY NOT BE AN EXACT AND PRECISE DEPICTION OF THE FACILITY. NEITHER SCS NOR THE PROFESSIONAL ENGINEER ASSUMES LIABILITY OR RESPONSIBILITY FOR ANY ACTION OR ACTIVITY BASED UPON THIS DRAWING. IF NECESSARY, FIELD VERIFY THE FEATURES ON THIS DRAWING.

NO.	REVISION	DATE
1	ISSUED FOR CLIENT REVIEW	3/8/2021
2	ISSUED FOR CONSTRUCTION	3/9/2021
3	ISSUED FOR RECORD DRAWING	4/19/2021

SHEET TITLE: SITE PLAN

PROJECT TITLE: 2021 GCCS EXPANSION - PART A

LRI LANDFILL
30919 MERIDIAN STREET EAST
GRAHAM, WASHINGTON 98338

SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX (503) 684-6948

PROJ. NO.	04220001.05
DSN. BY:	GDB
DWN. BY:	GDB
CHK. BY:	TAB
ACAD FILE:	2021-A LRILF GCCS RD-V2
APP. BY:	KGL

DATE: MARCH 2021

SCALE: AS SHOWN

FIGURE NO. 1

C:\Users\GABy\Box\Box_WIP\LRI Grants\GCCS\2021 GCCS PART A_2020\2021-A LRILF GCCS RD-v2.dwg, 1, 4/20/2021 10:30:08 AM, AutoCAD PDF (General Documentation).pc3

Legend:

- E-1 Existing Vertical Gas Extraction Well
- OCE-1 Existing Odor Control Well
- HE-01 Existing Horizontal Gas Extraction Well
- LP4AN Existing Leachate Pipe Connection
- 01 2021 Vertical Gas Extraction Well

CELL 1
CELL 2A
CELL 2B
CELL 3A
CELL 4A
CELL 4B
CELL 5
CELL 6
CELL 7
CELL 8A
FUTURE CELL 8B

EXISTING PHASE I CLOSURE
EXISTING PHASE IIA CLOSURE
EXISTING PHASE IIB CLOSURE
EXISTING PHASE IIC CLOSURE
EXISTING PHASE III CLOSURE
EXISTING PHASE IVA CLOSURE
FUTURE PHASE IVB CLOSURE

FLARE STATION
ENERGY PLANT
TRUCK WASH
SCALE HOUSE AND SCALES
OFFICE
FACILITY ENTRANCE

GENERAL NOTES:
1. EXISTING TOPOGRAPHY BY MILLER CREEK ASSOCIATES, SEATAC, WA. SURVEY DATE JANUARY 14, 2021. HORIZONTAL DATUM: ASSUMED LOCAL COORDINATE SYSTEM VERTICAL DATUM: BASED ON PIERCE COUNTY BENCH No 112-28, ELEVATION 660.29 NGVD 1929
2. LFG WELL LOCATIONS AND GCCS BY SCS ENGINEERS, BELLEVUE, WA. BASED ON AS-BUILT LOCATIONS AND FIELD LOCATION BY LRI STAFF. UPDATED FEBRUARY 15, 2021.

0 150 300 450
APPROXIMATE SCALE IN FEET

RECORD DRAWING

THIS DRAWING IS A RECORD COMPILING THE DESIGN INFORMATION, FIELD CHANGES, AND SURVEY INFORMATION USED DURING CONSTRUCTION OF THE FACILITY. THE INTENT IS TO PROVIDE THE OWNER WITH A DOCUMENT TO FACILITATE THE OPERATION, MAINTENANCE, AND POSSIBLE FUTURE MODIFICATIONS DURING THE LIFE OF THE FACILITY. THIS RECORD DRAWING MAY NOT BE AN EXACT AND PRECISE DEPICTION OF THE FACILITY. NEITHER SCS NOR THE PROFESSIONAL ENGINEER ASSUMES LIABILITY OR RESPONSIBILITY FOR ANY ACTION OR ACTIVITY BASED UPON THIS DRAWING. IF NECESSARY, FIELD VERIFY THE FEATURES ON THIS DRAWING.

NO.	REVISION	DATE
1	ISSUED FOR CLIENT REVIEW	3/8/2021
2	ISSUED FOR CONSTRUCTION	3/9/2021
3	ISSUED FOR RECORD DRAWING	4/19/2021

SHEET TITLE: SITE PLAN - TOP OF OPERATIONS LAYER

PROJECT TITLE: 2021 GCCS EXPANSION - PART A
LRI LANDFILL
30919 MERIDIAN STREET EAST
GRAHAM, WASHINGTON 98338

SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX (503) 684-6948

PROJ. NO. 04220001.05 | DWN. BY: GDB | ACAD FILE: 2021-A LRLF GCCS RD.dwg | APP. BY: KGL
DSN. BY: GDB | CHK. BY: TAB

DATE: MARCH 2021
SCALE: AS SHOWN
FIGURE NO. 2

C:\Users\GDB\gdb\Desktop_WIP\LRI [Admin]\CX\2021 GCCS PART A_20IN\2021-A LRLF GCCS RD-v2.dwg, 2, 4/19/2021 10:30:11 AM, AutoCAD PDF (General Documentation).pc3

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-280

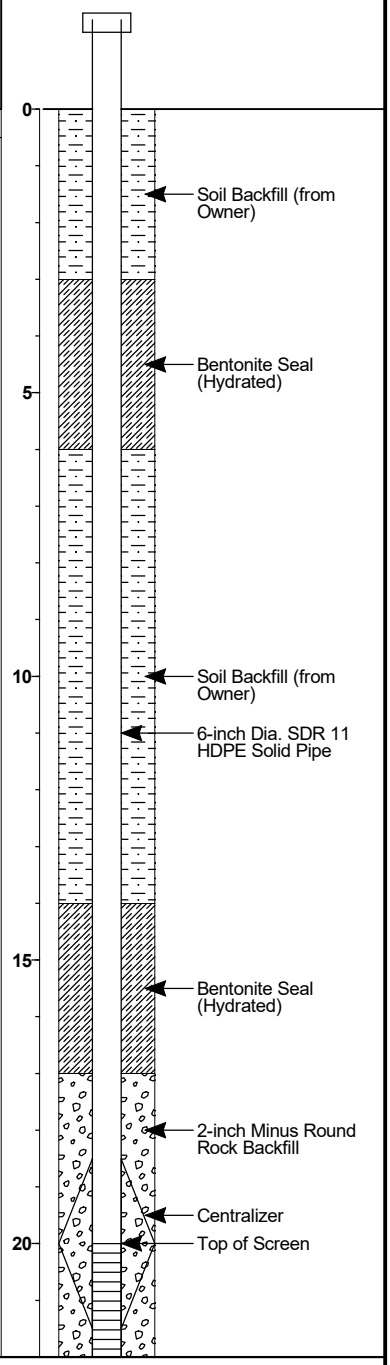
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-614. Drawing ID: 8-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5					REFUSE		Black-brown-grey refuse (paper, plastic) with soil, dry, mild decomposition.
	6							
2	7							
	8							
	9							
3	10					REFUSE		Brown-white refuse (plastic) with soil and wood, moist, mild decomposition, 82°F.
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20					REFUSE		Brown-black refuse (plastic, cardboard) with soil and wood, moist-wet, moderate decomposition, 74°F.
	21							
	22							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/10/21**
Date Ended: **3/10/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **08:39**
Time Ended: **10:15**
Total Depth: **40.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

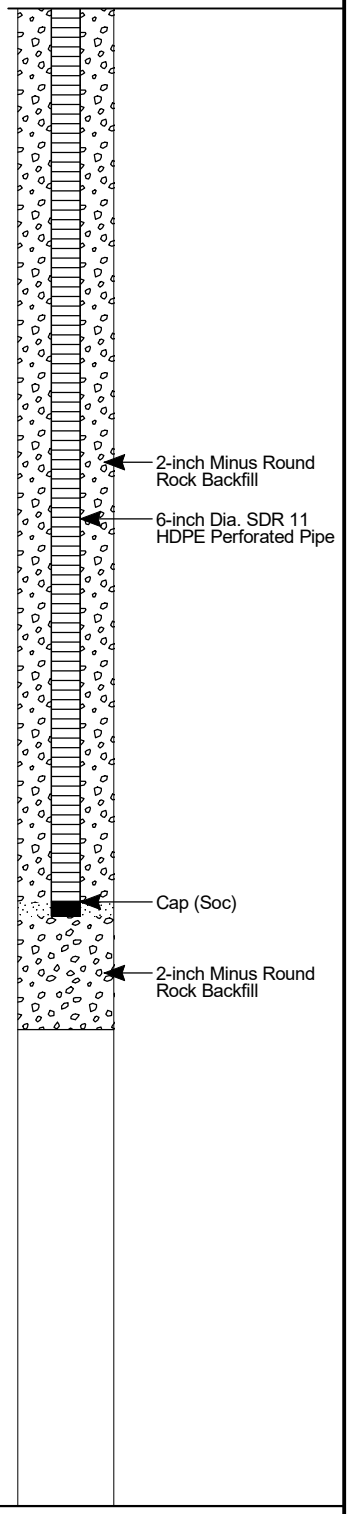
BORING NUMBER: WE-280

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	22–24							
	25					REFUSE		Black refuse with soil, wet, moderate-well decomposition, 79°F.
8	26–29							
9	30–32							
10	33–35							
11	36					REFUSE		Black refuse (plastic) with soil, moist-wet, moderate-well decomposition, 87°F.
	37–40							
12	39							
13	41–44							
14	45–48							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-281

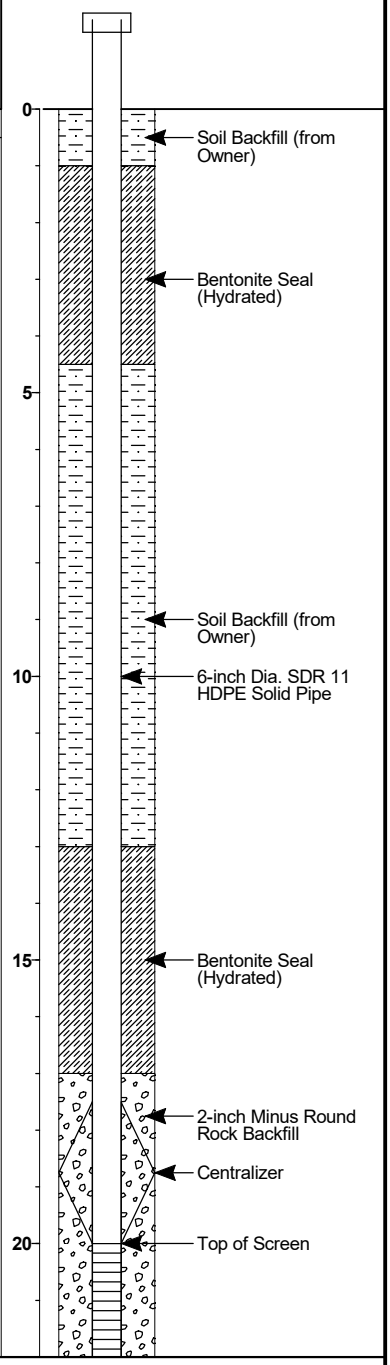
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-615. Drawing ID: 9-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10					REFUSE		Brown-white refuse (plastic) with soil, dry, mild decomposition, 77°F.
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
6	19							
	20							
	21							
	22							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/10/21**
Date Ended: **3/10/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **10:42**
Time Ended: **12:00**
Total Depth: **40.5 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

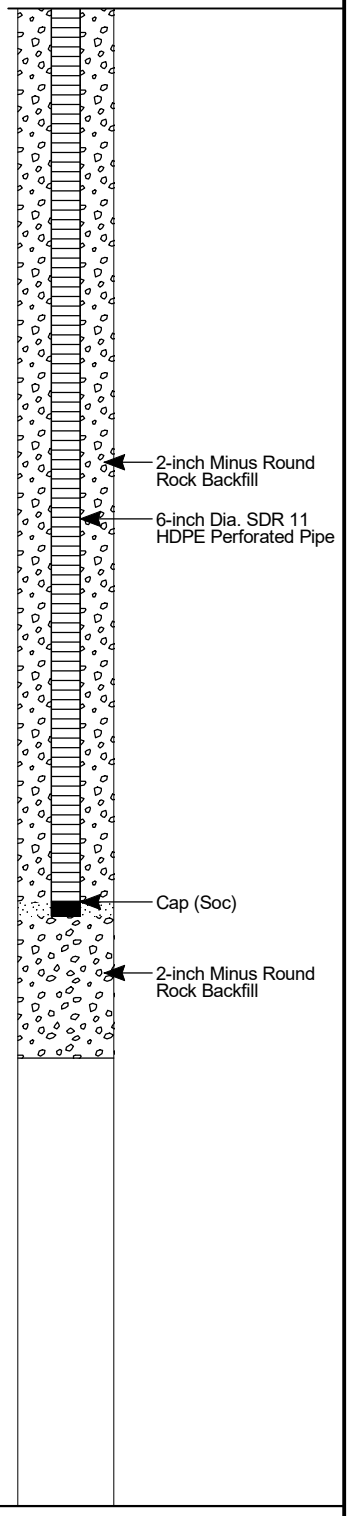
BORING NUMBER: WE-281

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	23					REFUSE		Black refuse (plastic, paper) with soil, moist-wet, moderate-well decomposition, 89°F.
9	30					REFUSE		Black refuse (plastic, fabric) with soil, moist-wet, moderate-well decomposition, 116°F.

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-282

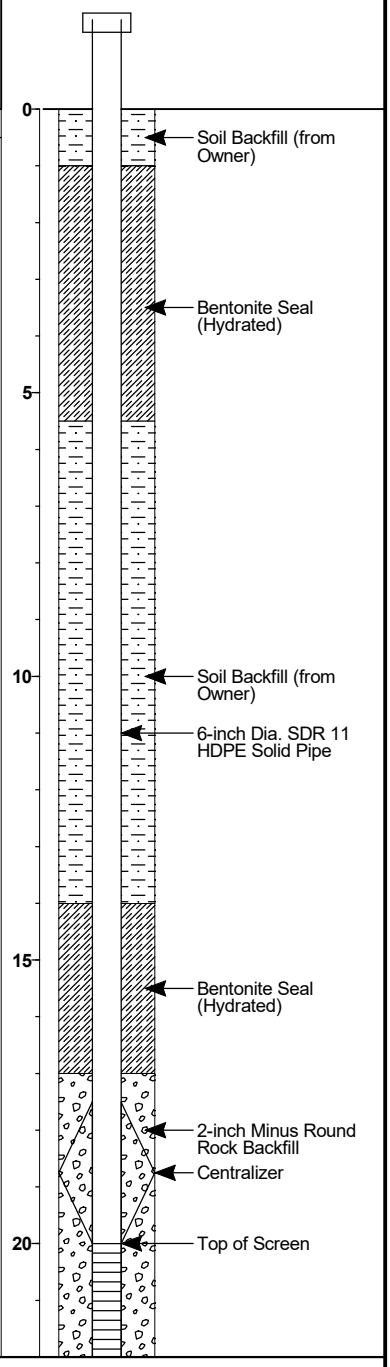
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-616. Drawing ID: 10-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10					REFUSE		Grey-brown refuse (paper, plastic) with soil, moist, mild decomposition, 78°F.
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
6	19							
	20							
	21					REFUSE		Brown-green-black refuse (plastic) with soil, moist, moderate decomposition, 108°F.
	22							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/10/21**
Date Ended: **3/10/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **12:07**
Time Ended: **13:25**
Total Depth: **40.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

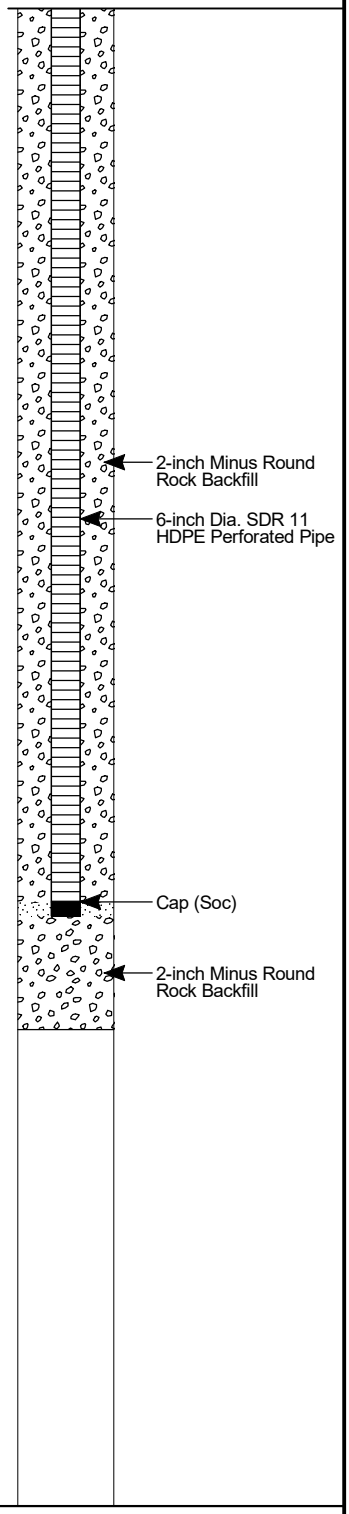
BORING NUMBER: WE-282

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	22–24							
	25–26							
8	27–28							
	29							
9	30–31							
	32							
10	33–34					REFUSE		Black refuse (plastic) with soil, moist, moderate-well decomposition, 126°F.
	35–36							
11	37–38							
	39							
12	40–41							
	42–43							
13	44–45							
	46							
14	47–48							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-283

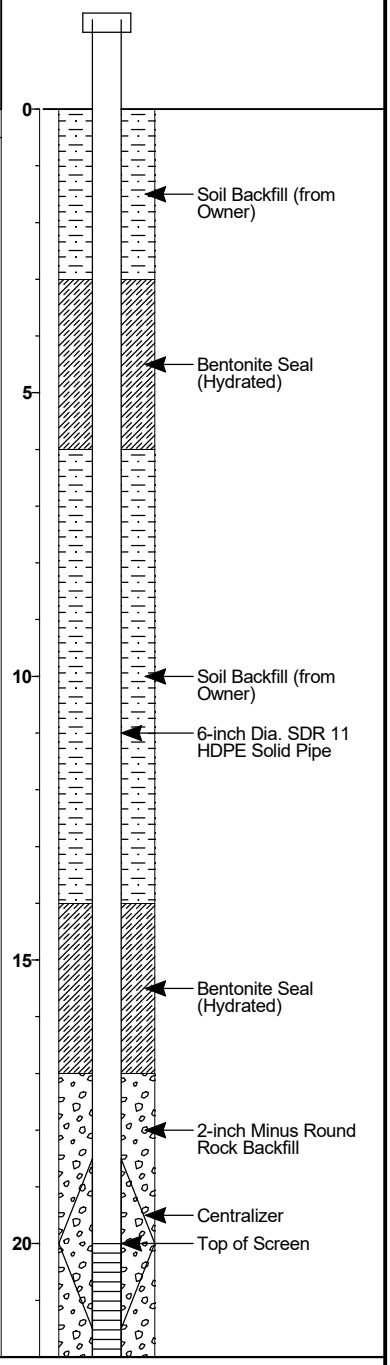
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-617. Drawing ID: 11-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5					REFUSE		Brown-grey refuse (plastic, fabric) with soil, dry-moist, mild decomposition.
	6							
2	7							
	8							
	9							
3	10							
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
6	19							
	20							
	21							
	22							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/11/21**
Date Ended: **3/11/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **08:20**
Time Ended: **09:40**
Total Depth: **42.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

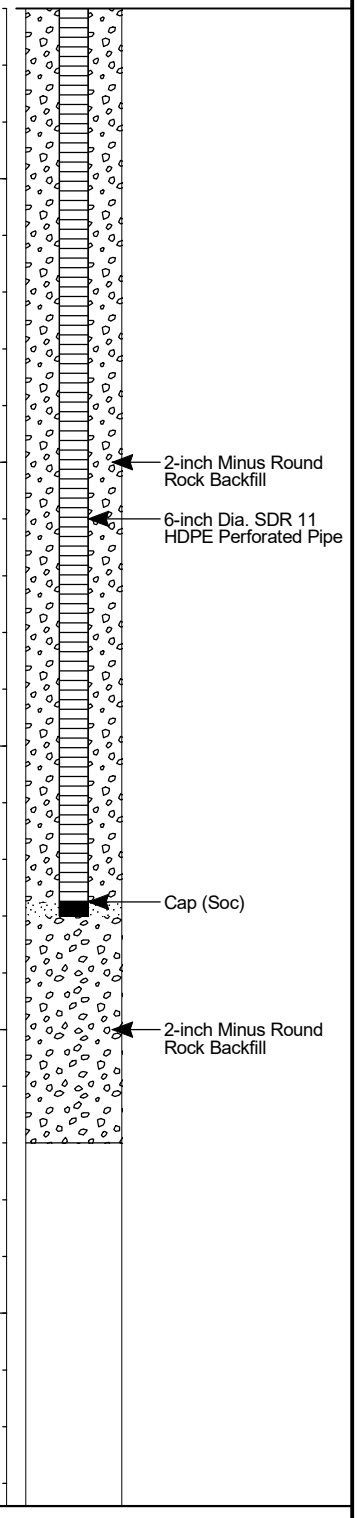
BORING NUMBER: WE-283

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	22–23							
	24–25							
8	26–27							
	28–29							
9	30–31							
	32					REFUSE		Black-brown refuse (plastic, fabric) with soil, wet, moderate decomposition, 110°F.
10	33							
	34					REFUSE		Black refuse (plastic) with soil, wet, moderate-well decomposition, 122°F.
11	35–36							
	37–38							
12	39–40							
	41–42							
13	43–44							
	45–46							
14	47–48							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-284

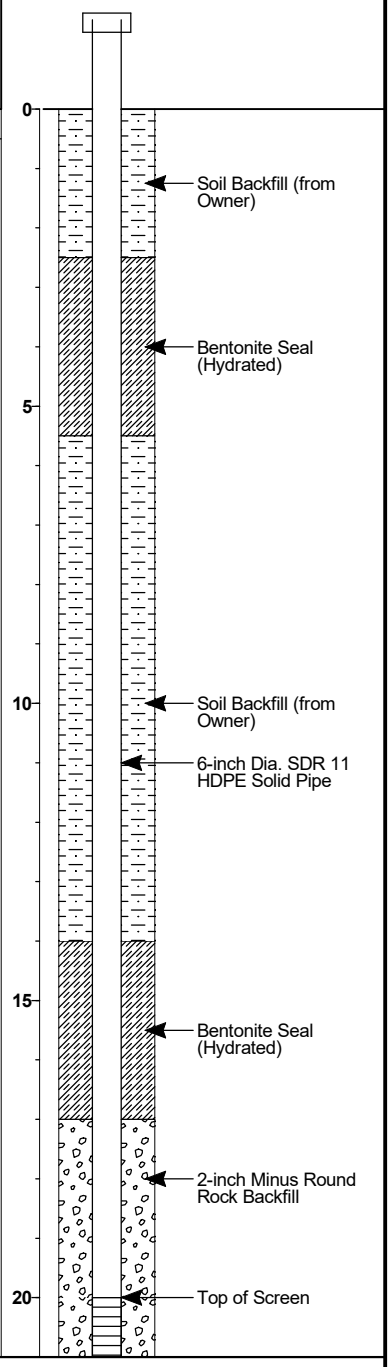
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-619. Drawing ID: 12-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10							
	11					REFUSE		Brown-grey refuse (plastic, styrofoam, wire) with soil, moist, mild decomposition, 76°F.
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20							
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/11/21**
Date Ended: **3/11/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **09:46**
Time Ended: **11:34**
Total Depth: **42.0 ft.**

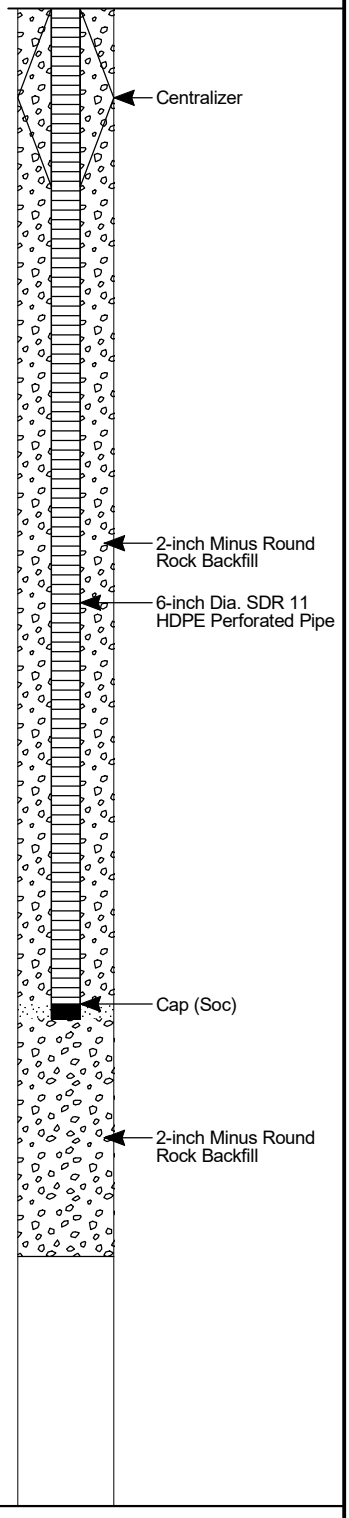
STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
	21							
	22							
7	23							
	24							
	25							
8	26					REFUSE		Black refuse (plastic) with soil, moist-wet, moderate-well decomposition, 119°F.
	27							
	28							
	29					REFUSE		Black refuse with soil, moist-wet, moderate-well decomposition, 104°F.
9	30							
	31							
	32							
10	33							
	34							
	35							
11	36							
	37					REFUSE		Black refuse with soil, moist-wet, moderate-well decomposition, 110°F.
	38							
12	39							
	40							
	41							
	42							
13	43							
	44							
	45							
14	46							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-285

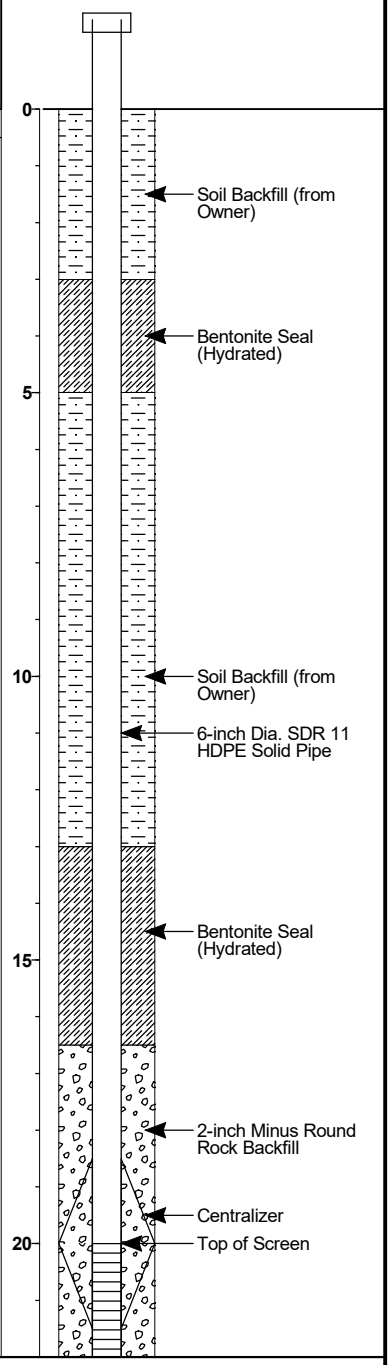
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-620. Drawing ID: 13-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10							
	11							
	12							
4	13							
	14							
	15							
5	16					REFUSE		Brown-grey-black refuse (plastic, fabric) with soil, moist-wet, moderate decomposition, 87°F.
	17							
	18							
	19							
6	20							
	21							
	22							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/11/21**
Date Ended: **3/11/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **11:21**
Time Ended: **13:10**
Total Depth: **43.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

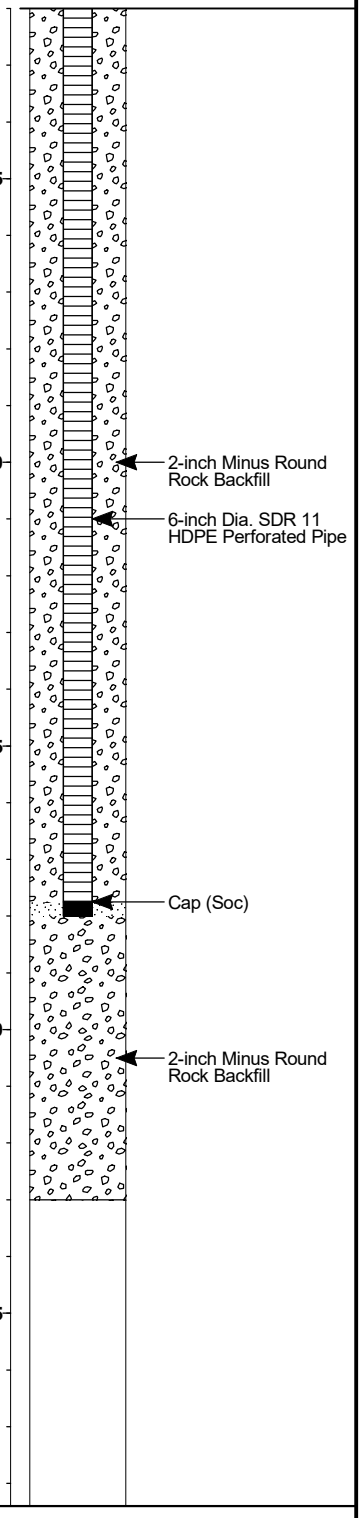
BORING NUMBER: WE-285

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	22–23							
	24							
	25							
8	26							
	27							
	28					REFUSE		Brown-green refuse (paper, plastic) with soil, moist, moderate decomposition, 109°F.
	29							
9	30							
	31							
	32							
10	33							
	34							
	35							
11	36							
	37							
	38							
12	39					REFUSE		Brown-white-black refuse (plastic) with soil, moist, moderate decomposition, 113°F.
	40							
	41							
13	42							
	43							
	44							
14	45							
	46							
	47							
	48							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-286

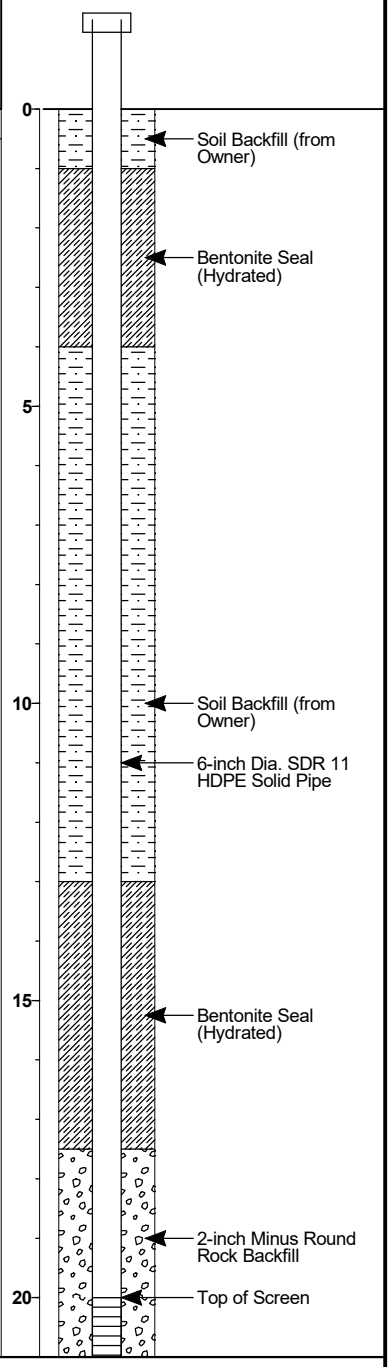
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-618. Drawing ID: 5-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9					REFUSE		Brown-black refuse (paper) with soil and wood, dry-moist, mild decomposition, 58°F.
3	10							
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20							
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/12/21**
Date Ended: **3/12/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **08:07**
Time Ended: **09:30**
Total Depth: **42.0 ft.**

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

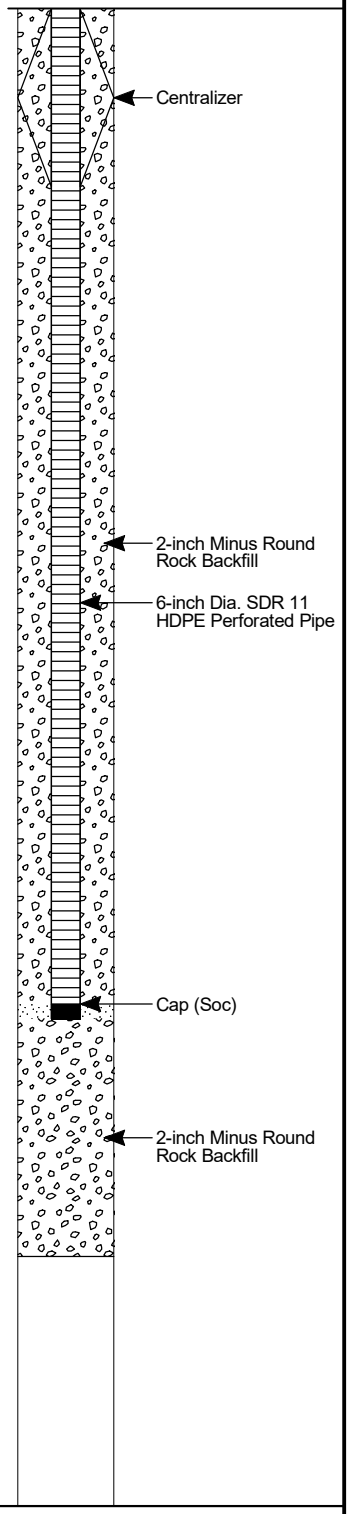
BORING NUMBER: WE-286

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
	21							
	22					SM-GM		Grey-green-brown soil with clay, moist, no decomposition, 76°F.
7	23							
	24							
	25							
8	26							
	27							
	28							
	29							
9	30							
	31							
	32							
10	33					REFUSE		Brown-black refuse (plastic) with soil, moist-wet, moderate decomposition, 96°F.
	34							
	35							
11	36							
	37							
	38					REFUSE		Black refuse (plastic) with soil, wet, moderate decomposition, 97°F.
12	39							
	40							
	41							
	42							
13	43							
	44							
	45							
14	46							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-287

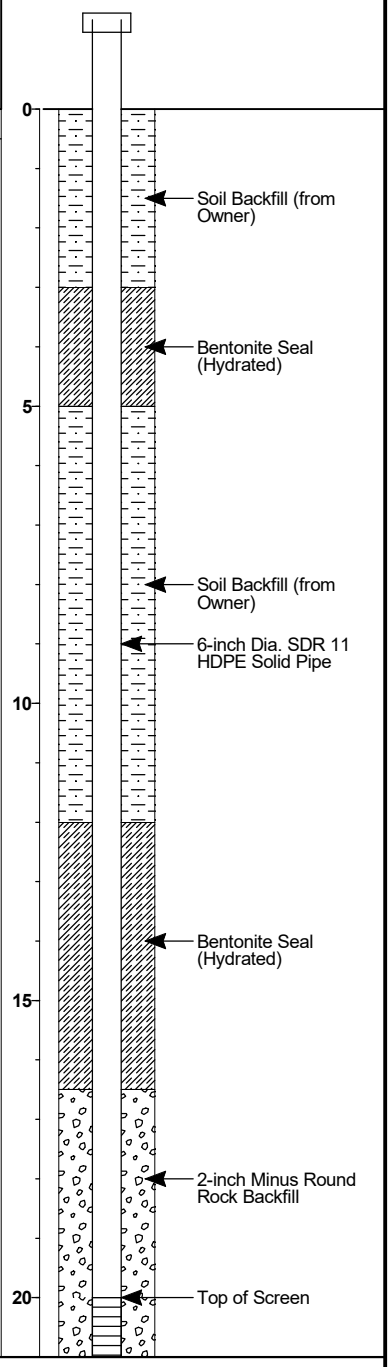
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-622. Drawing ID: 6-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10							
	11							
	12							
4	13					SM-GM		Brown soil, dry, no decomposition, 70°F.
	14							
	15							
5	16							
	17							
	18							
	19							
6	20					REFUSE		Brown-black refuse (plastic) with soil and wood, moist, mild-moderate decomposition, 87°F.
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/12/21**
Date Ended: **3/12/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **09:35**
Time Ended: **11:00**
Total Depth: **41.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-287

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
	21							
	22							
7	23							
	24							
	25							
8	26							
	27							
	28							
	29							
9	30							
	31							
	32					REFUSE		Brown-green refuse (plastic, fabric, styrofoam) with soil and wood, moist, moderate decomposition, 87°F.
10	33							
	34							
	35							
11	36							
	37							
	38							
12	39							
	40							
	41					SM-GM		Black-brown soil, moist, no decomposition, 100°F. End of boring.
13	42							
	43							
	44							
	45							
14	46							

Completion Detail

- Centralizer
- 2-inch Minus Round Rock Backfill
- 6-inch Dia. SDR 11 HDPE Perforated Pipe
- Cap (Soc)
- 2-inch Minus Round Rock Backfill

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-288

LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-623. Drawing ID: 7-0305. 7 ft-bgs stickup.

Depth		Sample Information							Completion Detail
meters	feet	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description	
0	0					SM-GM		Brown soil, dry.	0
	1					REFUSE			Soil Backfill (from Owner)
	2								
	3								
1	4								Bentonite Seal (Hydrated)
	5								5
	6								
2	7								
	8								Soil Backfill (from Owner)
	9								6-inch Dia. SDR 11 HDPE Solid Pipe
3	10								10
	11								
	12								
4	13								
	14								
	15								Bentonite Seal (Hydrated)
5	16								15
	17								
	18								2-inch Minus Round Rock Backfill
	19								
6	20								Top of Screen 20
	21								

Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/12/21**
Date Ended: **3/12/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **10:34**
Time Ended: **12:10**
Total Depth: **40.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

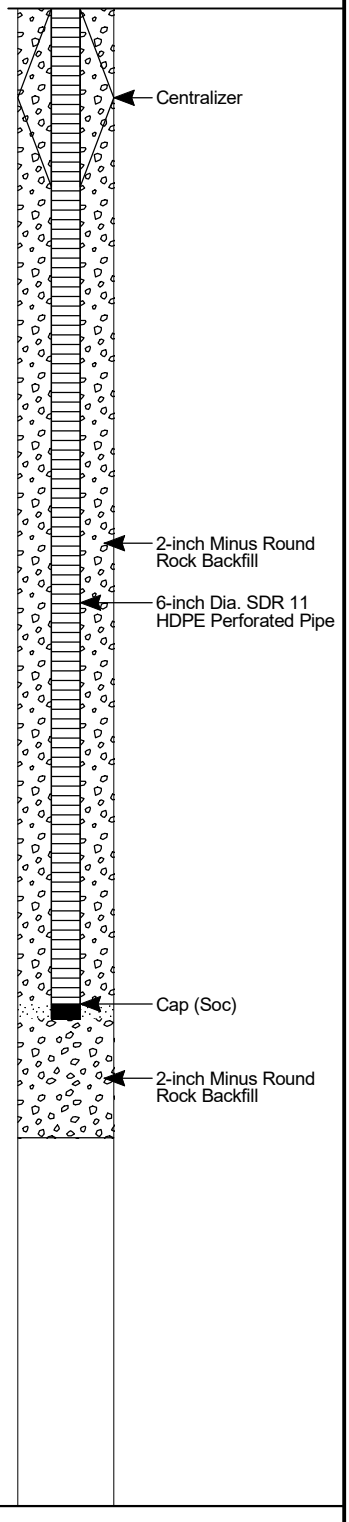
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-288

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
	21							
	22					REFUSE		Brown-grey-black refuse (plastic, paper) with soil, moist, moderate decomposition, 76°F.
7	23							
	24							
	25							
8	26							
	27					REFUSE		Black-brown refuse (plastic) with soil and wood, moist, moderate decomposition, 87°F.
	28							
	29							
9	30							
	31							
	32							
10	33							
	34							
	35					REFUSE		Brown-green refuse (plastic, paper) with soil, moist, moderate decomposition, 90°F.
11	36							
	37							
	38							
12	39							
	40							
	41							
	42							
13	43							
	44							
	45							
14	46							



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-290

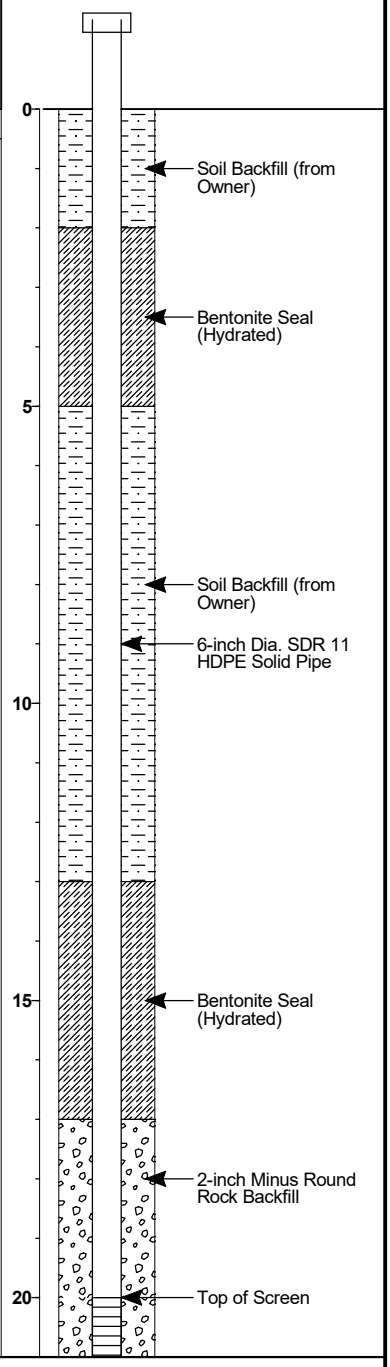
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-625. Drawing ID: 3-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8					REFUSE		Black refuse (plastic, fabric) with soil and wood, moist, mild decomposition, 70°F.
	9							
3	10							
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20							
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/15/21**
Date Ended: **3/15/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **10:22**
Time Ended: **12:35**
Total Depth: **41.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

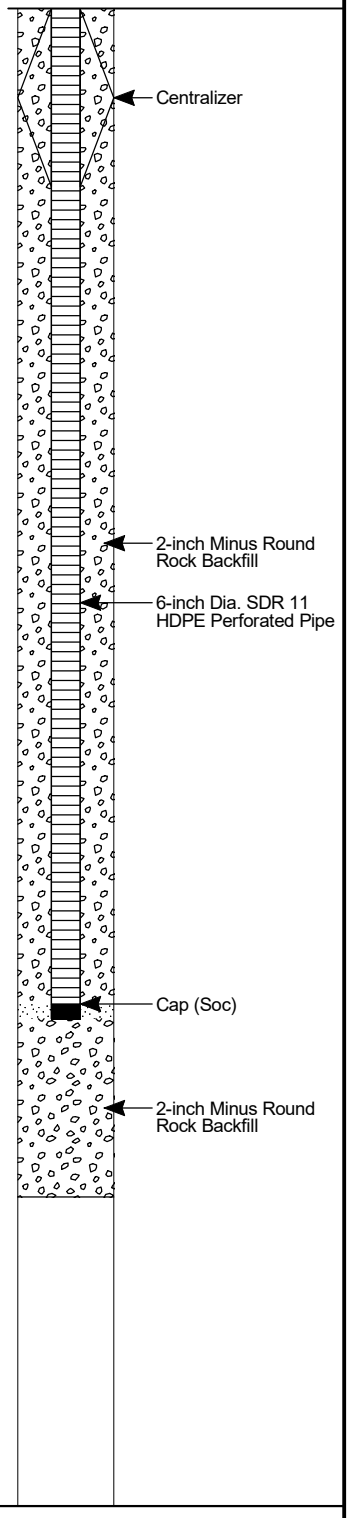
BORING NUMBER: WE-290

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
	21					REFUSE		Black-brown refuse (plastic, paper) with soil, moist, moderate decomposition, 112°F.
7	22							
	23							
	24							
	25							
8	26							
	27							
	28							
	29							
9	30							
	31							
	32							
10	33							
	34							
	35							
11	36							
	37					REFUSE		Black-brown refuse (plastic, cardboard) with soil, moist, moderate-well decomposition, 114°F.
	38							
	39							
12	40							
	41							
	42							
13	43							
	44							
	45							
14	46							

Completion Detail



SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-291

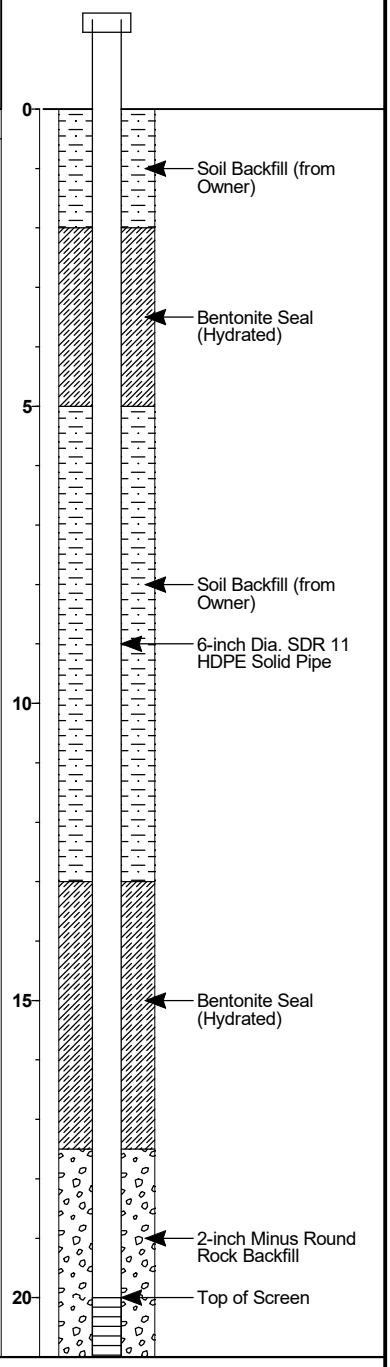
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-626. Drawing ID: 4-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10							
	11							
	12					REFUSE		Black refuse (plastic, wire) with soil, moist-wet, mild-moderate decomposition, 76°F.
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20							
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/15/21**
Date Ended: **3/15/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **12:16**
Time Ended: **13:42**
Total Depth: **42.0 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

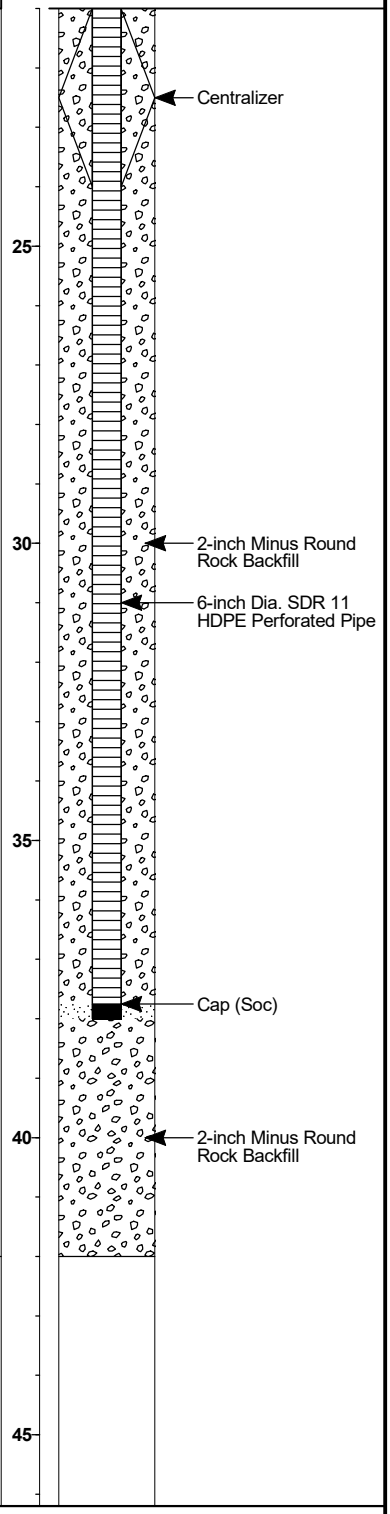
BORING NUMBER: WE-291

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	21–23							
8	24–27							
	28					REFUSE		Black refuse with soil and wood, wet-saturated, moderate-well decomposition, 115°F.
9	29–30							
10	31–34							
11	35–37							
	38					REFUSE		Black refuse with soil, wet-saturated, well decomposition, 127°F.
12	39–40							
13	41–43							
14	44–46							

Completion Detail



STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-292

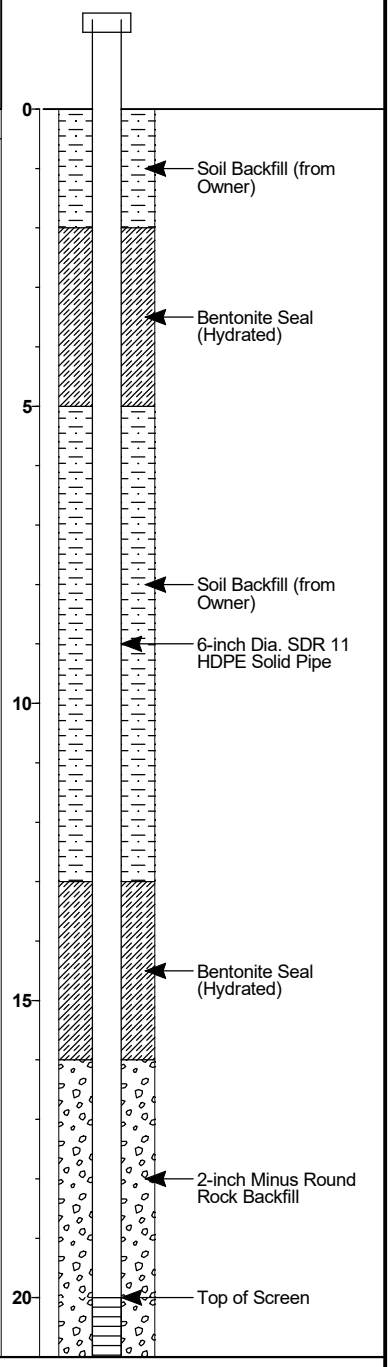
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-621. Drawing ID: 2-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		Multicolor refuse (plastic, textiles) with soil, moist, mild decomposition.
	2							
1	3							
	4							
	5							
	6							
2	7							
	8							
	9							
3	10							
	11							
	12							
4	13							
	14							
	15					REFUSE		Multicolor refuse (plastic, textiles) with soil, moist, 87°F.
5	16							
	17							
	18							
	19							
6	20					REFUSE		Multicolor refuse (plastic, textiles) with soil, moist, 83°F.
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **T.Berndahl**

Date Started: **3/16/21**
Date Ended: **3/16/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**

Time Started: **08:23**
Time Ended: **09:34**
Total Depth: **33.5 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

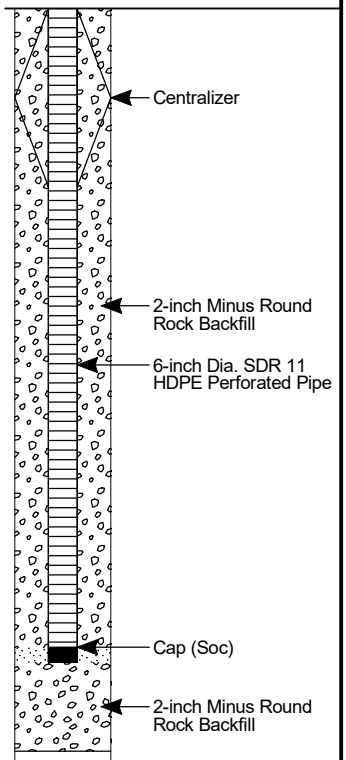
BORING NUMBER: WE-292

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	21–23							
8	24–26							
9	27–30					REFUSE		Multicolor refuse (plastic, textiles) with soil, moist-wet, 101°F.
10	31–33					REFUSE		Multicolor refuse (plastic, textiles) with soil, wet, 102°F. End of boring.
11	34–36							
12	37–39							
13	40–43							
14	44–46							

Completion Detail



STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-293

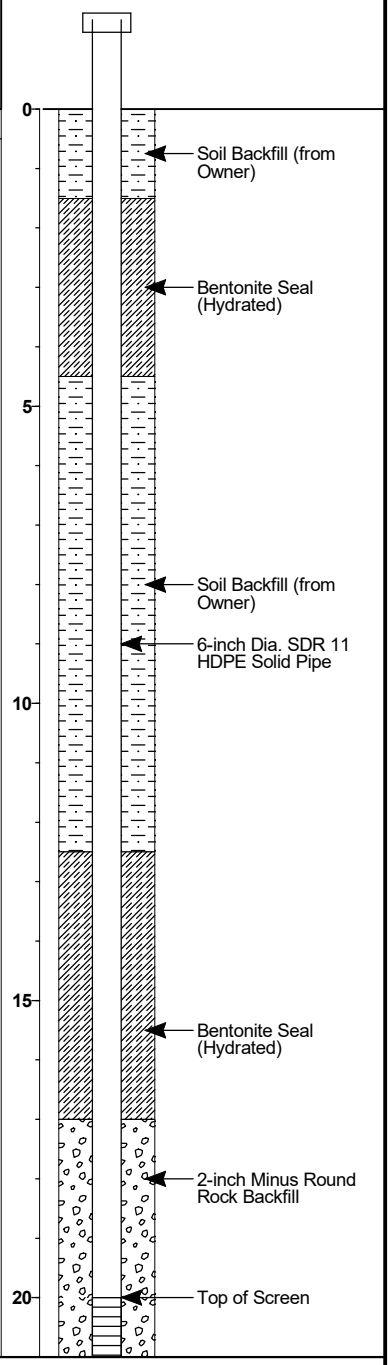
LRI Landfill, Gas Wells, March 2021
30919 Meridian East
Graham, Washington

JOB NUMBER: 04221001.10

REMARKS:
Start Card BLP-624. Drawing ID: 1-0305. 7 ft-bgs stickup.

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0					SM-GM		Brown soil, dry.
	1					REFUSE		
	2							
	3							
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10					REFUSE		Brown-green refuse (paper, plastic, fabric) with soil, mosit, mild decomposition.
	11							
	12							
4	13							
	14							
	15							
5	16							
	17							
	18							
	19							
6	20							
	21							

Completion Detail



Drilling Company: **DBM Contractors, Inc.**
Drilling Method: **IMT AF-240**
Logged By: **A.Lopez**

Date Started: **3/15/21**
Date Ended: **3/15/21**
Boring Diameter: **36-inch**
Well Diameter: **6-inch**
Time Started: **08:27**
Time Ended: **10:00**
Total Depth: **38.5 ft.**

STANDARD_LOG 04221001.10 - LRI 304 GAS WELLS MAR 2021.GPJ STD_LOG.GDT 4/12/21

SCS ENGINEERS

BORING LOG

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005-1877

BORING NUMBER: WE-293

LRI Landfill, Gas Wells, March 2021

JOB NUMBER: 04221001.10

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
7	23					REFUSE		Brown-black refuse (paper, plastic) with soil, wet, moderate decomposition, 96°F.
12	39					REFUSE		Black-brown refuse (plastic, paper) with soil, moist-wet, moderate-well decomposition, 92°F. End of boring.

Completion Detail