

First Quarter 2020 Monitoring Report

LRI Landfill

Graham, Washington

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



SCS ENGINEERS

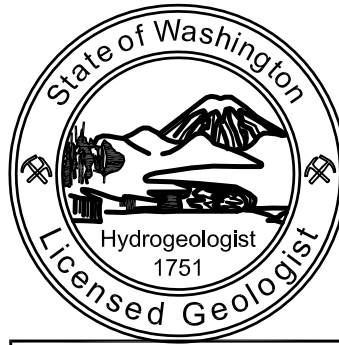
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This document is the First Quarter 2020 Monitoring Report for the LRI Landfill located in Graham, Washington. Activities this quarter included monitoring the volume and specific conductance of water pumped from the leak detection/collection system, 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.



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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
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Attachment G: Groundwater and LDCS Time Trend Plots
Attachment H: LDCS Pumping Records and Conductivity Measurements
Attachment I: Surface Water Data
Attachment J: Landfill Gas Data

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GROUNDWATER MONITORING

First Quarter 2020 groundwater samples were collected on March 16 and March 17, 2020. Additional samples were collected from LDCS-5, LDCS-6, and LDCS-7 on January 30 and from LDCS-7 on February 28, 2020. Leachate samples were collected from Cell 7 on January 31 and March 17, 2020. Water level elevations were measured on March 17, 2020. Nine monitoring wells (MW-1A, MW-2A, MW-3, MW-4, MW-5A, MW-6, MW-7, MW-9, and MW-10) were sampled 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 with the exception of 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 included in Attachment B: 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 included 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. Copies of the laboratory reports were submitted to the TPCD 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 wells monitored 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 measured values during the First Quarter, except as noted below.

Increased concentrations of chloride, sulfate, total dissolved solids (TDS), dissolved calcium and dissolved magnesium noted in the sample collected at MW-2A during the Fourth Quarter of 2019, decreased in the sample collected during the First Quarter 2020 monitoring event. Beginning in 2017, chloride has displayed fluctuating concentrations at MW-2A. However, primary leachate indicator parameters, acetone and 2-butanone, have been non-detect and the secondary indicator parameter, ammonia, has remained low. Therefore, the fluctuation in chloride concentrations does not appear to be related to leachate.

Slight increases in concentrations of alkalinity, TDS, dissolved calcium, and dissolved magnesium were noted at MW-3 in the sample collected during the First Quarter 2020 monitoring event. However, primary indicator parameters, acetone and 2-butanone, were non-detect and secondary indicator parameters, ammonia and chloride, remained low. Therefore, the increases in select parameter concentrations does not appear to be related to leachate.

Reported detections of inorganic parameters and metals measured at downgradient monitoring wells were less than or equal to the groundwater quality criteria listed in WAC 173-200-040, with the exceptions shown in Table 1. The highest concentrations of chloride and nitrate in the uppermost aquifer continue to be observed in background well MW-10.

Table 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	**	**	**	0.0093	0.0053	0.0074	0.0050
Iron, Dissolved	0.30	1.8	0.91	*	*	*	*	*
Manganese, Dissolved	0.05	0.24	0.32	0.44	0.23	0.20	0.19	0.23
Notes: Concentrations listed as mg/L = milligrams per liter ** = Not detected above the method reporting limit (MRL), but the 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 Table 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 and 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.

The measured value for pH at background well MW-10 (6.39 SU) was below the WAC 173-200-040 criteria of 6.5 during the First Quarter monitoring event. Since MW-10 is a background (upgradient) monitoring well, the low pH value is interpreted to be representative of natural groundwater quality.

Low-level detections of ammonia (<0.19 mg/L) were reported at several downgradient monitoring wells during this monitoring event. Similar low-level ammonia detections are typically reported, 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 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, with the exception of MW-10, during this monitoring event. Because MW-10 is a background (upgradient) monitoring well, the exceedance is not interpreted to be the result of leachate.

Graphical plots of the 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 volatile organic compounds (VOCs) were detected in groundwater samples collected from monitoring wells this quarter.

LEAK DETECTION/COLLECTION SYSTEM (LDCS) MONITORING

LDCS Maintenance. The vault and riser pipe at LDCS-5 were cleaned and pressure washed on March 5, 2020 by DrainPro using potable water. The pumps and water-level transducer were temporarily removed to perform the work. The water-level transducer was re-installed following completion. The sample pump was retained for further cleaning. Silt and bacteria were removed from the riser pipe.

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.

Conductivity probe readings at LDCS-5 malfunctioned beginning on October 4, 2019. LRI is currently addressing the cause of inaccurate data at this location.

Conductivity data from the remaining LDCS sumps trended within typical historical levels during the First Quarter of 2020.

LDCS Quarterly Monitoring. LDCS samples were collected from the leak detection sumps 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. Additional samples to monitor water quality trends were collected from LDCS-5, LDCS-6, and LDCS-7 on January 30 and from LDCS-7 on February 28, 2020. Samples for laboratory testing were submitted to TestAmerica of Denver, Colorado. Field and laboratory data results are included on the groundwater summary tables in Attachment B.

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

A low-level detection of 1,4-Dichlorobenzene was reported in the sample collected from LDCS-1 (0.51 µg/L). 1,4-Dichlorobenzene was also reported in the sample collected from LDCS-1 at a concentration of 0.58 µg/L during the Third Quarter of 2019. Similar to the Third Quarter result, the primary leachate indicator parameters of acetone and 2-butanone were non-detect and the secondary indicator parameters of chloride and ammonia remained low. Therefore, the sporadic VOC detections at LDCS-1 do not appear to be related to leachate.

The sample collected from LDCS-4A displayed an elevated concentration of total iron (4.1 mg/L), and the LDCS-4A results for chloride display a slowly increasing trend (see Attachment G). However, the primary leachate indicator parameters, acetone and 2-butanone, were non-detect, and 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).

The LDCS-4B results for chloride display a slowly increasing trend. However, the primary leachate indicator parameters, acetone and 2-butanone, were non-detect, and the overall water quality results do not indicate a leachate impact (see the piper plots in Attachment E). As a precautionary measure, water from LDCS-4B has been discharged into the leachate collection system since July 26 of 2019.

Water quality samples collected from LDCS-5 in January and March continue 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. However, elevated concentrations of the inorganic parameters and metals listed above are indicative of a potential leachate leak.

Recent pressure testing of the leachate forcemains adjacent to Cell 5 indicate that the forcemain piping is not leaking. Therefore, to further investigate the possibility of a leachate leak, the geomembrane liner and the geomembrane boots surrounding the three leachate riser pipes will be inspected this summer during the soil placement project associated with the construction of Cell 8A. 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.

The sample collected from LDCS-6 included reported detections of 1,1-dichloroethene (0.96 µg/L) and vinyl chloride (1.3 µg/L). Similar detections of these VOC's were reported in the sample collected from LDCS-6 during the fourth quarter 2019 monitoring event. LDCS-6 was re-sampled on January 30, 2020 and on April 21, 2020. No VOCs were detected in the January or April samples. Primary leachate indicator parameters, acetone and 2-butanone, were non-detect and secondary leachate indicator parameters ammonia (0.12 mg/L) and chloride (7.2 mg/L) remained low. Therefore, the reported VOC detections do not appear to be related to landfill leachate.

As reported in the 2019 Annual Monitoring Report, the background water quality at LDCS-7 includes detections of VOC's and elevated concentrations of inorganic parameters and metals. Therefore, additional groundwater samples were collected from LDCS-7 on January 30 and February 28, as well as the normal first quarter sample collected on March 16, 2020. Low level concentrations of carbon disulfide (up to 4.6 µg/L) were reported in each of the samples. In addition, the sample collected on January 30 included a reported detection of toluene at 3.0 µg/L. Toluene was also reported in the LDCRS-7 sample collected on December 16, 2019. In addition, relatively elevated concentrations were reported for chloride (up to 77 mg/L), sulfate (up to 140 mg/L), TDS (up to 940 mg/L), total organic carbon (up to 21 mg/L), and dissolved calcium (up to 200 mg/L), manganese (up to 2.7 mg/L), magnesium (up to 69 mg/L), and sodium (up to 56 mg/L). Since carbon disulfide, toluene and elevated concentrations were detected at LDCS-7 prior to the placement of refuse in the cell, the reported detections appear to be related to background water quality.

Graphical plots of the LDCS 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).

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. Consistent with the requirements of Agreed Order 16272, construction stormwater treatment using Chitosan Sand Enhanced Filtration (CESF) began in September of 2019, and industrial stormwater treatment using CESF began in December of 2019. Construction stormwater was treated and discharged into the 36-inch diameter drainage pipe that leads to the stormwater detention pond. Discharge Monitoring Reports (DMR's) were submitted to Ecology on a monthly (Construction Permit) and quarterly (Industrial Permit) basis. Copies of the First Quarter 2020 DMR's are included in Attachment I.

LEACHATE MONITORING

Leachate volumes were monitored using the automated PLC system and through direct measurements by LRI site personnel. 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 Table 2.

Table 2. 2020 Leachate Volume Data

Month	Leachate Trucked Offsite for Proper Disposal (gallons)	Monthly Rainfall (inches)
January	3,876,603	8.04
February	4,125,075	3.73
March	3,388,407	5.13
Totals	11,390,085	16.90

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 23, February 10, and March 19 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-1, GP-2, GP-10P, and GP-12 (see Table 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 does not result in the migration of landfill gas to the property line.

Table 3. 2020 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 23	5.0	17.7	0.0	0.0	0.0	0.0	21.2	0.0	19.1	0.6	0.0	0.0	0.0
February 10	1.5	16.6	0.1	0.1	0.1	0.1	21.5	0.0	0.1	0.8	0.1	0.1	0.1
March 19	0.7	15.3	0.0	0.0	0.0	0.9	18.8	0.0	0.1	0.8	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 February 25. 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). A trace level of methane (1.1 parts per million) was recorded within the pay booth. This level of detection could be the result of cleansers used in the pay booth.

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

LANDFILL GAS EXTRACTION WELL CONSTRUCTION

No vertical extraction wells were constructed during this quarter. However, vertical extraction wells WE-259 and WE-260 that were constructed in 2019, were connected to the landfill gas collection and control system (GCCS) for the first time during the current reporting period. Additionally,

temporary wells TW-19 through TW-45 were constructed and connected to the GCCS during the current reporting period.

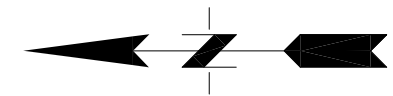
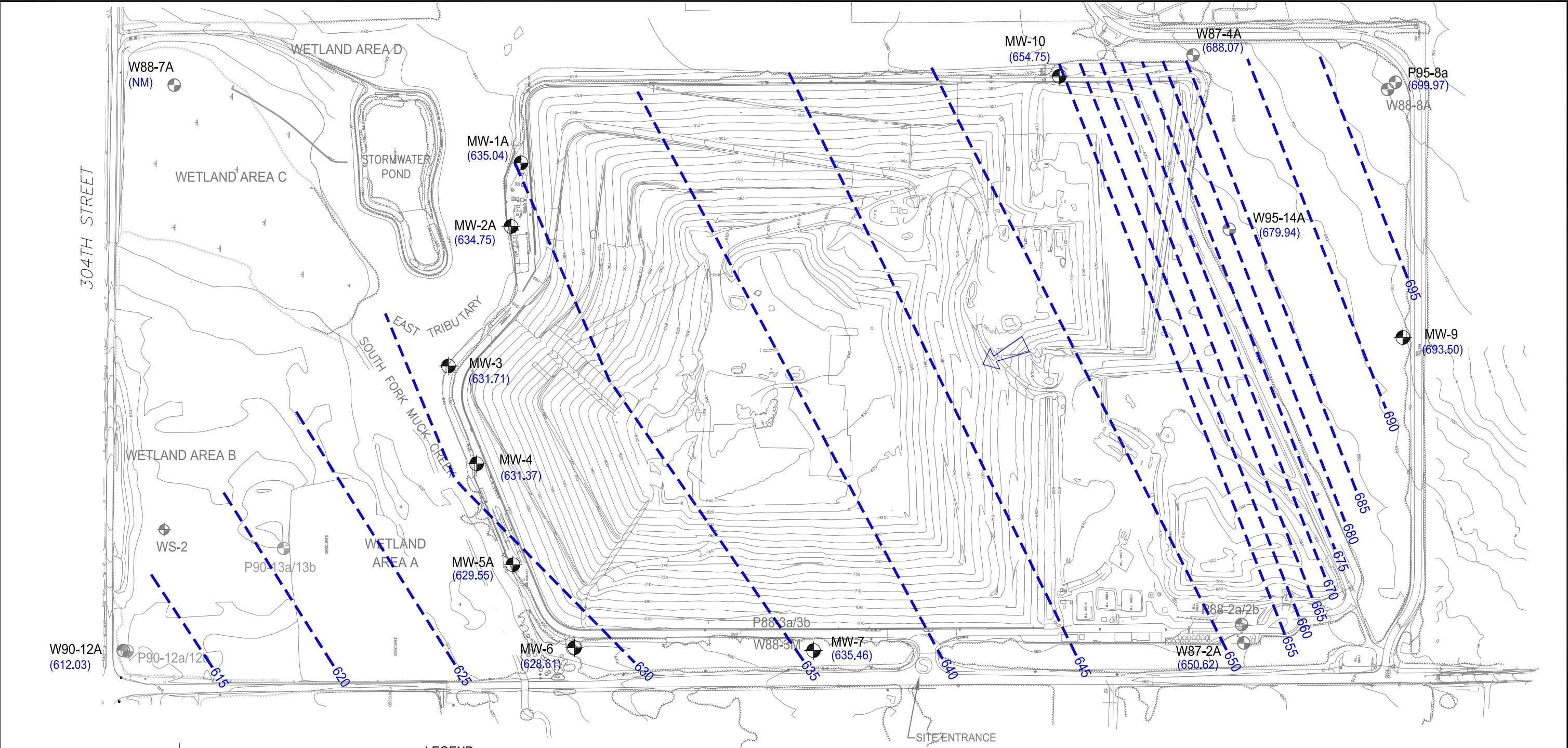
No other construction activity related to the landfill gas extraction wells was performed during this quarter.

GROUNDWATER MONITORING WELL CONSTRUCTION AND MAINTENANCE

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

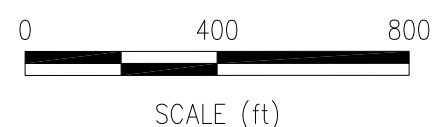
Attachment A

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
 - (650.62) GROUNDWATER ELEVATION (IN FEET ABOVE MSL)
 - INFERRED GROUNDWATER FLOW DIRECTION
 - (NM) NOT MEASURED



SCS ENGINEERS Environmental Consultants and Contractors 2405 140th Avenue NE, Suite 107 Bellevue, Washington 98005 (425) 746-4600 FAX: (425) 746-6747			PROJECT NO. 04220001.02	DES BY SG	POTENTIOMETRIC SURFACE CONTOUR MAP MARCH 17, 2020 LRI LANDFILL 30919 MERIDIAN STREET E. GRAHAM, WASHINGTON	DATE MAY 2020
			SCALE AS SHOWN	CHK BY KGL		FIGURE 1
			CAD FILE	APP BY KGL		
			FIGURE 1			

Attachment B

Groundwater Data Summary Tables

**Table 1. Groundwater Level Elevations
March 17, 2020
LRI Landfill, Pierce County, Washington**

Location	Well Casing Elevation (ft)	Depth to Water (ft)	Water Level Elevation (ft, NGVD29)
Wells			
W87-2A	664.01	13.39	650.62
W87-4A	693.29	5.22	688.07
W88-3M	658.11	12.88	645.23
W88-7A	632.51	NM*	--
W88-8M	721.05	38.92	682.13
W90-12A	640.84	28.81	612.03
W95-14A	680.49	0.55	679.94
MW-1A	652.57	17.53	635.04
MW-2A	651.93	17.18	634.75
MW-3	637.41	5.70	631.71
MW-4	652.37	21.00	631.37
MW-5A	655.55	26.00	629.55
MW-6	635.71	7.10	628.61
MW-7	656.03	20.57	635.46
MW-9	701.77	8.27	693.50
MW-10	678.37	23.62	654.75
Piezometers			
P13-14A	665.96	NM**	--
P88-2A	663.96	NM*	--
P88-2B	663.48	NM*	--
P88-3A	656.20	10.97	645.23
P88-3B	655.98	14.41	641.57
P95-8A	722.07	22.10	699.97
P90-12A	640.79	3.81	636.98
P90-12B	640.73	2.77	637.96
P90-13A	645.19	NM*	--
P90-13B	643.63	NM*	--
GP-1P ^b	652.00	16.06	635.94
GP-2P ^b	658.61	15.85	642.76
GP-3P ^b	658.51	11.39	647.12
GP-4P ^b	662.01	9.04	652.97
GP-9P ^b	674.03	11.07	662.96
GP-16 ^b	689.51	NM**	--
South Creek			
SWSC-1	632.68	0.98	631.70
SWSC-2	629.98	5.92	624.06
Leak Detection System			
LDCS-1 ^a	657.26	25.90	631.36
LDCS-2A ^a	659.24	29.00	630.24
LDCS-2B ^a	661.70	26.40	635.30

Notes:

NM= not measured

-- = not applicable

Measurements taken on 3/17/2020 unless otherwise noted

a = LDCS measurements taken on 3/16/2020

b = Gas probe measurements taken on 3/19/2020

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

** = Water level probe too large to fit into well casing

**Table 2. Field Parameters
First Quarter 2020
LRI Landfill, Pierce County, Washington**

Location	Sample Number	Sample Date	Sampling Method	pH	Conductivity	Temperature
Units WAC 173-200 Criteria				(SU) 6.5-8.5	(μS/cm) 700 ^b	(°C) —
Monitoring Wells						
MW-1A	304-031620-01	3/16/2020	DP	6.91	171	12.7
MW-2A	304-031620-03	3/16/2020	DP	7.07	282	12.4
MW-3	304-031620-05	3/16/2020	DP	7.07	433	10.2
MW-4	304-031720-21	3/17/2020	SP	7.64	346	12.4
MW-5A	304-031620-07	3/16/2020	DP	7.52	418	12.0
MW-6	304-031620-13	3/16/2020	DP	7.65	324	10.5
MW-7	304-031620-11	3/16/2020	DP	7.42	378	10.4
MW-9	304-031720-15	3/17/2020	DP	6.77	135	9.4
MW-10	304-031720-17	3/17/2020	DP	6.39	269	10.5
Leak Detection System						
LDCS-1	304-031620-10	3/16/2020	DB	6.33	383	23.1
LDCS-2A	304-031620-08	3/16/2020	DB	7.46	787	21.2
LDCS-2B	304-031620-06	3/16/2020	DB	6.97	684	20.2
LDCS-3A	304-031620-04	3/16/2020	DP	6.51	816	18.2
LDCS-4A	304-031620-12	3/16/2020	DP	6.41	806	22.2
LDCS-4B	304-031620-14	3/16/2020	DP	6.38	989	26.7
LDCS-5 [^] (1/30/2020)	304-013020-02	1/30/2020	DP	6.47	713	17.4
LDCS-5 (3/17/2020)	304-031720-16	3/17/2020	DP	6.68	946	20.2
LDCS-6 [^] (1/30/2020)	304-013020-01	1/30/2020	DP	6.52	978	9.7
LDCS-6 (3/17/2020)	304-031720-18	3/17/2020	DP	6.88	904	13.0
LDCS-7 [^] (1/30/2020)	304-013020-03	1/30/2020	DP	6.52	1,525	9.1
LDCS-7 [^] (2/28/2020)	304-022820-01	2/28/2020	DP	6.06	1,410	13.1
LDCS-7 (3/16/2020)	304-031620-02	3/16/2020	DP	6.41	1,283	8.9
Leachate Collection System						
Leachate, Cell 7 ^{^^}	304-013120-01	1/31/2020	GB	6.15	1,384	10.8
Leachate, Cell 7	304-031720-19	3/17/2020	GB	5.69	5,805	10.9

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

SP = submersible pump

SU = standard units

μS/cm = microsiemens per centimeter

[^] = Additional samples collected from LDCS-5, LDCS-6 and LDCS-7 to monitor water quality trends

^{^^} = Additional sample collected from Leachate, Cell 7 to monitor leachate quality trends

**Table 3. Inorganic Parameters
First Quarter 2020
LRI Landfill, Pierce County, Washington**

Parameter	Alkalinity, Total	Ammonia	Chloride	Nitrate	Sulfate	Total Dissolved Solids	Total Organic Carbon	Total Suspended Solids
MRL	10	0.1-2.2	0.2-60	0.50	0.2-2.5	10-47	1-21	4.0
WAC 173-200 Criteria	—	—	250	10	250	500	—	—
Prediction Limit	—	—	—	6.4	—	—	—	—
Monitoring Wells								
MW-1A	95	*	1.9	*	3.5	140	*	4.0
MW-2A	130	0.12	3.5	*	13	190	*	*
MW-3	200	0.14	3.5	*	27	260	1.2	*
MW-4	160	*	3.3	*	11	210	1.1	*
MW-5A	190	0.17	3.7	*	21	240	1.0	*
MW-6	160	0.11	5.1	*	7.4	200	*	*
MW-7	200	0.19	3.0	*	3.5	220	*	*
(BG) MW-9	69	*	1.6	*	1.8	120	*	*
(BG) MW-10	100	*	7.8	3.7	7.0	190	*	22
Leak Detection System								
LDCS-1	200	0.13	4.2	*	7.0	240	3.2	—
LDCS-2A	410	*	3.5	*	23	470	2.6	—
LDCS-2B	300	*	5.4	*	59	410	2.3	—
LDCS-3	380	*	5.3	*	77	510	1.7	—
LDCS-4A	350	0.24	24	*	50	480	5.3	—
LDCS-4B	390	0.44	39	*	97	600	3.2	—
LDCS-5^ (1/30/2020)	280	11	42	*	37	370	4.9	—
LDCS-5 (3/17/2020)	350	7.6	45	*	59	500	5.7	—
LDCS-6^ (1/30/2020)	450	*	9.5	*	83	590	2.6	—
LDCS-6 (3/17/2020)	440	*	10	*	70	560	2.7	—
LDCS-7^ (1/30/2020)	610	*	77	*	140	940	21	—
LDCS-7^ (2/28/2020)	520	*	28	*	68	680	9.2	*
LDCS-7 (3/16/2020)	600	0.18	58	*	90	810	8.2	—
Leachate Collection System								
Leachate, Cell 7^^ (1/31/2020)	410	27	78	* H	63	1,200	420	—
Leachate, Cell 7 (3/17/2020)	2,400	230	490	0.51	200	6,800	3,000	—

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 TestAmerica of Denver, Colorado

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

^ = Additional samples collected from LDCS-5, LDCS-6 and LDCS-7 to monitor water quality trends

^^ = Additional sample collected from Leachate, Cell 7 to monitor leachate quality trends

* = 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 2020
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	0.005-0.0062	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	—	*	—	*	—	0.021	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
MW-2A	—	*	—	*	—	0.014	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
MW-3	—	*	—	*	—	0.015	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
MW-4	—	*	—	0.0093	—	0.016	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	0.027	
MW-5A	—	*	—	0.0053	—	0.014	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
MW-6	—	*	—	0.0074	—	0.012	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
MW-7	—	*	—	0.0050	—	0.015	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	
(BG) MW-9	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	0.015	—	*	
(BG) MW-10	—	*	—	*	—	0.015	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	0.034	
Leak Detection System																															
LDCS-1	*	—	0.0082	—	0.019	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-2A	*	—	0.0064	—	0.010	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-2B	*	—	*	—	0.012	—	—	—	—	—	*	—	0.0011	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-3	*	—	*	—	0.016	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-4A	*	—	0.0094	—	0.033	—	—	—	—	—	*	—	0.0021	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-4B	*	—	0.0053	—	0.038	—	—	—	—	—	*	—	*	—	*	—	*	—	*	—	—	—	—	—	—	—	—	*	—	*	—
LDCS-5^ (1/30/2020)	*	—	0.0130	—	0.060	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-5 (3/17/2020)	*	—	0.0095	—	0.066	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-6^ (1/30/2020)	*	—	*	—	0.017	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-6 (3/17/2020)	*	—	*	—	0.021	—	*	—	*	—	*	—	0.0015	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-7^ (1/30/2020)	*	—	*	—	0.050	—	*	—	*	—	*	—	0.0064	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-7^ (2/28/2020)	*	—	*	—	0.025	—	*	—	*	—	*	—	0.0039	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
LDCS-7 (3/16/2020)	*	—	*	—	0.037	—	*	—	*	—	*	—	0.0060	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*	—	*
Leachate Collection System																															
Leachate, Cell 7^^ (1/31/2020)	—	*	—	0.0053	—	0.17	—	*	—	*	—	0.015	—	0.034	—	0.013	—	0.0030	—	0.052	—	*	—	*	—	*	—	0.0081	—	0.48	
Leachate, Cell 7 (3/17/2020)	—	*	—	0.0170	—	0.53	—	*	—	*	—	0.056	—	0.099	—	0.020	—	0.0062	—	0.230	—	*	—	*	—	*	—	0.0530	—	1.10	

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 TestAmerica of Denver, Colorado
Method Reporting Limit (MRL) is typical and may be elevated for some samples
^ = Additional samples collected from LDCS-5, LDCS-6 and LDCS-7 to monitor water quality trends
^^ = Additional sample collected from Leachate, Cell 7 to monitor leachate quality trends
* = sample result was not reported at or above the MRL
— = not applicable or not performed
BG = Background

**Table 5. WAC 173-351 Appendix II Metals (Dissolved)
First Quarter 2020
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	2.0-2.4	1.0-3.7
WAC 173-200 Criteria	—	0.30	—	0.050	—	—
Monitoring Wells						
MW-1A	15	1.8	9.3	0.24	3.7	12
MW-2A	23	0.91	12	0.32	3.4	16
MW-3	49	*	21	0.44	4.6	15
MW-4	31	*	17	0.23	5.5	11
MW-5A	32	0.10	13	0.20	4.6	37
MW-6	35	*	16	0.19	5.1	10
MW-7	35	0.19	23	0.23	5.6	12
(BG) MW-9	11	*	7.0	*	2.0	7.2
(BG) MW-10	26	*	11	*	2.2	12
Leak Detection System						
LDCS-1	39	0.49	16	1.6	4.9	17
LDCS-2A	90	*	36	0.013	9.3	29
LDCS-2B	79	*	30	0.63	6.4	18
LDCS-3	99	*	42	0.86	5.7	22
LDCS-4A	75	4.1	48	2.4	6.0	23
LDCS-4B	110	0.63	48	1.1	7.2	29
LDCS-5^ (1/30/2020)	56	1.9	25	1.8	13	40
LDCS-5 (3/17/2020)	78	1.1	41	1.9	12	44
LDCS-6^ (1/30/2020)	120	*	40	0.45	3.7	27
LDCS-6 (3/17/2020)	120	*	44	1.1	4.0	26
LDCS-7^ (1/30/2020)	200	*	69	2.7	4.2	56
LDCS-7^ (2/28/2020)	150 B	*	33	1.5	2.1	31
LDCS-7 (3/16/2020)	180	0.21	54	2.5	3.5	43
Leachate Collection System**						
Leachate, Cell 7^^ (1/31/2020)	140	14	27	4.1	25	80
Leachate, Cell 7 (3/17/2020)	590	95	130	16	200	480

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 TestAmerica of Denver, Colorado

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

^ = Additional samples collected from LDCS-5, LDCS-6 and LDCS-7 to monitor water quality trends

^^ = Additional sample collected from Leachate, Cell 7 to monitor leachate quality trends

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

** = Reported concentrations for leachate are total metals

— = not applicable or not performed

BG = Background

B = Compound found in the sample and the blank

Table 7. Cation-Anion Balance
First Quarter 2020
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
MW-1A	15	9.3	3.7	12	40	0.75	0.77	0.08	0.52	2.12	29	35
MW-2A	23	12	3.4	16	54.4	1.15	0.99	0.08	0.70	2.91	27	39
MW-3	49	21	4.6	15	89.6	2.45	1.73	0.10	0.65	4.93	15	50
MW-4	31	17	5.5	11	64.5	1.55	1.40	0.12	0.48	3.55	17	44
MW-5A	32	13	4.6	37	86.6	1.60	1.07	0.10	1.61	4.38	39	36
MW-6	35	16	5.1	10	66.1	1.75	1.32	0.12	0.44	3.61	15	48
MW-7	35	23	5.6	12	75.6	1.75	1.89	0.13	0.52	4.29	15	44
MW-9	11.0	7.0	2.0	7.2	27.2	0.55	0.58	0.05	0.31	1.48	24	37
MW-10	26	11	2.2	12	51.2	1.30	0.91	0.05	0.52	2.77	21	47
LDCS-1	39	16	4.9	17	76.9	1.95	1.32	0.11	0.74	4.11	21	47
LDCS-2A	90	36	9.3	29	164.3	4.49	2.96	0.21	1.26	8.93	16	50
LDCS-2B	79	30	6.4	18	133.4	3.94	2.47	0.14	0.78	7.34	13	54
LDCS-3	99	42	5.7	22	168.7	4.94	3.46	0.13	0.96	9.48	11	52
LDCS-4A	75	48	6.0	23	152	3.74	3.95	0.14	1.00	8.83	13	42
LDCS-4B	110	48	7.2	29	194.2	5.49	3.95	0.16	1.26	10.86	13	51
LDCS-5A (1/30/2020)	56	25	13	40	134.0	2.79	2.06	0.29	1.74	6.89	30	41
LDCS-5 (3/17/2020)	78	41	12	44	175.0	3.89	3.37	0.27	1.91	9.45	23	41
LDCS-6A (1/30/2020)	120	40	3.7	27	190.7	5.99	3.29	0.08	1.17	10.54	12	57
LDCS-6 (3/17/2020)	120	44	4.0	26	194.0	5.99	3.62	0.09	1.13	10.83	11	55
LDCS-7A (1/30/2020)	200	69	4.2	56	329.2	9.98	5.68	0.09	2.44	18.19	14	55
LDCS-7A (2/28/2020)	150	33	2.1	31	216.1	7.49	2.72	0.05	1.35	11.60	12	65
LDCS-7 (3/16/2020)	180	54	3.5	43	280.5	8.98	4.44	0.08	1.87	15.38	13	58
Leachate, Cell 7A (1/31/2020)	140	27	25	80	272	6.99	2.22	0.56	3.48	13.25	31	53
Leachate, Cell 7 (3/17/2020)	590	130	200	480	1,400	29.44	10.70	4.52	20.88	65.54	39	45
Anions	mg/L				meq/L				% of Total			
	Alk	Cl	NO ₃	SO ₄	Total	Alk	Cl	NO ₃	SO ₄	Total	Cl	Alk
MW-1A	114	1.9	0.5	3.5	119.9	1.87	0.05	0.008	0.07	2.00	3	93
MW-2A	156	3.5	0.5	13	173	2.56	0.10	0.008	0.27	2.94	3	87
MW-3	240	3.5	0.5	27	271	3.94	0.10	0.008	0.56	4.60	2	85
MW-4	192	3.3	0.5	11	206.8	3.15	0.09	0.008	0.23	3.48	3	91
MW-5A	228	3.7	0.5	21	253.2	3.74	0.10	0.008	0.44	4.29	2	87
MW-6	192	5.1	0.5	7.4	205	3.15	0.14	0.008	0.15	3.45	4	91
MW-7	240	3.0	0.5	3.5	247	3.94	0.08	0.008	0.07	4.10	2	96
MW-9	82.8	1.6	0.5	1.8	86.7	1.36	0.05	0.008	0.04	1.45	3	94
MW-10	120	7.8	3.7	7.0	138.5	1.97	0.22	0.060	0.15	2.39	9	82
LDCS-1	240	4.2	0.5	7.0	251.7	3.94	0.12	0.008	0.15	4.21	3	94
LDCS-2A	492	3.5	0.5	23	519	8.07	0.10	0.008	0.48	8.65	1	93
LDCS-2B	360	5.4	0.5	59	424.9	5.90	0.15	0.008	1.23	7.29	2	81
LDCS-3	456	5.3	0.5	77	538.8	7.48	0.15	0.008	1.60	9.24	2	81
LDCS-4A	420	24	0.5	50	494.5	6.89	0.68	0.008	1.04	8.61	8	80
LDCS-4B	468	39	0.5	97	605	7.68	1.10	0.008	2.02	10.80	10	71
LDCS-5A (1/30/2020)	336	42	0.5	37	416	5.51	1.18	0.008	0.77	7.47	16	74
LDCS-5 (3/17/2020)	420	45	0.5	59	525	6.89	1.27	0.008	1.23	9.39	14	73
LDCS-6A (1/30/2020)	540	9.5	0.5	83	633	8.86	0.27	0.008	1.73	10.86	2	82
LDCS-6 (3/17/2020)	528	10	0.5	70	609	8.66	0.28	0.008	1.46	10.41	3	83
LDCS-7A (1/30/2020)	732	77	0.5	140	950	12.00	2.17	0.008	2.91	17.10	13	70
LDCS-7A (2/28/2020)	624	28	0.5	68	721	10.23	0.79	0.008	1.41	12.45	6	82
LDCS-7 (3/16/2020)	720	58	0.5	90	869	11.81	1.64	0.008	1.87	15.32	11	77
Leachate, Cell 7A (1/31/2020)	492	78	0.5	63	634	8.07	2.20	0.008	1.31	11.59	19	70
Leachate, Cell 7 (3/17/2020)	2,860	490	0.51	200	3,571	47.23	13.82	0.008	4.16	65.22	21	72

Notes:
 meq/L = milligrams per liter
 meq/L = milliequivalents per liter
 Total alkalinity concentration, reported as calcium carbonate (CaCO₃), is converted to the bicarbonate (HCO₃⁻) ion by multiplying by a factor of 1.2
 A = Additional samples collected from LDCS-5, LDCS-6 and LDCS-7 to monitor water quality trends
 A = Additional sample collected from Leachate, Cell 7 to monitor leachate quality trends
 The MWL was used for analyses that were non-defect
 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 2020 Monitoring Report
LRI Landfill, Pierce County, Washington

Parameter	MRL	MW-5A	MW-5A (Duplicate)	RPD (%)
Volatile Organic Compounds (µg/L)				
No Detections	-	-	-	-
Inorganic Parameters (mg/L)				
Alkalinity, Bicarbonate (as CaCO ₃)	10	190	190	0.0
Ammonia	0.1	0.17	0.15	12.5
Chloride	0.2	3.7	3.6	2.7
Sulfate	0.2	21	21	0.0
Total Dissolved Solids	10	240	250	4.1
Total Organic Carbon	1.0	1.0	1.1	9.5
Dissolved Metals (mg/L)				
Calcium	0.2	32	32	0.0
Iron	0.1	0.10	0.19	62.1
Magnesium	0.1	13	13	0.0
Manganese	0.005	0.2	0.2	0.0
Potassium	2.0	4.6	4.6	0.0
Sodium	1.0	37	40	7.8
Total Metals (mg/L)				
Arsenic	0.005	0.0053	0.0054	1.9
Barium	0.005	0.014	0.014	0.0

Notes:

Analyses performed by TestAmerica of Denver, Colorado

VOCs 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 18, 2020
File No. 04220001.02

Subject: **First Quarter 2020 Groundwater Monitoring Event
LRI Landfill, Pierce County, Washington**

NOTES/SAMPLE DECODING:

Event Dates: March 16 & 17, 2020

Field Staff: Sam Graber & Travis Berndahl

- 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-6, and LDCS-7.
- Disposable bailers were used to sample leak detection/collection system points LDCS-1, LDCS-2A, and LDCS-2B.
- A non-dedicated Sample Pro pump was used for purging and sampling well MW-4.
- The sample collected from LDCS-5 in March was collected as a grab sample from the channel discharge spigot. The sampling pump was not operational during the monitoring event.
- A round of water level measurements was completed on March 17, 2020.
- Additional samples were collected from LDCS-5 and LDCS-6 during the First Quarter to monitor water quality trends.
- Additional samples were collected from LDCS-7 and Leachate, Cell 7 during the First Quarter in order to establish background water quality trends and monitor leachate quality, respectively.
- 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
304-031620-01	MW-1
304-031620-02	LDCS-7
304-031620-03	MW-2A
304-031620-04	LDCS-3
304-031620-05	MW-3
304-031620-06	LDCS-2B

304-031620-07	MW-5A
304-031620-08	LDCS-2A
304-031620-09	MW-5A (Duplicate)
304-031620-10	LDCS-1
304-031620-11	MW-7
304-031620-12	LDCS-4A
304-031620-13	MW-6
304-031620-14	LDCS-4B
304-031720-15	MW-9
304-031720-16	LDCS-5
304-031720-17	MW-10
304-031720-18	LDCS-6
304-031720-19	Leachate, Cell 7
304-031720-20	Field Blank
304-031720-21	MW-4

Additional Samples

Sample Number	Well Number
304-013020-01	LDCS-6^
304-013020-02	LDCS-5^
304-013020-03	LDCS-7*
304-013120-01	Leachate, Cell 7**
304-022820-01	LDCS-7*

Notes:

^ = Additional sample collected to monitor water quality trends.

* = Additional sample collected from LDCS-7 to establish background concentrations.

** = Additional sample collected from Leachate, Cell 7 to monitor leachate quality.

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(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: MW-1

Sample ID: 304-0316 20-01

Date: 3/16/20

Weather: Sunny

Filtered? ☒ N

Locked? ☒ Y

Water in Protector? ☒ Y

Sample Containers:

1000 ml Poly	500 ml Poly	500 ml HNO3	x2	500 ml H2SO4	x2	125 ml NaOH
--------------	-------------	-------------	----	--------------	----	-------------

Sampling Method: DTW

17.66

DTW

TOS

Intake

BOS

Total Depth

Water in Protector? ☒ Y

500 ml Poly

500 ml H2SO4

x2

125 ml NaOH

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
903		12.5	190	6.00	7.13	256.6	6.70	
908		12.7	86	2.67	6.50	264.1	7.53	
911		12.7	67	2.41	6.39	266.3	5.95	
914		12.7	70	2.32	6.40	211.4	4.93	
917		12.7	129	1.29	6.75	75.1	4.91	
920		12.7	151	0.94	6.86	43.0	4.40	
923		12.7	171	0.76	6.91	19.2	4.27	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Travis Berndahl

Printed Name

Signature

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

D.O. meter malfunctioned. D.O. will not be reported.

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Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: 6065-7
 Sample ID: 304-0316 20-02
 Date: 3/16/20
 Weather: Sunny
 Filtered? ☒ N
 Sample Containers: 1000 ml Poly 500 ml Poly 500 ml HNO3 x2 125 ml NaOH
 Locked? ☒ N
 Water in Protector? ☒ N
 500 ml H2SO4 x2
 125 ml NaOH

Sampling Method: DTW TOS Intake BOS
 Meter: MP-20 YSI
 Dedicated CONTROL SETTINGS: Refill 11.5 Discharge 3.5 Pressure 4.5 Flow 150 mL/min
 Bail 1 ft water = 0.62L One Well Volume (liters) Total Volume Bailed (liters)
 Peristaltic Grab Other
 1L = 0.26 gallons
 Other: Flow Setting:

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

level at 18.0, water right away

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
925		6.80	1052	6.36	6.49	340.4		
930		8.71	1073	1.54	6.51	326.1		
933		8.76	1082	1.91	6.48	256.2		
936		8.82	1086	2.08	6.46	192.3	12.1	
939		8.39	1161	1.91	6.44	176.3		
942		8.98	1264	0.89	6.42	155.0		
945		9.02	1269	0.68	6.42	148.4		
948		9.02	1270	0.65	6.41	143.4		
951		8.94	1283	0.51	6.41	138.9	4.52	

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

SAMPLER:

Sam Baker

Printed Name

Signature

Sam Baker

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Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: MW-2A

Sample ID: 304-03 16-20-03

Date: 3/16/2026

Weather: Sunny

Filtered? ☒ N

Locked? ☒ N

Water in Protector? ☒ N

Sample Containers:

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

Sampling Method: DTW

17.27

DTW

TOS

Intake

BOS

Total Depth

Meter: MP-20

YSD

CONTROL SETTINGS:

Refill: 8

Discharge: 7

Pressure: 2.5

Flow: 300 * 4.4

1.75" QED SamplePro

Bail

1 ft water = 0.62L

One Well Volume (liters)

Total Volume Bailed (liters)

Peristaltic

Grab

Other

1L = 0.26 gallons

Other: Flow Setting:

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

D.O. meter malfunctioned. D.O. will not be reported.

TIME	DTW	Temp.	Sp Cond.	DO	pH	Eh	Turbidity	Q / Vol.
949		11.4	358	6.93	7.35	207.5	3.71	
954		12.5	322	0.51	6.59	44.6	3.75	
957		12.5	308	0.22	6.81	15.7	3.73	
1000		12.4	298	0.06	6.97	-13.2	3.73	
1003		12.4	291	0.01	7.02	-25.8	3.71	
1006		12.4	285	0.00	7.05	-33.5	3.72	
1009		12.4	282	0.00	7.07	-42.7	3.74	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Travis Berndahl

Printed Name

Signature

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Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: LD15-3
 Sample ID: 304-03 16 20-04
 Date: 3/16/20
 Weather: Sunny
 Filtered? ☒ N
 Sample Containers: 1000 ml Poly 500 ml HNO₃ x2 500 ml H₂SO₄ x2 125 ml NaOH
 Locked? ☒ N
 Water in Protector? ☒ N
 500 ml Poly 500 ml H₂SO₄ x2 500 ml H₂SO₄ x2 125 ml NaOH
 Sampling Method: ☒ Dedicated
 Meter: MP-20
 DTW
 TOS
 Intake
 BOS
 Total Depth
 CONTROL SETTINGS:
 Refill 11
 Discharge 3
 Pressure 50
 Flow 200 L/min
 1.75" QED SamplePro
 Ball
 Peristaltic
 Grab
 Other
 1 ft water = 0.62L
 One Well Volume (liters)
 Total Volume Bailed (liters)
 Setting: Flow

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

level at 10.86' Water right away

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity
1038		11.20	796	6.15	7.37	246.7	
1043		15.36	742	3.21	8.13	245.9	
1046		16.41	807	1.95	6.97	222.2	
1049		17.39	812	1.31	6.53	208.3	
1052		17.77	814	0.98	6.52	199.6	
1055		18.07	816	0.71	6.52	195.0	
1058		18.23	816	0.54	6.51	191.6	4.00
							365

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sum Baber

Printed Name

Signature

A

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(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: MW-3

Sample ID: 304-03 16 20-05

Date: 3/16/20

Weather: Sunny

Filtered? ☒ N

Locked? ☒ N

Water in Protector? ☒ N

Sample Containers:

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

Sampling Method: DTW

Meter: MP-20

CONTROL SETTINGS:

1.75" QED SamplePro

Bail

1 ft water = 0.62L

One Well Volume (liters)

Discharge

Pressure

Flow

Peristaltic

Grab

Other

1L = 0.26 gallons

Other: Flow Setting

Total Volume Bailed (liters)

400 M/L

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

D.O. meter malfunctioned. D.O. will not be reported.

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1039		10.1	353	3.87	6.09	206.3	3.97	
1044		10.1	425	0.21	6.98	104.9	3.82	
1047		10.1	426	0.15	7.02	91.5	3.77	
1050		10.1	430	0.08	7.04	78.7	3.70	
1053		10.2	431	0.04	7.06	69.1	3.69	
1056		10.2	432	0.01	7.07	62.9	3.68	
1059		10.2	433	-0.01	7.07	55.8	3.65	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Travis Berndahl

Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: LDCS-2B

Sample ID: 304-0316 20-06

Date: 3/16/20

Weather: sunny

Filtered? ☒ Y ☐ N

Sample Containers: 1000 ml Poly ☒ Y ☐ N

500 ml HNO₃ x2

125 ml NaOH

Water in Protector? ☒ Y ☐ N

500 ml Poly

500 ml H₂SO₄ x2

125 ml NaOH

Sampling Method: DTW

Meter: MP-20

YSI

CONTROL SETTINGS:

Refill

Discharge

Pressure

Flow

Dedicated

1.75" QED SamplePro

Bail

Peristaltic

Grab

Other

1L = 0.26 gallons

One Well Volume (liters)

Total Volume Bailed (liters)

Other:

Flow

Setting:

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

Light particulates in sample. (brown)

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1150		10.22	634	1.06	6.97	184.3	15.5	709

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

San Becker

Printed Name

Signature



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(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: MW-5A
 Sample ID: 304-03 (6 20-07)
 Date: 3/16/2025
 Weather: Sunny

Sampling Method: Dedicated
 Meter: MP-20
 TOS
 Intake
 BOS
 Total Depth

CONTROL SETTINGS:
 1.75" QED SamplePro
 Bail
 1 ft water = 0.62L
 One Well Volume (liters)
 Total Volume Bailed (liters)

Peristaltic
 Grab
 Other

1L = 0.26 gallons
 Other:
 Flow
 Setting:

Filtered? ☒ N
 Sample Containers:
 1000 ml Poly
 500 ml HNO3
 500 ml H2SO4
 125 ml NaOH

Locked? ☒ Y
 Water in Protector? ☒ Y
 Damage? ☒ Y

250 ml Poly
 40 ml VOA
 125 ml Poly
 1000 ml Amber

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1138		12.2	324	4.34	7.31	16.0	18.10	
1143		12.0	427	0.34	7.53	-0.5	11.10	
1146		12.0	416	0.26	7.52	-13.9	9.69	
1149		12.5	416	0.27	7.51	-6.7	9.77	
		12.0	419	0.17	7.51	-14.6	9.11	
1152		13.2	416	0.43	7.51	3.8	9.97	
		12.0	417	0.12	7.52	-20.3	13.20	
1155		12.0	413	0.11	7.52	-22.3	13.33	
1158		12.0	419	0.08	7.52	-23.5	13.21	
1201		12.0	418	0.06	7.52	-24.9	13.11	

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

Dup collected @ 1200

304-031620-09

water appears clear

D.O. meter malfunctioned. D.O. will not be reported.

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Travis Berndahl

Printed Name

Signature

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #:	04220001.02	
Site	LRI 304th	
Well ID:	LDCS-2A	
Sample ID:	304-03 16 20-08	
Date:	3/16/20	
Weather:	sunny	
Filtered?	(Y) N	
Sample Containers:	1000 ml Poly 500 ml HNO3 125 ml NaOH	
Sampling Method:	DTW	
Meter:	MP-20	
	(Y) SI	
	TOS	
	Intake	
	BOS	
	Total Depth	
	29.00	
Dedicated	CONTROL SETTINGS:	
1.75" QED SamplePro	Bail	
Peristaltic	Grab	
Other	Other	
1L = 0.26 gallons	1 ft water = 0.62L	
One Well Volume (liters)	Other	
Total Volume Bailed (liters)	Flow	
	Setting	
Notes / Observations (color, odor, anomalies, etc):		
moderate		

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.	Sp. Cond.
1240		21.22	787	6.15	7.46	240.5	18.1	712	

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

moderate
particulates in sample (brown)

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature _____

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02		Sampling Method:		Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Site	LRI 304th	DTW	Meter:	1L = 0.26 gallons					
Well ID:	LDGS-1	TOS	MP-20	One Well Volume (liters)					
Sample ID:	304-0316 20-10	Intake	YSI	Flow					
Date:	3/16/20	BOS		Setting:					
Weather:	Sunny	Total Depth							
Filtered? <u>Y</u>	Locked? <u>Y</u>	Water in Protector? <u>Y</u>	Damage? <u>N</u>						
Sample Containers:			1000 ml Poly	125 ml Poly					
			500 ml HNO3	x2	400 ml VOA	x3	x6	1000 ml Amber	
			125 ml NaOH						
Notes / Observations (color, odor, anomalies, etc):									

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1320		62.05	383	4.94	6.33	198.1	14.2	390

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

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature:

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02 Site: LRI 304th Well ID: MW-7 Sample ID: 304-03 (6 20-11) Date: 3/16/20 Weather: Sunny

Sampling Method: ☒ Dedicated ☐ Peristaltic ☐ Other:
 Meter: MP-20 (YSI) 1.75" QED SamplePro Bail 1L = 0.26 gallons
 CONTROL SETTINGS: 16 One Well Volume (liters) 5 Other:
 Discharge Pressure Flow Total Volume Bailed (liters) 40 300 144 128

DTW 20.69 TOS Intake BOS Total Depth
 Water in Protector? ☒ Y ☒ N Locked? ☒ Y ☒ N Damage? ☒ Y ☒ N
 Sample Containers: 1000 ml Poly 500 ml HNO3 x2 500 ml H2SO4 x2 500 ml Poly 250 ml Poly 125 ml Poly 500 ml Amber 40 ml VOA x3 x6 1000 ml Amber

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1246		10.3	361	2.79	8.09	72.0	3.91	
1251		10.4	380	0.08	7.48	-5.5	3.56	
1254		10.4	323	0.08	7.25	9.6	3.57	
1257		10.4	374	0.10	7.30	3.5	3.74	
1300		10.4	376	0.10	7.35	-4.9	3.98	
1303		10.4	377	0.11	7.36	-12.8	3.93	
1306		10.4	378	0.09	7.42	-22.2	3.61	

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

D.O. meter malfunctioned. D.O. will not be reported.

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Travis Berndahl

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: LACS-4A
 Sample ID: 304-03 (6 20-12)
 Date: 3/16/20
 Weather: Sunny
 Filtered? ☒ Y ☐ N
 Sample Containers: 1000 ml Poly 500 ml HNO₃ x2 500 ml H₂SO₄ x2 125 ml NaOH
 Water in Protector? ☒ Y ☐ N
 500 ml Poly 500 ml H₂SO₄ x2 500 ml HNO₃ x2 125 ml NaOH

Sampling Method: DTW
 Meter: MP-20
 TOS
 Intake
 BOS
 Total Depth
 Damage? ☒ Y ☐ N
 250 ml Poly 40 ml VOA x3 x6 1000 ml Amber

CONTROL SETTINGS:
 Refill 11.5
 Discharge 3.5
 Pressure 50
 Flow 130 ml/min

1.75" QED SamplePro
 Bail
 Peristaltic
 Grab
 Other
 1 ft water = 0.62L
 One Well Volume (liters)
 Total Volume Bailed (liters)
 1L = 0.26 gallons
 Other:
 Flow
 Setting:

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

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1400		15.07	713	5.66	6.53	242.3		
1405		21.03	786	1.11	6.39	15.0		
1408		21.42	794	0.78	6.39	8.1		
1411		21.70	749	0.62	6.40	3.9		
1414		22.09	802	0.52	6.40	0.0		
1417		22.18	805	0.52	6.41	-13.4		
1420		22.15	806	0.50	6.41	-21.3	9.29	910

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature

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2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: NW-6
 Sample ID: 304-03 16 20-i3
 Date: 3/16/20
 Weather: Sunny

Sampling Method: DTW
 Meter: MP-20
 Dedicated: ☒ 1.75" QED SamplePro
 Bail: 1L = 0.26 gallons
 One Well Volume (liters): 10
 Total Volume Bailed (liters): 30
 300 ⁴/₁₀₀ m.a.

CONTROL SETTINGS:
 Refill: 5
 Discharge: 30
 Pressure: 300 ⁴/₁₀₀ m.a.
 Flow: 300 ⁴/₁₀₀ m.a.

Water in Protector? ☒ Y ☐ N
 Locked? ☒ Y ☐ N
 Damage? ☐ Y ☒ N

Sample Containers:
 1000 ml Poly
 500 ml HNO3 x2
 500 ml H2SO4 x2
 125 ml NaOH

250 ml Poly
 40 ml VOA x3
 1000 ml Amber

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

D.O. meter malfunctioned. D.O. will not be reported.

TIME	DTW	Temp.	SpCond.	DO	pH	Eh	Turbidity	Q / Vol.
1436		11.1	330	1.22	6.31	8.2	4.39	
1441		10.5	324	0.11	7.46	92.8	3.64	
1444		10.5	324	0.05	7.63	99.4	3.65	
1447		10.5	323	0.02	7.65	101.4	3.60	
1450		10.5	324	-0.01	7.66	101.1	3.56	
1453		10.5	324	-0.02	7.65	100.8	3.49	
1456		10.5	324	-0.03	7.65	99.6	3.71	

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

SAMPLER: Travis Bendahl

Printed Name

Signature

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2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02 Site: LRI 304th

Well ID: LDGS-4B

Sample ID: 304-0316 20-14

Date: 3/16/20

Weather: Sunny

Filtered? ☒ N Locked? ☒ N Water in Protector? ☒ N

Sample Containers: 1000 ml Poly 500 ml Poly 500 ml H₂SO₄ 500 ml H₂SO₄ 500 ml NaOH

125 ml NaOH

Sampling Method: Dedicated Meter: MP-20 DTW TOS Intake BOS Total Depth

CONTROL SETTINGS: 1.75" QED SamplePro Bail Peristaltic Grab Other

1 ft water = 0.62L 1L = 0.26 gallons

One Well Volume (liters) Other: Flow

Discharge Pressure Setting:

Flow

One Well Volume (liters) Total Volume Bailed (liters)

300 ml/min

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

level at 23.0

* water in vault.

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1452	begin	Run						
1502		22.57	981	2.90	6.39	-11.1		970
1507		26.09	988	0.93	6.38	65.6		
1510		26.26	938	0.61	6.38	60.8		
1513		26.50	989	0.48	6.38	55.1		
1516		26.69	989	0.48	6.38	50.0		
1519		26.73	988	0.70	6.38	47.5		
1522		26.72	989	0.32	6.38	47.3	3.84	971

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

SAMPLER:

Sam Baber

Printed Name

Signature

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2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: MW-9
 Sample ID: 304-03 17 20-15
 Date: 3/17/20
 Weather: sunny

Sampling Method: DTW
 Meter: MP-20
 YSI

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

Dedicated: 1.75" QED SamplePro
 Bail: 1 ft water = 0.62L
 One Well Volume (liters):
 Total Volume Bailed (liters):

Peristaltic: Grab: Other:
 1L = 0.26 gallons

Filtered? ☒ N
 Sample Containers: 1000 ml Poly
 500 ml HNO3 x2
 125 ml NaOH

Water in Protector? ☒ Y
 250 ml Poly
 40 ml VOA x3 x6
 125 ml Poly
 1000 ml Amber

Damage? ☒ Y
 125 ml Poly
 1000 ml Amber

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
855		8.7	135	4.40	5.93	282.6	4.24	
900		9.4	134	3.56	6.65	282.5	4.70	
903		9.4	135	3.50	6.75	280.4	3.77	
906		9.4	135	3.49	6.76	282.7	3.66	
909		9.4	135	3.47	6.76	281.2	3.54	
912		9.4	135	3.46	6.77	282.7	3.50	
915		9.4	135	3.45	6.77	284.6	3.52	

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

WLS
 W82-8M = 38.42
 P95-8M = 22.10
 W87-4M = 5.22
 W87-2M = 13.39
 P13-14M =
 Gate Hinge broken

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

SAMPLER: Travis Bendrum
 Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: 1DCS-S

Sample ID: 304-03 17 20-16

Date: 3/17/20

Weather: Sunny

Filtered? ☒ Y ☐ N

Sample Containers: 1000 ml Poly, 500 ml HNO₃, 500 ml H₂SO₄, 125 ml NaOH

Water in Protector? ☒ Y ☐ N

Water in Poly: 500 ml Poly, 500 ml H₂SO₄, 125 ml NaOH

Lock? ☒ Y ☐ N

DTW: ☒ DTW, ☐ TOS, ☐ Intake, ☐ BOS

Meter: MP-20

CONTROL SETTINGS: ☒ SI, ☐ Refill, ☐ Discharge, ☐ Pressure, ☐ Flow

Dedicated: 1.75" QED SamplePro

Bail: 1 ft water = 0.62L

Peristaltic: ☒ Grab

Other: ☐ Other

One Well Volume (liters):

Total Volume Bailed (liters):

Flow Setting:

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

Grab sample from spigot.

Pump removed. Sampled from spigot in LDCS channel.

Sample clear, slightly yellow. No particulates or odor.

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
9:50		20.22	946	3.59	6.68	104.3	24.5	996

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

SAMPLER:

Sam Graber

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: NW-10

Sample ID: 304-0317 20-17

Date: 3/17/20

Weather: Sunny

Filtered? ☒ N

Locked? ☒ Y

Water in Protector? ☒ Y

Sample Containers:

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

125 ml NaOH

Sampling Method: DTW

23.62

DTW

TOS

Intake

BOS

Total Depth

Meter: MP-20

CONTROL SETTINGS:

1.75" QED SamplePro

1 ft water = 0.62L

One Well Volume (liters)

35

Discharge

Pressure

Flow

3000/1000

Peristaltic

Grab

Other

1L = 0.26 gallons

Other:

Flow

Setting:

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

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1030		10.5	257	1.57	6.43	290.0	4.32	
1035		10.4	269	1.41	6.39	291.0	4.61	
1038		10.5	270	1.46	6.39	290.0	4.44	
1041		10.5	270	1.54	6.39	288.4	4.59	
1044		10.4	270	1.54	6.39	287.0	4.41	
1047		10.4	267	1.07	6.39	284.2	4.71	
1050		10.5	269	0.94	6.39	282.7	4.81	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Travis Berndahl

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02 Site: LRI 304th
 Well ID: 6065-6
 Sample ID: 304-03 17 20-18
 Date: 3/17/20
 Weather: partly sunny
 Filtered? ☒ Y ☐ N Locked? ☒ Y ☐ N
 Sample Containers: 1000 ml Poly 500 ml Poly 500 ml HNO3 x2 500 ml H2SO4 x2 125 ml NaOH
 Water in Protector? ☒ Y ☐ N
 250 ml Poly 40 ml VOA x3 x6 125 ml Poly 1000 ml Amber
 Sampling Method: DTW TOS Intake BOS Total Depth
 Meter: MP-20 YSI
 Dedicated 1.75" QED SamplePro Bail 1 ft water = 0.62L One Well Volume (liters) 1L = 0.26 gallons
 CONTROL SETTINGS: Refill 16.5 Discharge 3.5 Pressure 50 Flow 100 mL/min
 Other: Flow Setting: 1L = 0.26 gallons

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

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q Vol.
1040		9.78	917	7.25	7.30	152.0		
1045		9.89	907	5.19	7.18	187.0		
1048		10.06	905	5.02	7.15	194.4		
1051		10.35	904	4.89	7.12	203.0		920
1054		10.31	902	4.25	7.04			
1057		11.30	900	3.61	6.96	210.3		
1100		11.91	899	2.94	6.93			
1103		12.97	896	2.55	6.89	214.3		
1106		13.28	900	2.18	6.88	215.6		
1109		13.02	904	2.02	6.88	217.1	8.43	

level at 14.0
 particulates increased right after
 Purge then went down after in 10 min.
 Waited until they went down to sample
 Light amount of brown particulates in
 sample.

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Jim Baker

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02	Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Site: LRI 304th	1L = 0.26 gallons					
Well ID: Leachgate cell 17	1 ft water = 0.62L					
Sample ID: 304-03 12 20-19	One Well Volume (liters)					
Date: 3/17/20	Total Volume Bailed (liters)					
Weather: Sunny	Flow Setting					
Filtered? ☒ N	Other:					
Sample Containers:	Flow					
1000 ml Poly	Pressure					
500 ml HNO ₃ x2	Discharge					
125 ml NaOH	Refill					
Water in Protector? ☒ Y	Flow					
500 ml Poly	Damage? ☒ Y					
500 ml H ₂ SO ₄ x2	125 ml Poly					
125 ml NaOH	40 ml VOA x3 x6 1000 ml Amber					

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

LCRS Level 2 11.8

Work occurring in the cell sample area

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1135		10.9	5805	1.69	5.69	-129.1	224.12	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Travis Brindani

Printed Name

Signature

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04203033.17		Site: Friday Harbor LF		Dedicated		1.75" QED SamplePro		Ball		Peristaltic		Grab		Other	
Well ID: MW-		Field blank		Meter: MP-20		CONTROL SETTINGS:		1 ft water = 0.62L		1L = 0.26 gallons		Other:			
Sample ID: FHLE03-20		304-031720-20		TOS		Refill		One Well Volume (liters)		Flow		Setting:			
Date: 3/17/20		cloudy		Intake		Discharge		Total Volume Bailed (liters)							
Weather: cloudy				BOS		Pressure									
Filtered? ☒ N		Locked? Y N ☒ A		Total Depth		Flow									
Sample Containers:		Water in Protector? Y N ☒ A		Damage? Y N ☒ A		125 ml Poly									
		1000 ml Poly		250 ml Poly		1000 ml Amber									
		500 ml HNO3		40 ml VOA											
		125 ml NaOH													
Notes / Observations (color, odor, anomalies, etc):															

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1130		12.83	8	1.27	9.48	102.1	2.96	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name: _____

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02
 Site: LRI 304th
 Well ID: NW-41
 Sample ID: 304-03 17 20-21
 Date: 3/17/20
 Weather: cloudy
 Filtered? ☒ N
 Sample Containers: 1000 ml Poly
 500 ml HNO3 x2
 125 ml NaOH
 Locked? ☒ N
 Water in Protector? ☒ N
 500 ml Poly
 500 ml H2SO4 x2
 125 ml NaOH
 Sampling Method: DTW
 Meter: MP-20
 YSI
 CONTROL SETTINGS: 1.75" QED SamplePro
 Bail
 1 ft water = 0.62L
 One Well Volume (liters)
 Total Volume Bailed (liters)
 Peristaltic
 Grab
 Other
 1L = 0.26 gallons
 Other:
 Flow
 Setting:
 Refill
 Discharge
 Pressure
 Flow
 21.00
 TOS
 Intake
 BOS
 27.75
 Total Depth
 250 ml Poly
 40 ml VOA
 x3 x6
 125 ml Poly
 1000 ml Amber

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

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1430		12.80	343	1.25	7.40	137.0		
1435		12.60	344	0.70	7.54	79.8		
~~1442~~		12.60	345	0.46	7.60	52.3	8.74	
1500		12.43	346	0.29	7.63	6.4		
1503		12.44	346	0.28	7.63	4.6	6.98	
1506		12.37	346	0.28	7.64	2.8	7.59	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sam Gaber

Printed Name

Signature

[Signature]

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LRI 304th

Well ID: LDCS-6

Sample ID: 304-013020-01

Date: 1/30/20

Weather: Cloudy

Filtered? ☒ N

Locked? ☒ Y

Water in Protector? ☒ N

Damage? ☒ Y

Sample Containers:

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

Sampling Method: DTW

Meter: MP-20

CONTROL SETTINGS:

Refill: 16.5

Discharge: 3.5

Pressure: 40

Flow: 200 ml/min

1.75" QED SamplePro

Bail: 1 ft water = 0.62L

Peristaltic

Grab

Other

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1010		Started	Purge					
1020		7.86	950	7.49	6.05	278.2		
1025		8.10	981	4.74	6.45	273.2		
1035		8.42	979	2.81	6.49	270.3		
1038		4.42	977	2.49	6.51	268.9		
1041		9.72	978	2.38	6.52	267.7		911

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

Level at 25, pumped down to 9.0 prior to purging

Moderate amount of brown particulates in sample.

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sam Becker

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LR 304r

Well ID: CDGS-5

Sample ID: 304-013020-02

Date: 1/30/20

Weather: cloudy

Filtered? ☒ N

Locked? ☒ N

Sample Containers: 1000 ml Poly 500 ml HNO3 500 ml H2SO4 125 ml NaOH

Water in Protector? Y N NA

DTW 7

TOS 7

Intake 7

BOS 7

Total Depth 7

Meter: MP-20

YSI MP-20

CONTROL SETTINGS: Refill 12 Discharge 3 Pressure 40 Flow 100 ml/min

Dedicated 1.75" QED SamplePro Bail 1 ft water = 0.62L One Well Volume (liters) 12 Total Volume Bailed (liters) 40

Peristaltic 1L = 0.26 gallons Grab Other

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

Level at 22.0

appearance slightly yellow

no odor.

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q/Vol.
1132		10.73	1061	4.17	6.74	226.2		
1137		14.52	1070	1.23	6.70	240.3		
1140		15.32	1109	0.81	6.70	186.2		
1143		16.14	1154	0.52	6.69	130.0		
1155		17.27	827	0.27	6.61	-1.5		
1158		17.41	728	0.26	6.52	8.3		996
1203		17.59	715	0.24	6.49	14.1		
1206		17.42	714	0.23	6.49	15.3		
1209		17.39	713	0.22	6.47	16.5	8.01	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sam Graber

Printed Name

Signature

Sam Graber

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: 2RI 304th

Well ID: LDCS-7

Sample ID: 304-013020-03

Date: 1/30/20

Weather: cloudy

Filtered? ☒ Y ☐ N

Sample Containers: 1000 ml Poly 500 ml HNO₃ x2 125 ml NaOH

Water in Protector? ☒ Y ☐ N

Water in Poly 500 ml Poly 250 ml Poly 40 ml VOA x3 x6 125 ml Poly 1000 ml Amber

Sampling Method: DTW TOS Intake BOS Total Depth

Meter: MP-20 YSI

CONTROL SETTINGS: Refill Discharge Pressure Flow

1.75" QED SamplePro Bail 1 ft water = 0.62L One Well Volume (liters) Total Volume Bailed (liters)

Peristaltic Grab Other

1L = 0.26 gallons

10? 5? 40 100 ml/min

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

No color or odor. Sample freezes slightly when shaken in turbidity vial.

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1310		8.39	1523	5.06	6.50	152.1		
1315		8.87	1523	3.83	6.52	164.0		
1330		10.98	1514	3.63	6.54	186.6	13.0	
1338		9.15	1532	4.88	6.54	197.3		
1336		9.06	1525	4.32	6.52	205.2	13.9	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sam Graber

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LR 304 to Leachate Cell 7

Well ID: 04220001.01

Sample ID: 1/31/20

Date: 1/31/20

Weather: rainy

Filtered? ☒ Y ☐ N

Locked? ☒ Y ☐ N

Water in Protector? ☒ Y ☐ N

Sample Containers: 1000 ml Poly 500 ml HNO3 x2 500 ml H2SO4 x2 125 ml NaOH

Sampling Method: DTW ☒ TOS ☐ Intake ☐ BOS ☐ Total Depth

Meter: MP-20 ☒ YSI ☐

CONTROL SETTINGS: Refill ☐ Discharge ☐ Pressure ☐ Flow ☐

Dedicated ☐ 1.75" QED SamplePro ☐ Bail ☐ Peristaltic ☒ Grab ☐ Other ☐

1 ft water = 0.62L 1L = 0.26 gallons

One Well Volume (liters) ☐ Other: ☐

Total Volume Bailed (liters) ☐ Flow Setting: ☐

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

Removal blue cone looking piece valve at Leachate spigot to sample

Function of piece is to disperse energy & air but it was clogged so we removed also closed Leachate force main meter vault.

Leachate level at ~45.0

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1415		10.79	1384	8.14	6.15	130.4	337	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Sue Baber

Printed Name

Signature

Sue Baber

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04220001.02

Site: LCB304

Well ID: LCDS-7

Sample ID: 304-022820-01

Date: 2/28/20

Weather: 30°F

Filtered? ☒ N

Locked? ☒ N

Sample Containers: 1000 ml Poly, 500 ml HNO3, 125 ml NaOH

Water in Protector? ☒ N

500 ml Poly, 500 ml H2SO4, 125 ml Amber

Sampling Method: Dedicated

Meter: MP-20

DTW, TOS, Intake, BOS, Total Depth

CONTROL SETTINGS: Refill 12, Discharge 3, Pressure 40, Flow 100 ml/min

1.75" QED SamplePro, Bail, Peristaltic, Grab, Other

1 ft. water = 0.62L, One Well Volume (liters), Total Volume Bailed (liters)

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

LCDS level = 8.9

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1420		14.65	1567	4.10	6.08	273.2		
1425		13.80	1520	3.40	6.13	254.3		
1428		13.40	1522	4.31	6.11	254.1		
1431		12.53	1520	7.84	6.11	254.7		
1439		12.57	1514	6.10	6.12	238.0		
1437		12.15	1499	5.45	6.06	208.1	4.71	
1440		12.26	1465	3.85	6.06	141.5	4.82	
1443		13.08	1445	3.75	6.07	184.6		
1446		13.05	1410	3.61	6.06	180.0	4.80	

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

SAMPLER: Travis Bernhardt

Printed Name

Signature

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/16/20				
Time	000				
Weather (sky or precip, temp)	Sunny				
Type of Calibration	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	1420	4.07	7.03		
Post Cal Reading	1413	4.01	7.00	0.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEL				
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)

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	3/16/20				
Time	800				
Weather (sky or precip, temp)	Sunny				
Type of Calibration	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	1433	4.01	7.02		
Post Cal Reading	1413	4.01	7.00	8.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEB				
Instrument Type, ID	MP20 / VSI 556		MicoTPW / HACH2000		
Calibration Location	304th				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	7/17/20				
Time	800				
Weather (sky or precip, temp)	Sunny				
Type of Calibration	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	1425	4.10	7.07		
Post Cal Reading	1413	4.01	7.00	8.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEB				
Instrument Type, ID	MP20 / YSI 556	fental		MicoTPW / HACH2000	
Calibration Location	LRI 304th				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	4/17/20				
Time	800				
Weather (sky or precip, temp)	Sunny				
Type of Calibration	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	1433	4.05	7.04		
Post Cal Reading	1413	4.01	7.00	8.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEB				
Instrument Type, ID	MP20 /	YSI 556	MicoTPW / HACH2000		
Calibration Location	URJ 304th				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1/30/20				
Time	900				
Weather (sky or precip, temp)	cloudy				
Type of Calibration	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	1431	4.55	6.41		
Post Cal Reading	1413	4.01	7.00	8.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEB				
Instrument Type, ID	MP20 / YSI 556		MicoTPW / HACH2000		
Calibration Location	LRI 304th				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	1/31/20				
Time	945				
Weather (sky or precip, temp)	cloudy				
Type of Calibration	Standard	Standard	Standard	Standard	
Standard Value	1413	4.01	7.00	100% or ~8.5 1000, 10, 0.2 800, 100, 20, 50.1	
Pre-Cal Reading	1393	4.61	6.35	5.2	
Post Cal Reading	1413	4.01	7.00	8.5	
Discrepancy	No				
Calib. Successful?	yes				
Calibration by	SEB				
Instrument Type, ID	MP20 / YSI 556		MicoTPW / HACH2000		
Calibration Location	142				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	2-28-2020				
Time	1400				
Weather (sky or precip, temp)	Sunny				
Type of Calibration	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	1397	4.26	6.94	6.2	
Post Cal Reading	1413	4.61	7.06	8.5	758, 101, 20, 7, 0.0
Discrepancy	NO				
Calib. Successful?	Yes				
Calibration by	TAB				
Instrument Type, ID	MP20 / YSI 556		MicoTPW / HACH2000		
Calibration Location	LRI 304, Loc 5				

* 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 2020
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 2020
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		

Statistical Summary of Total Metals and Nitrate Groundwater Data
Appendix I Parameters, First Quarter 2020
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																									

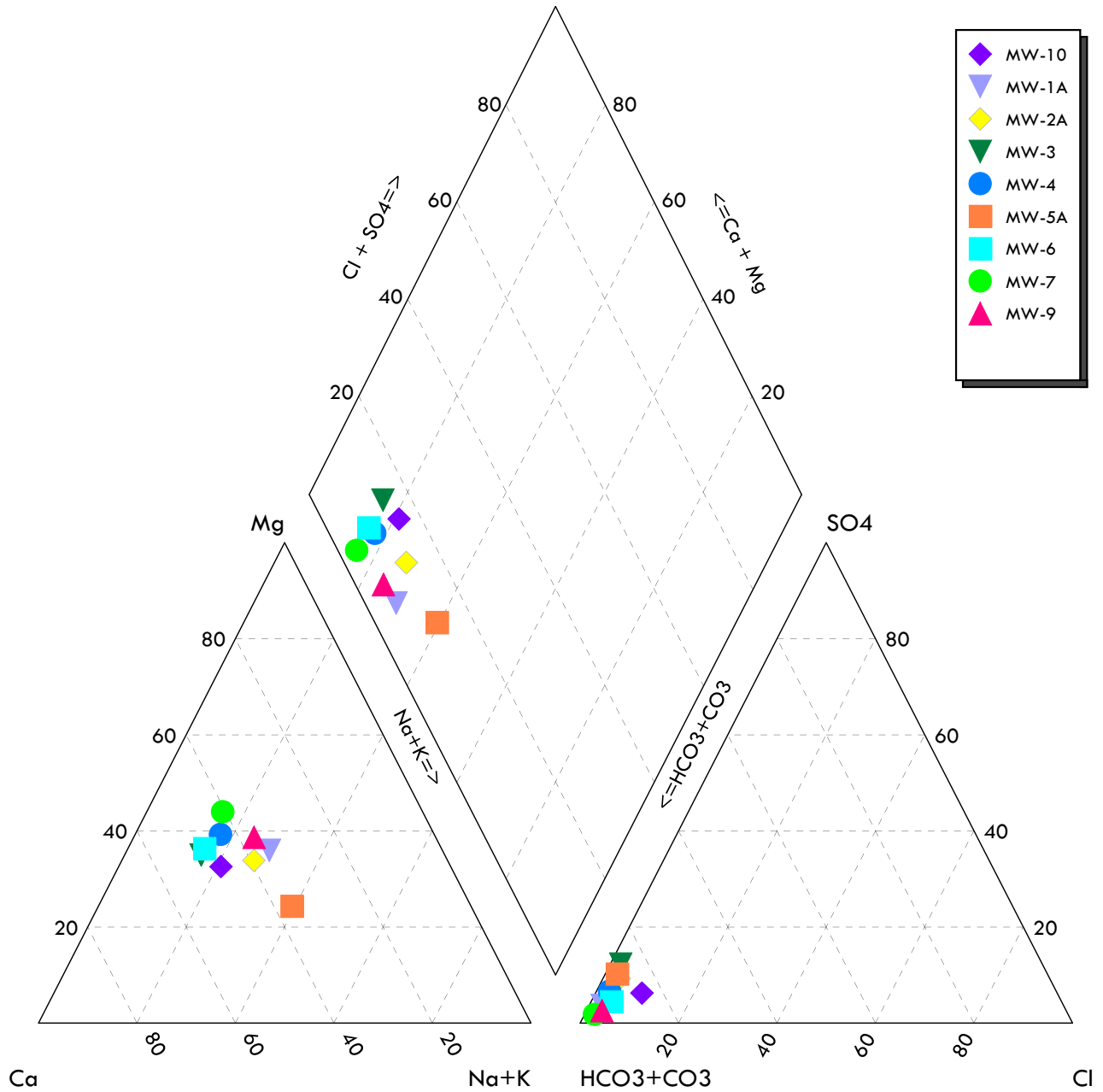
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Appendix I Parameters, First Quarter 2020
LRI Landfill, Pierce County, Washington

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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Attachment E

Trilinear Diagrams

First Quarter 2020, Groundwater Monitoring Wells



DESCRIPTION: Piper Diagram - Groundwater - 1Q20

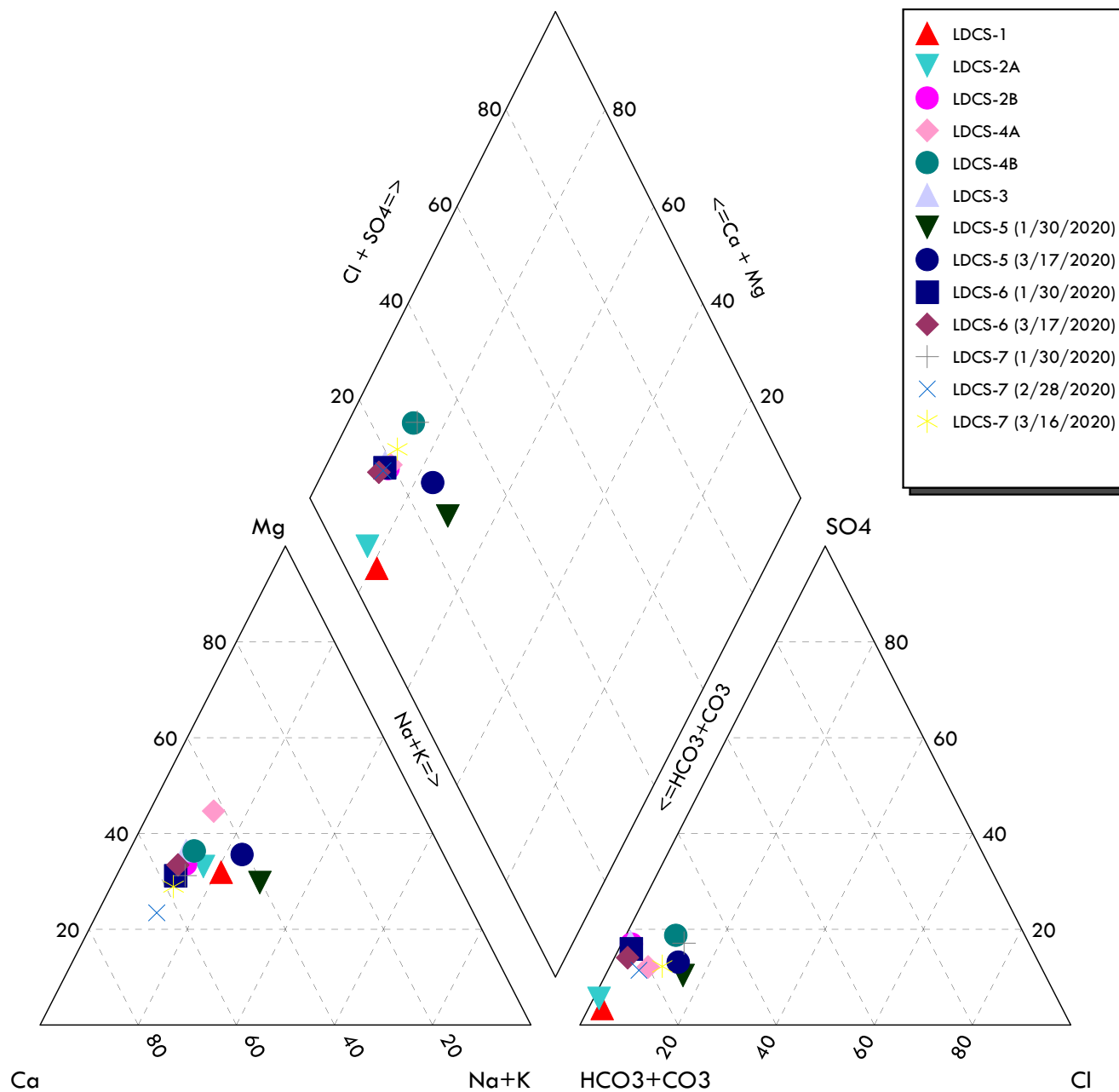
PROJECT: LRI Landfill

PROJECT NO: 04220001.02

CLIENT: LRI, Inc.

DATE: April 2020

First Quarter 2020, Leak Detection Collection Recovery System



DESCRIPTION: Piper Diagram - LDCRS - 1Q20

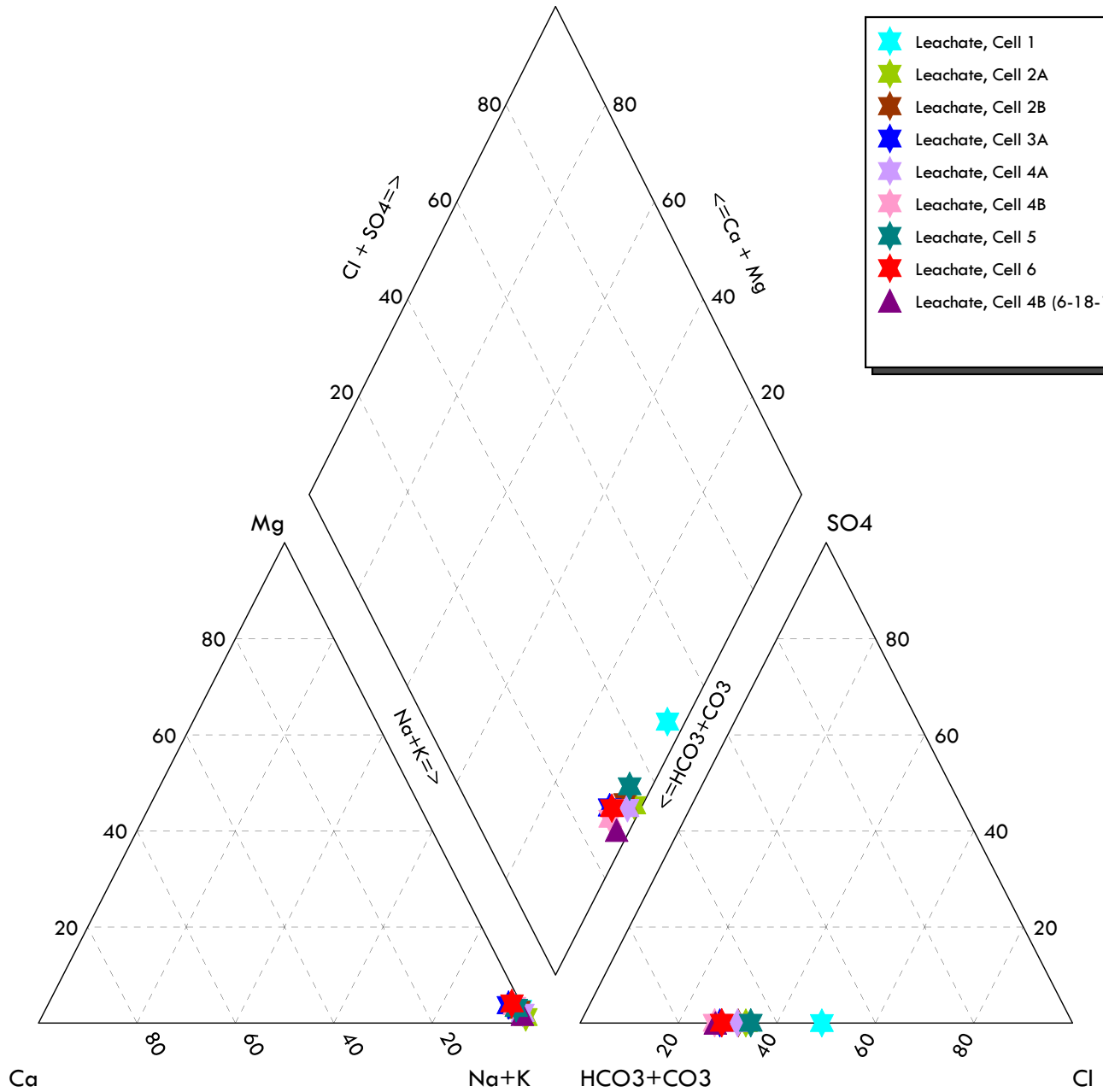
PROJECT: LRI Landfill

PROJECT NO: 04220001.02

CLIENT: LRI, Inc.

DATE: April 2020

Fourth Quarter 2019, Leachate



DESCRIPTION: Piper Diagram - Leachate - 4Q19

PROJECT: LRI Landfill

PROJECT NO: 04219001.02

CLIENT: LRI, Inc.

DATE: March 2020

Attachment F

Analytical Data Validation Report

FIRST QTR. 2020 DATA VALIDATION REPORT – LRI LANDFILL

Project Details

Project No.	04220001.02	Site Name	LRI 304 th Street LF
Data Validator	Sam Graber	Data Level	Level 2
Date	4/15/2020	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)
280-133345-1	No comments.	TestAmerica, Denver, CO
280-133381-1	Due to an instrument error, the sample “-01” was analyzed for Nitrate method 300.00 approximately 27 hours past the 48-hour holding time.	TestAmerica, Denver, CO
280-134167-1	No comments.	TestAmerica, Denver, CO
280-134638-1	No comments.	TestAmerica, Denver, CO
280-134639-1	No comments.	TestAmerica, Denver, CO
280-134681-1	No comments.	TestAmerica, Denver, CO
280-134682-1	No comments.	TestAmerica, Denver, CO
280-134687-1	No comments.	TestAmerica, Denver, CO

Analytical Summary

Sample Group	Analyses					
	TDS/Aik/NO3	Metals	NH4/TOC	VOCs	Anions	TSS
280-133345-1	X	X ¹	X	X	X	--
280-133381-1	X	X ³	X	X	X	--
280-134167-1	X	X ¹	X	X	X	--
280-134638-1	X	X ²	X	X	X	X
280-134639-1	X	X ¹	X	X	X	--
280-134681-1	X	X ²	X	X	X	X
280-134682-1	X	X ³	X	X	X	--
280-134687-1	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.	Samples were analyzed at a dilution for method 8260B. As a result, the reporting limits were elevated for select compounds (280-133381-1, 280-134682-1). See case narratives for additional details.
General Comments	Acceptable.	See case narratives.

Field Quality Assurance Samples

Field QA Samples	Sample Group	Analytes	Notes
QC-FB	280-134681-1	Methylene Chloride (7.4 ug/L) Dissolved Calcium (0.57 mg/L) Dissolved Sodium (1.3 mg/L) Ammonia (0.13 mg/L)	
QC-TB	280-133345-1	None.	
QC-TB	280-134167-1	None.	
QC-TB	280-134638-1	None.	
QC-TB	280-134639-1	None.	
QC-TB	280-134681-1	None.	
QC-TB	280-134682-1	Acetone (18 ug/L).	
QC-TB	280-134687-1	None.	

Lab Quality Flags

Flag	Sample Groups	Comments
*	280-133345-1, 280-133381-1, 280-134681-1, 280-134682-1	RPD of the LCS and LCSD exceeds the control limits.
4	280-133381-1, 280-134167-1, 280-134638-1, 280-134639-1, 280-134681-1, 280-134682-1, 280-134687-1	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	280-134167-1	Compound was found in the blank and sample.
E	280-134681-1, 280-134682-1, 280-134687-1	Result exceeded calibration range.
F1	280-134682-1	MS and/or MSD recovery exceeds the control limits.

F2		MS/MSD RPD exceeds control limits.
F3		Duplicate RPD exceeds the control limit.
F5	280-134167-1	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times the RL. The data are considered valid because the absolute difference is less than the RL.
H	280-133381-1	Sample was prepped or analyzed beyond specified holding time.
J	280-133345-1, 280-133381-1, 280-134167-1, 280-134638-1, 280-134639-1, 280-134681-1, 280-134682-1, 280-134687-1	Result is <RL, >MDL and concentration is approximate value.
^	280-134638-1, 280-134681-1, 280-134682-1	ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: instrument related QC is outside acceptance limits.

Duplicate Evaluation

Analyte	Units	MW-5A (304-031620-07)	MW-5A DUP (304-031620-09)	RPD (%)
Alkalinity	mg/L	190	190	0.0
Ammonia	mg/L	0.17	0.15	12.5
Arsenic, Total	mg/L	0.0053	0.0054	1.9
Barium, Total	mg/L	0.014	0.014	0.0
Calcium, Dissolved	mg/L	32	32	0.0
Chloride	mg/L	3.7	3.6	2.7
Iron, Dissolved	mg/L	0.10	0.19	62.1
Magnesium, Dissolved	mg/L	13	13	0.0
Manganese, Dissolved	mg/L	0.2	0.2	0.0
Potassium, Dissolved	mg/L	4.6	4.6	0.0
Sodium, Dissolved	mg/L	37	40	7.8
Sulfate	mg/L	21	21	0.0
Total Dissolved Solids	mg/L	240	250	4.1
Total Organic Carbon	mg/L	1.0	1.1	9.5

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

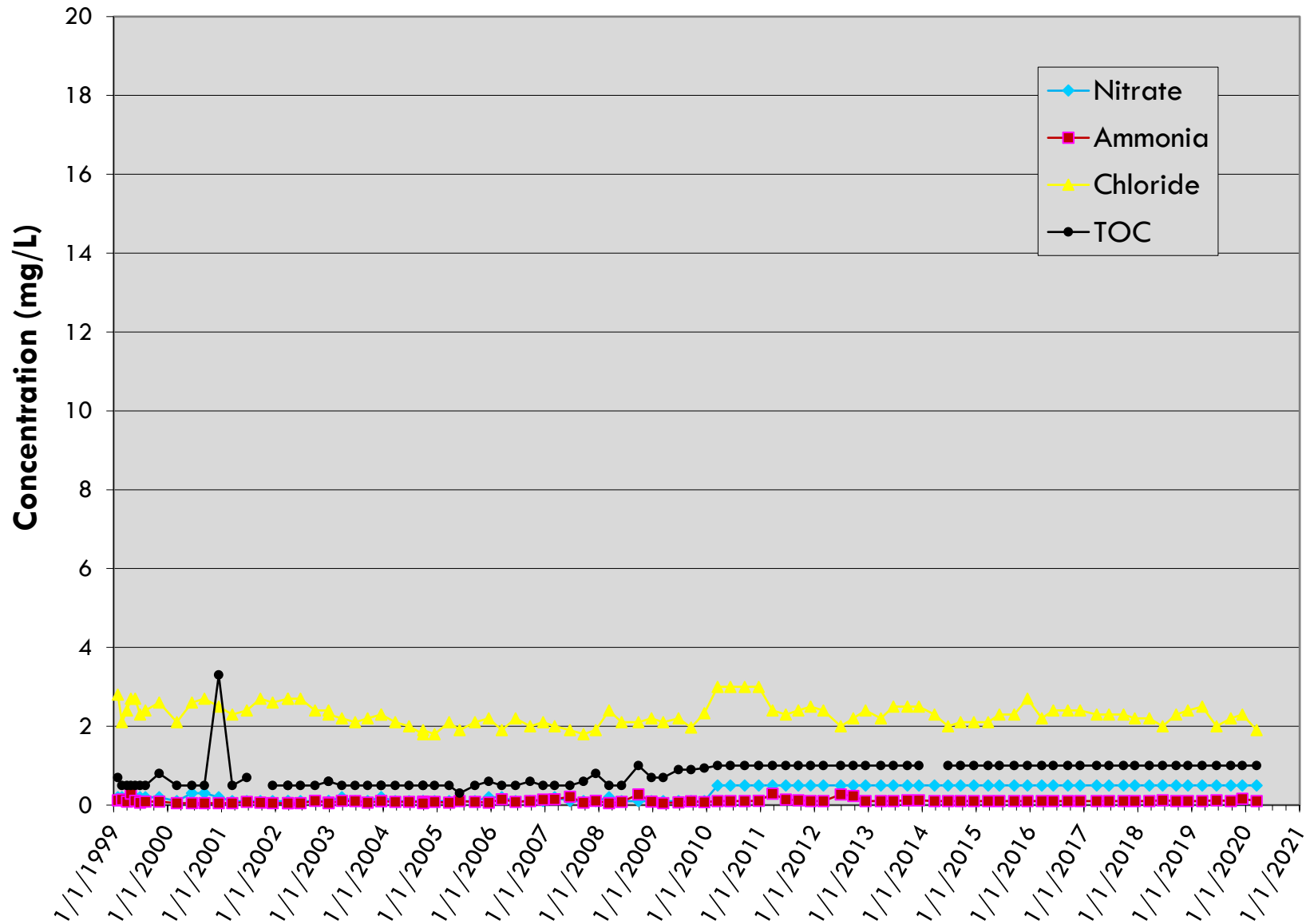
Lab qualifiers are noted. All data, as qualified, are acceptable for use.

Attachment G

Groundwater and LDCS Time Trend Plots

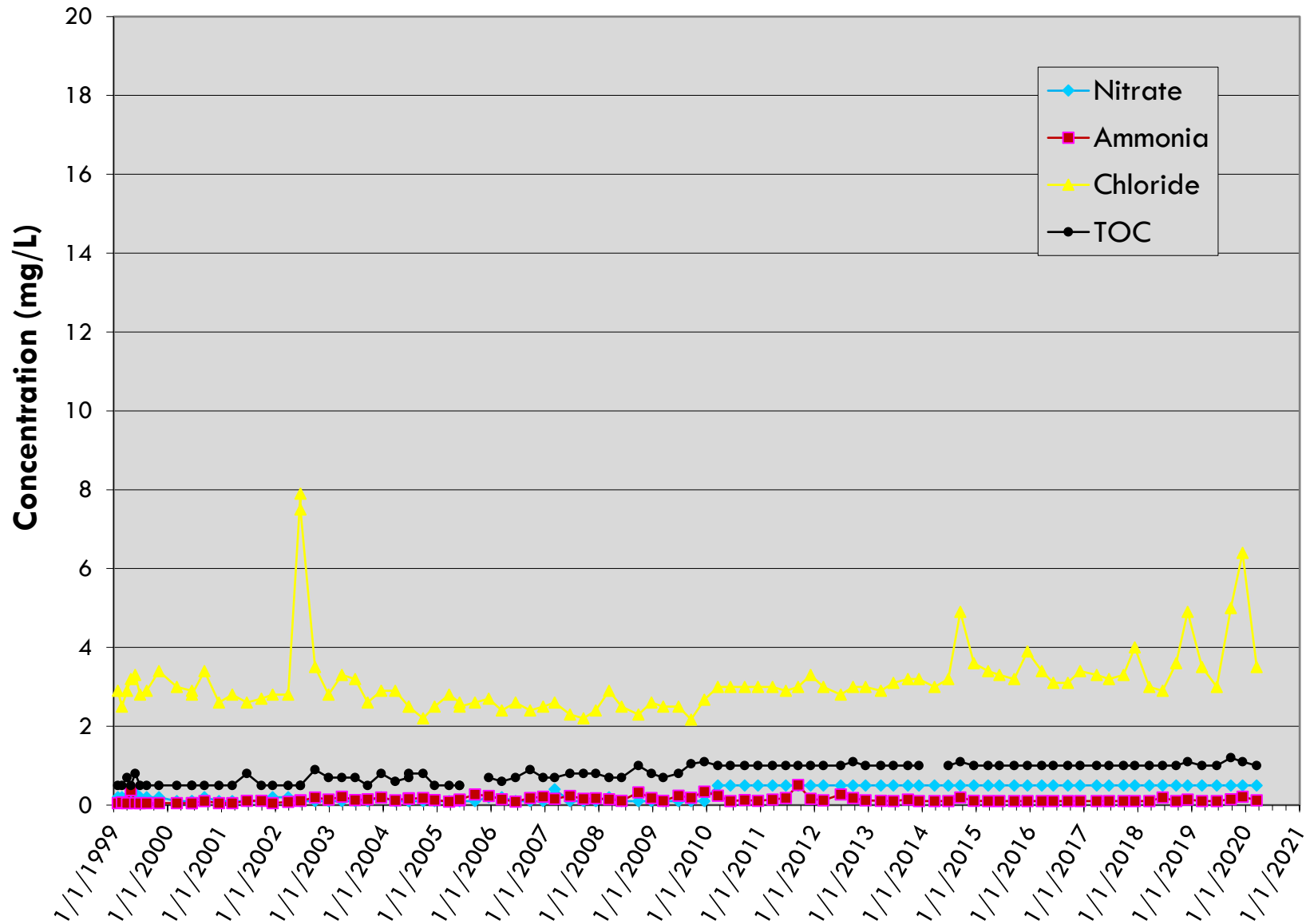
MW-1A

LRI Landfill, Pierce County, Washington



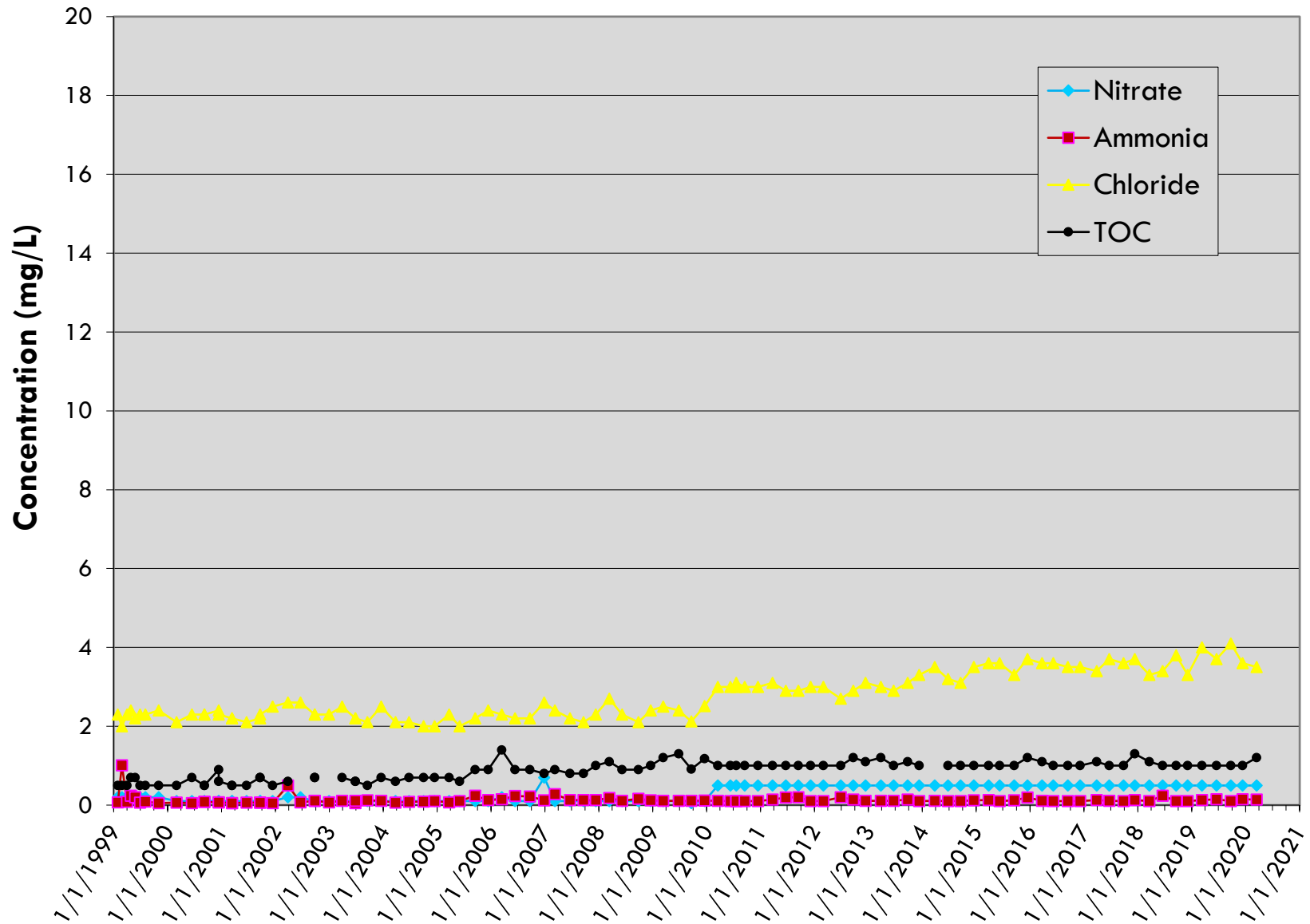
MW-2A

LRI Landfill, Pierce County, Washington



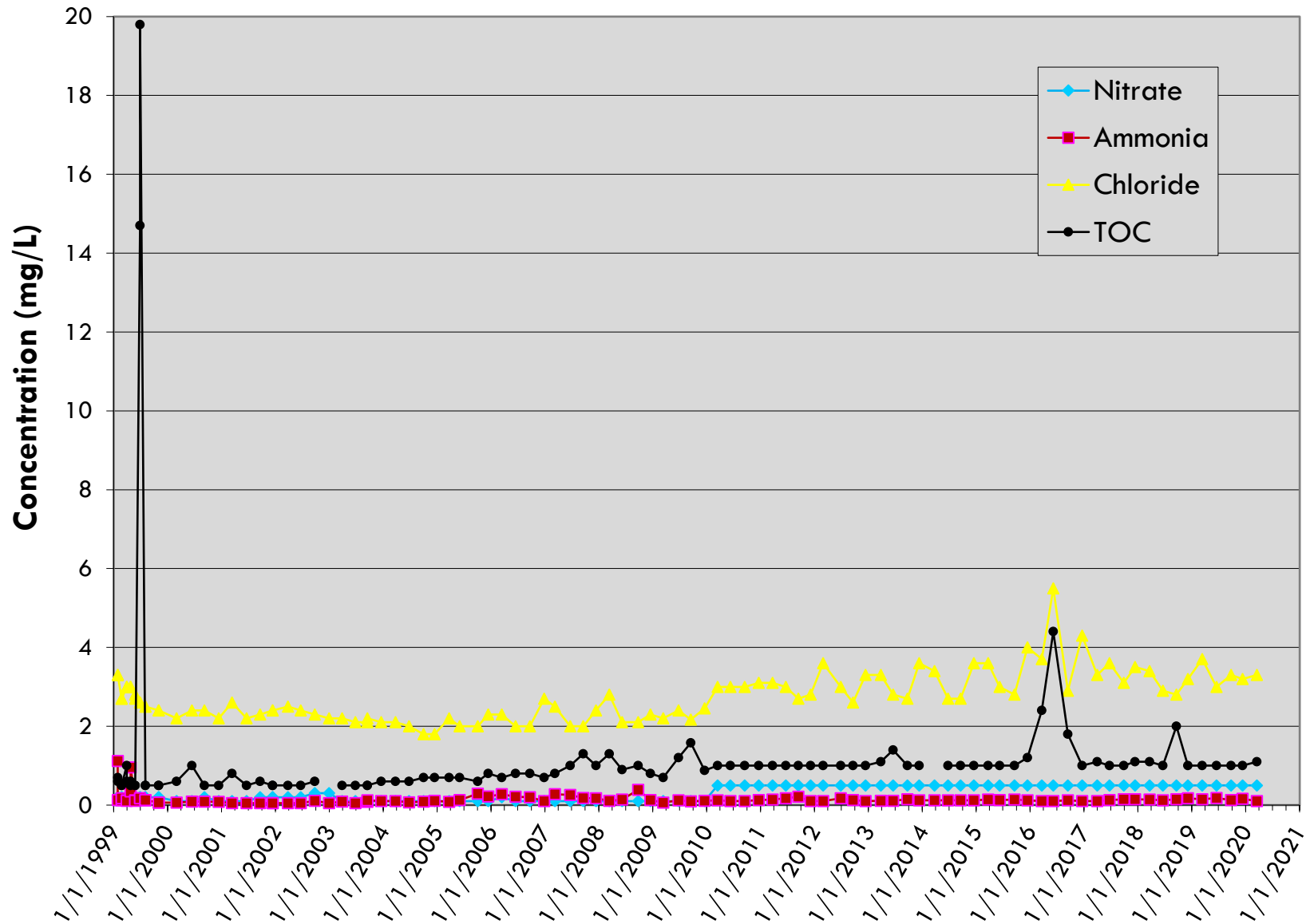
MW-3

LRI Landfill, Pierce County, Washington



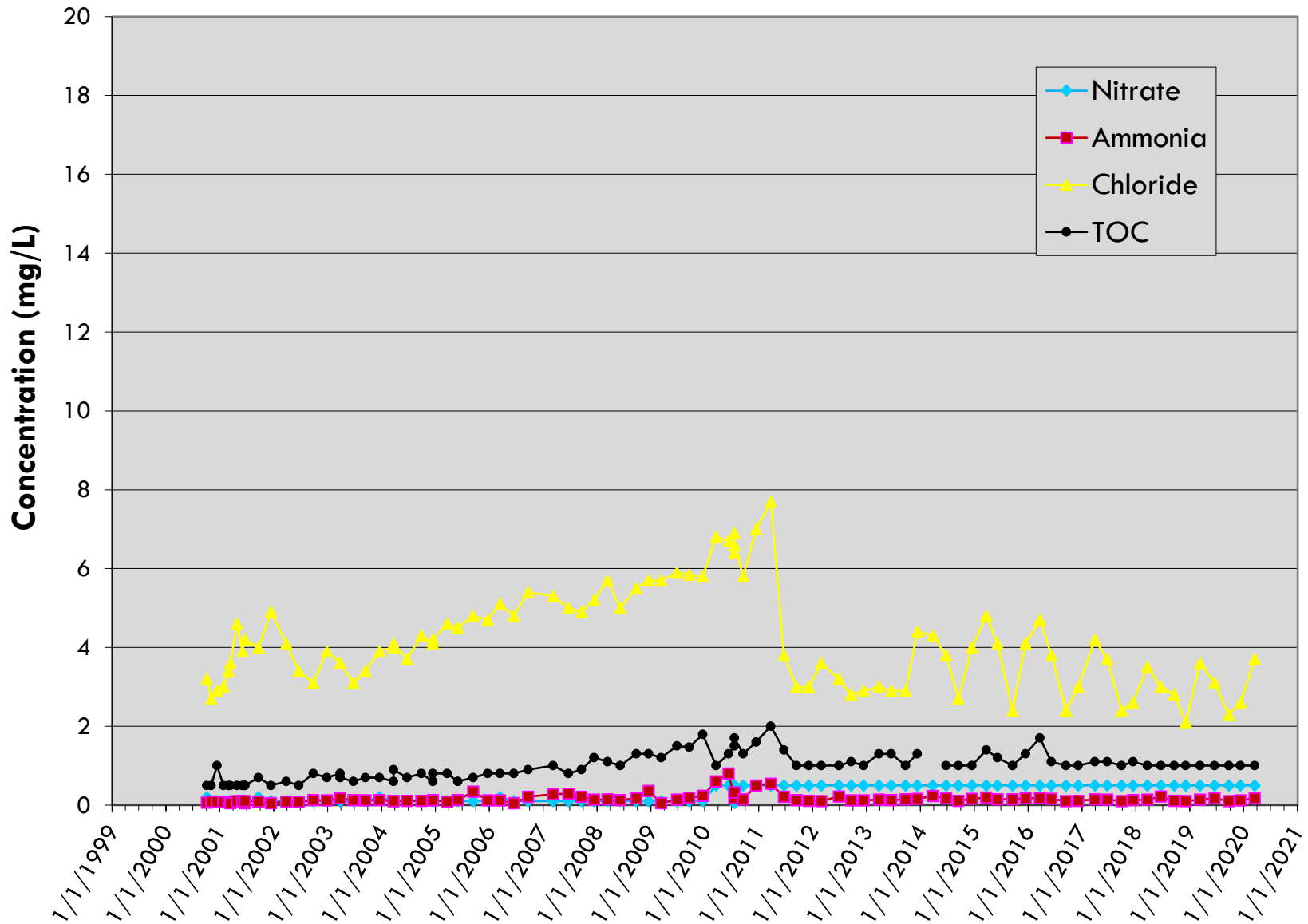
MW-4

LRI Landfill, Pierce County, Washington



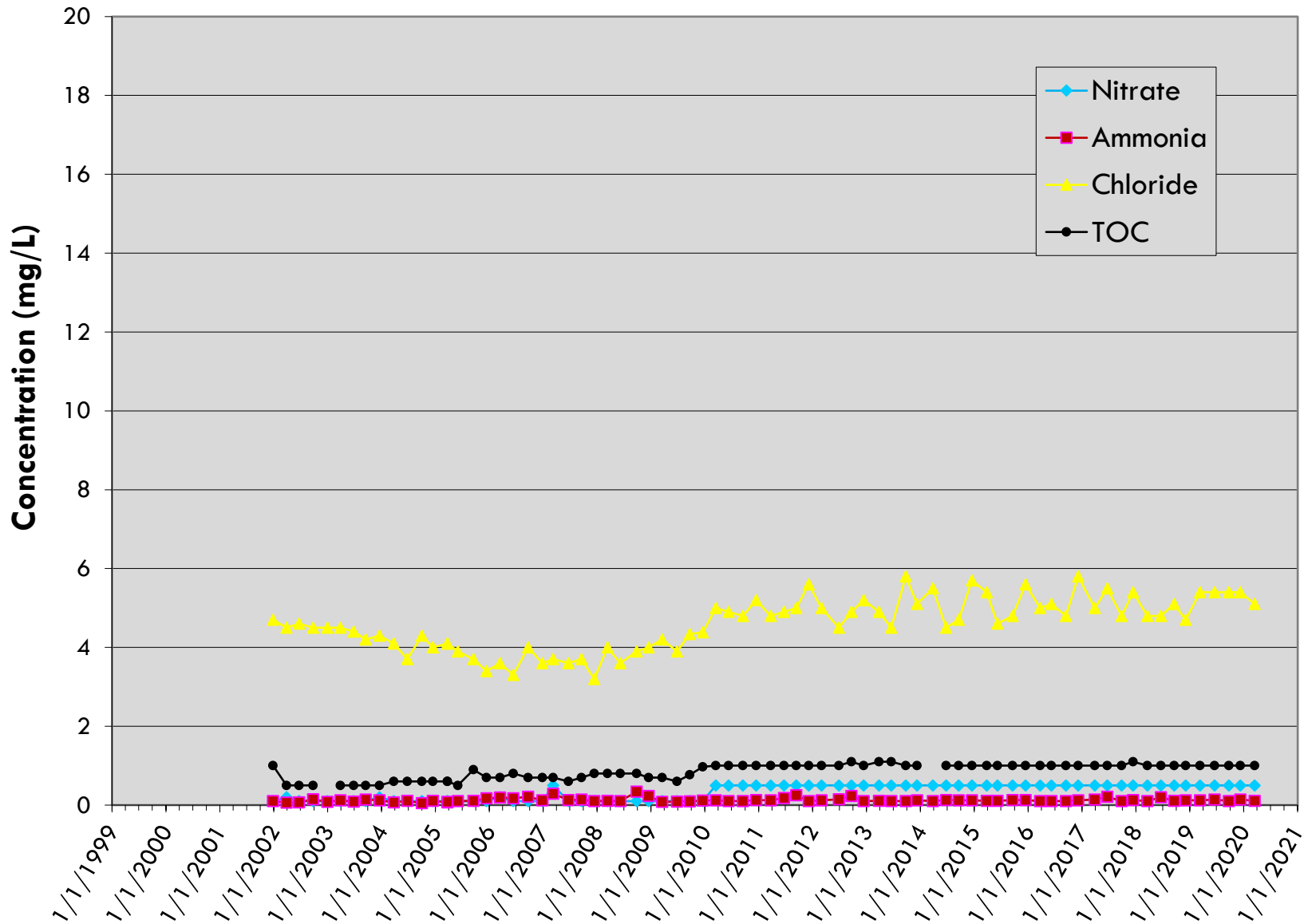
MW-5A

LRI Landfill, Pierce County, Washington



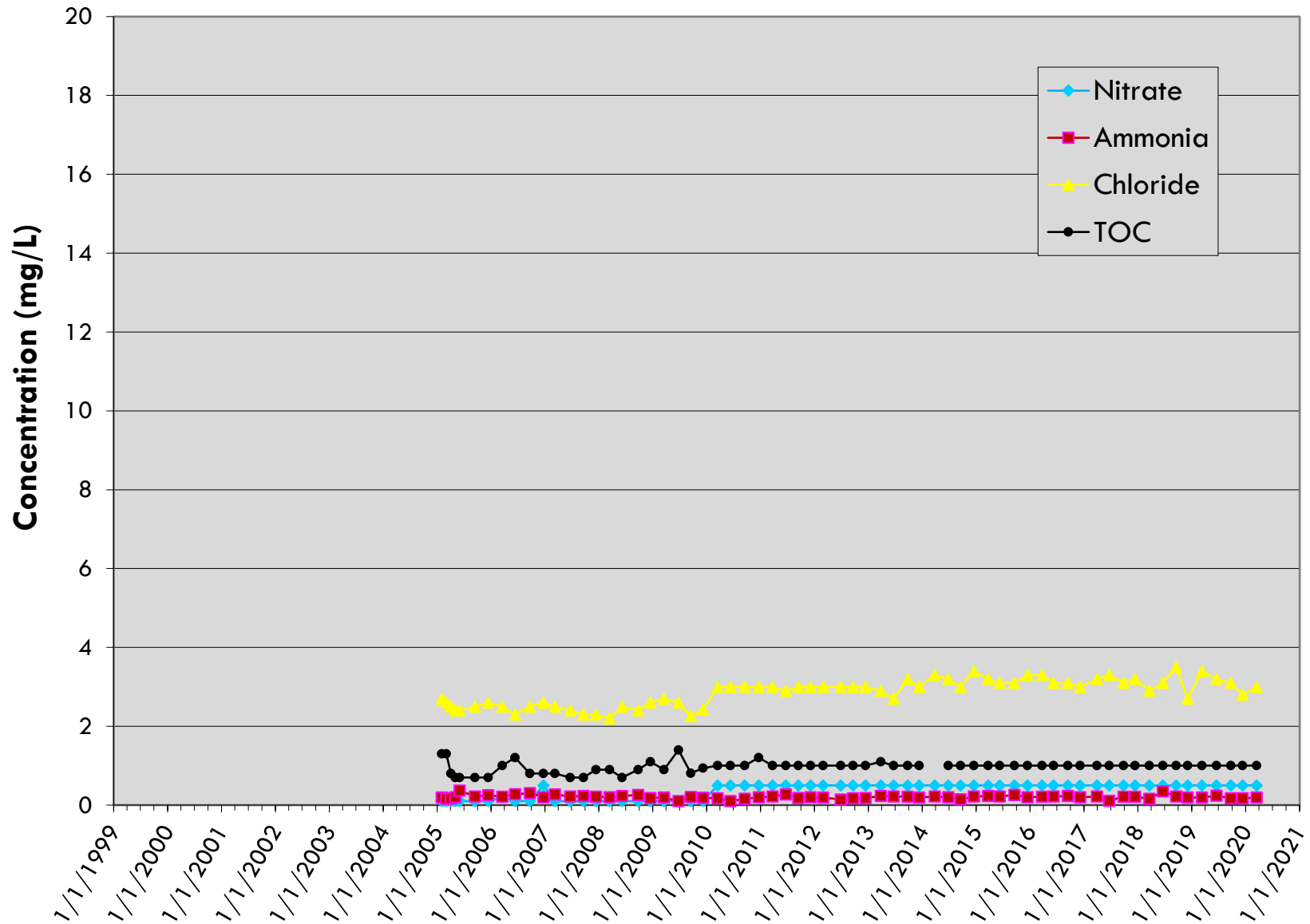
MW-6

LRI Landfill, Pierce County, Washington

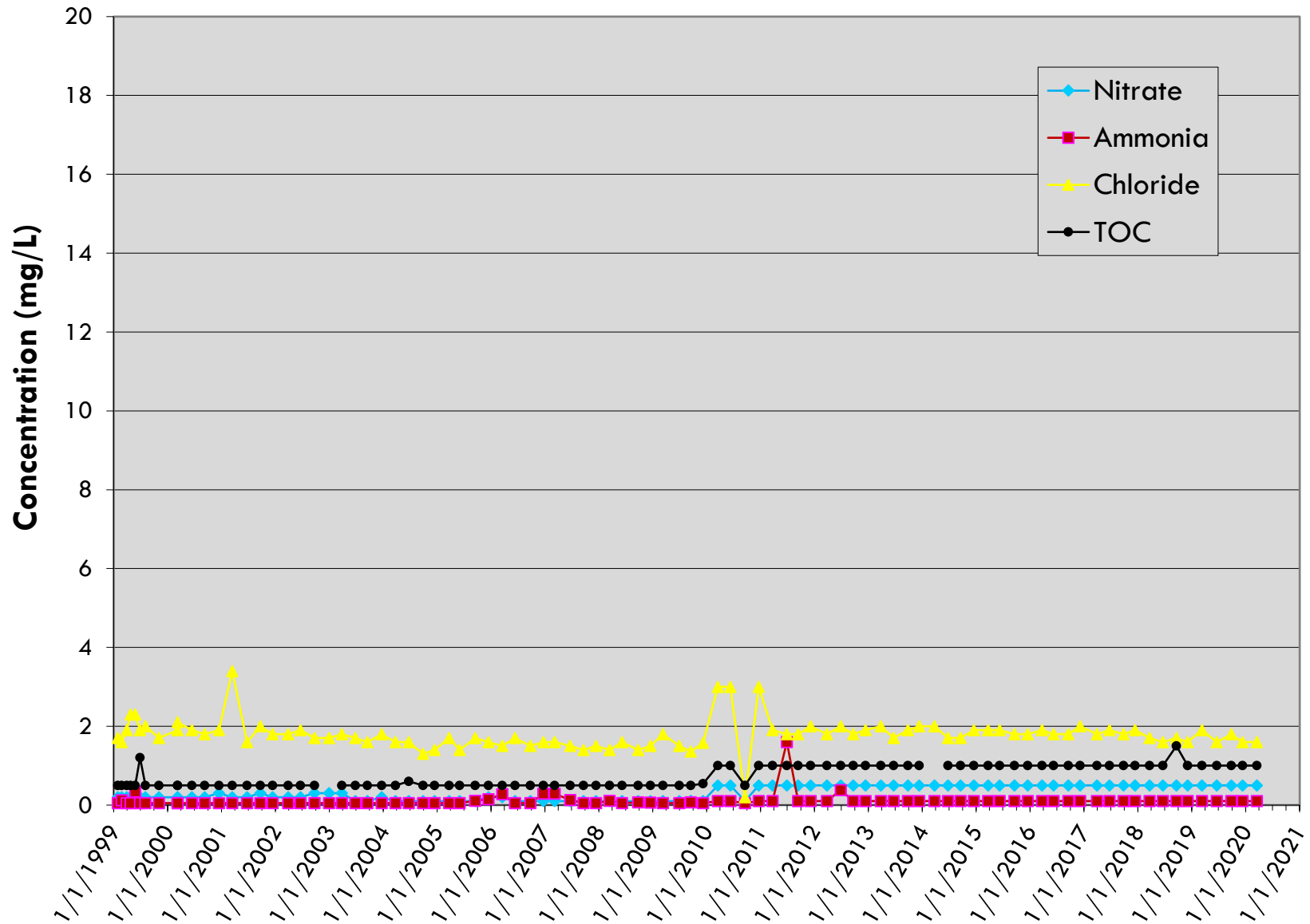


MW-7

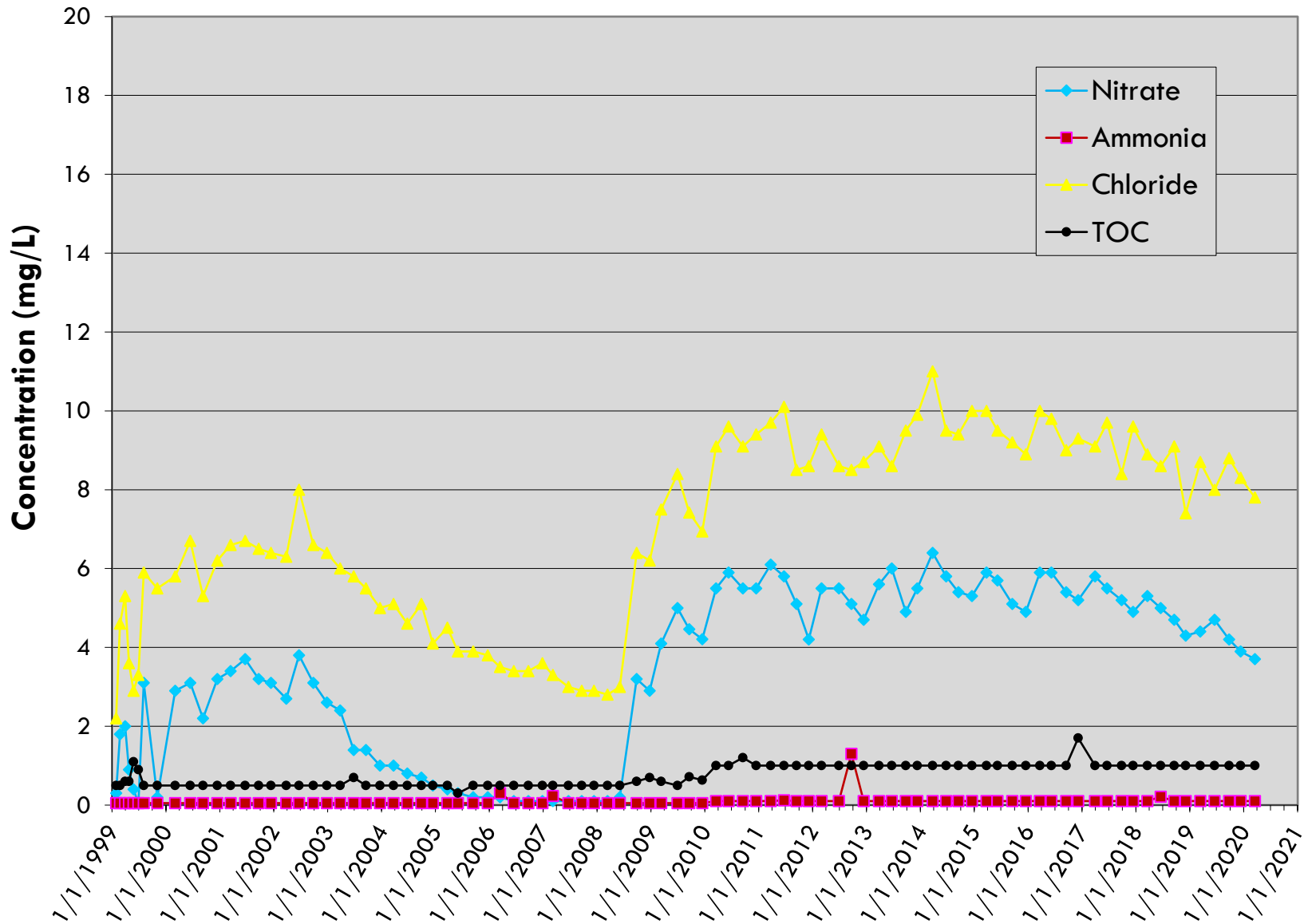
LRI Landfill, Pierce County, Washington



MW-9 (Background) LRI Landfill, Pierce County, Washington

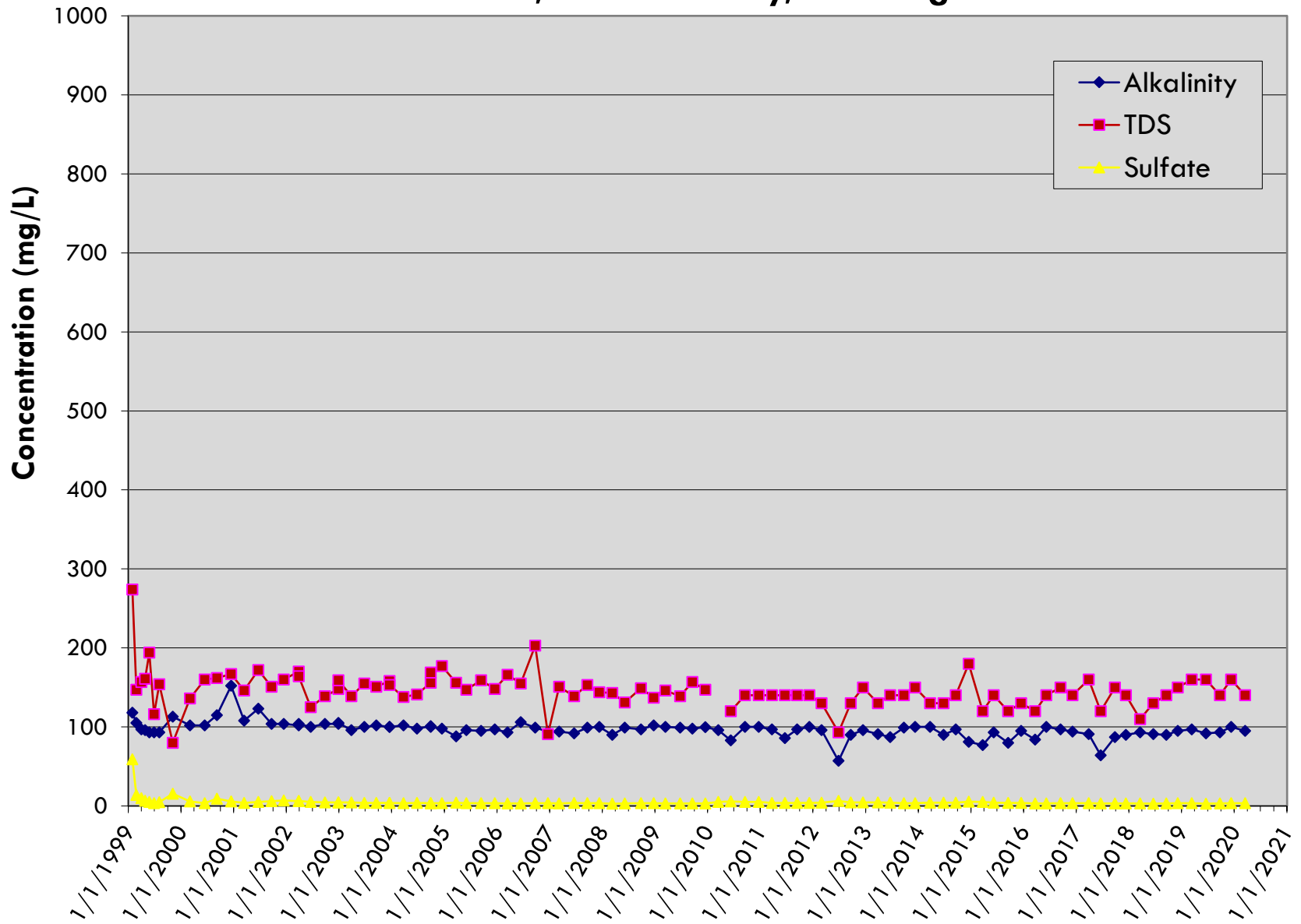


MW-10 (Background) LRI Landfill, Pierce County, Washington

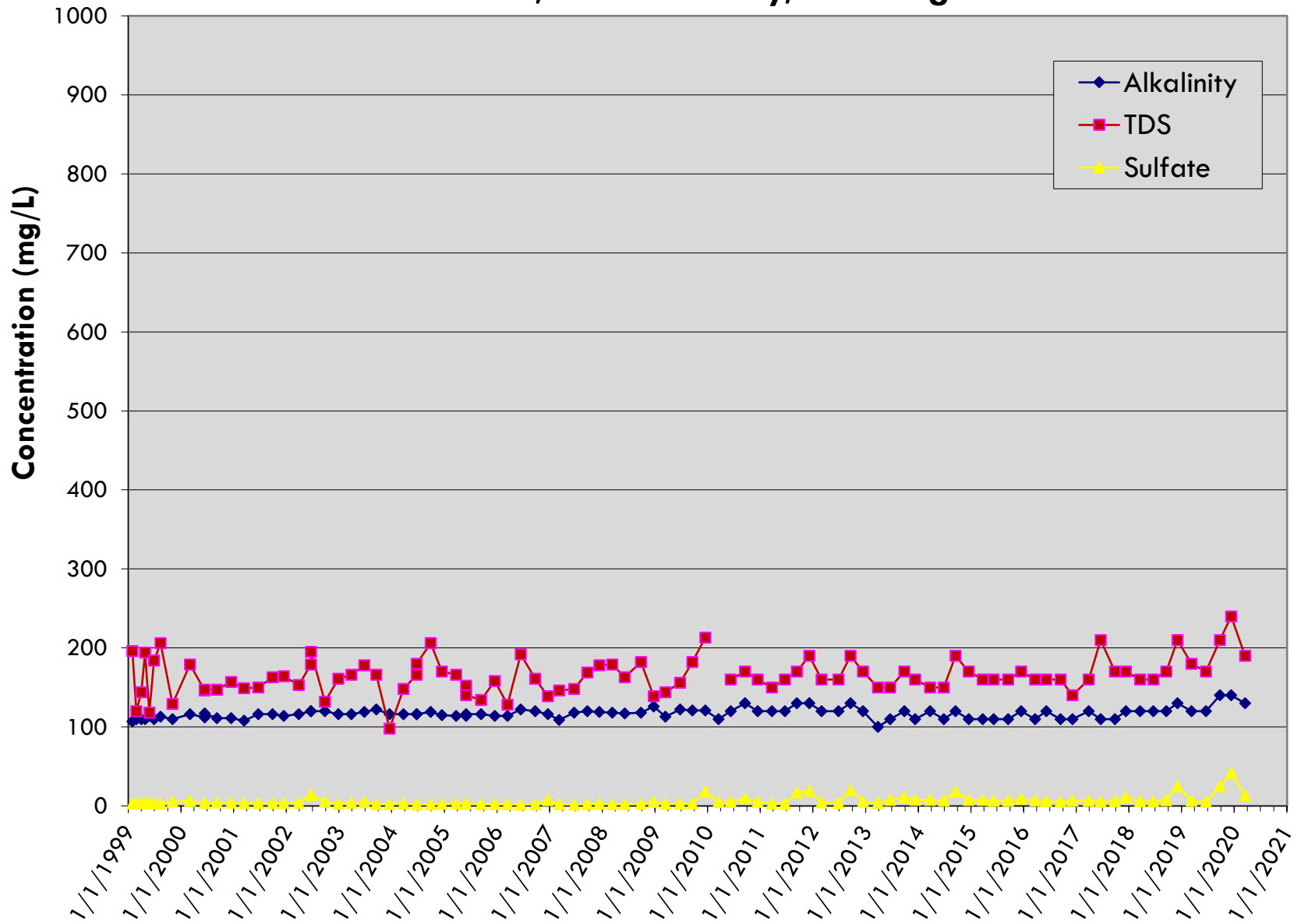


MW-1A

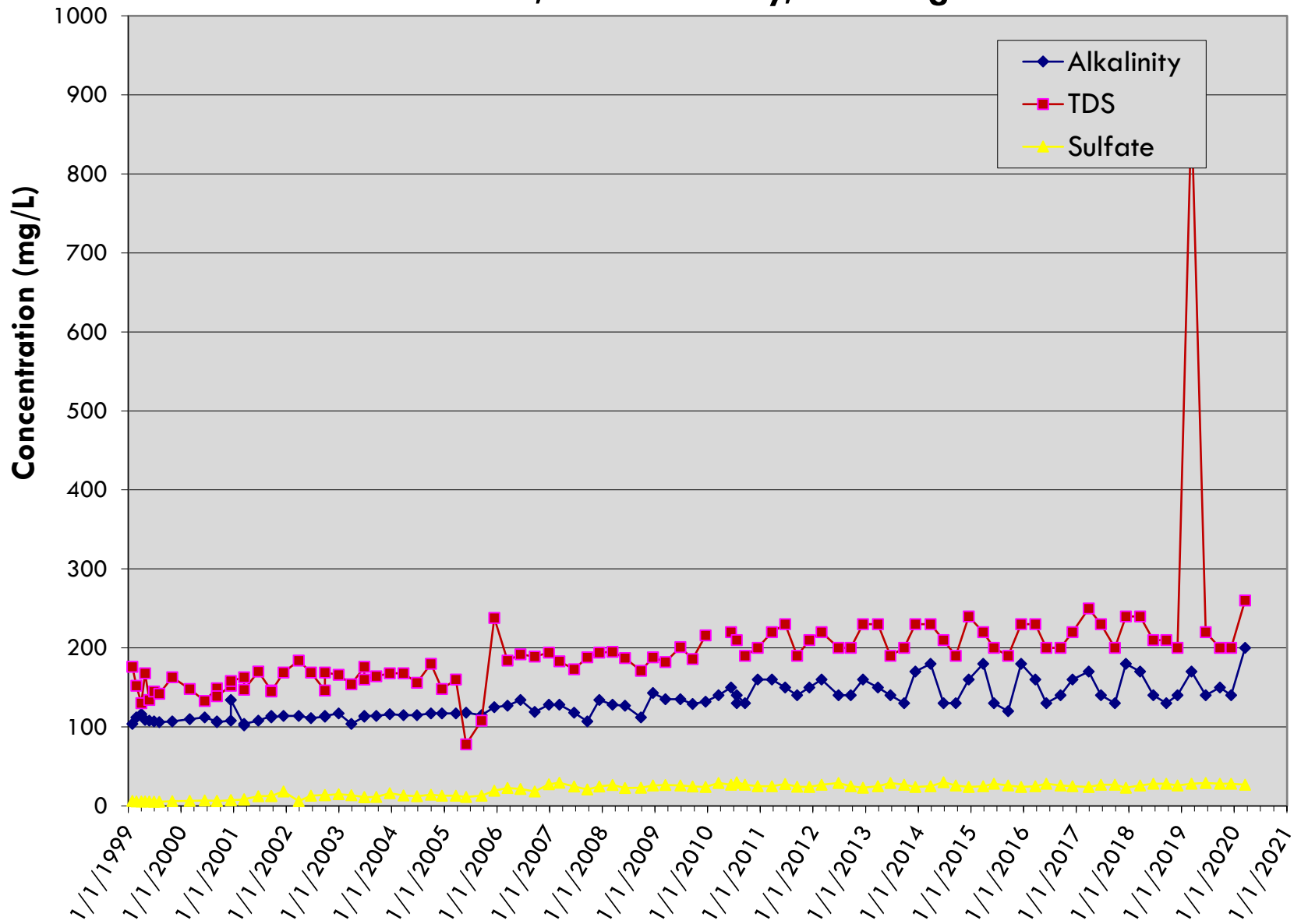
LRI Landfill, Pierce County, Washington



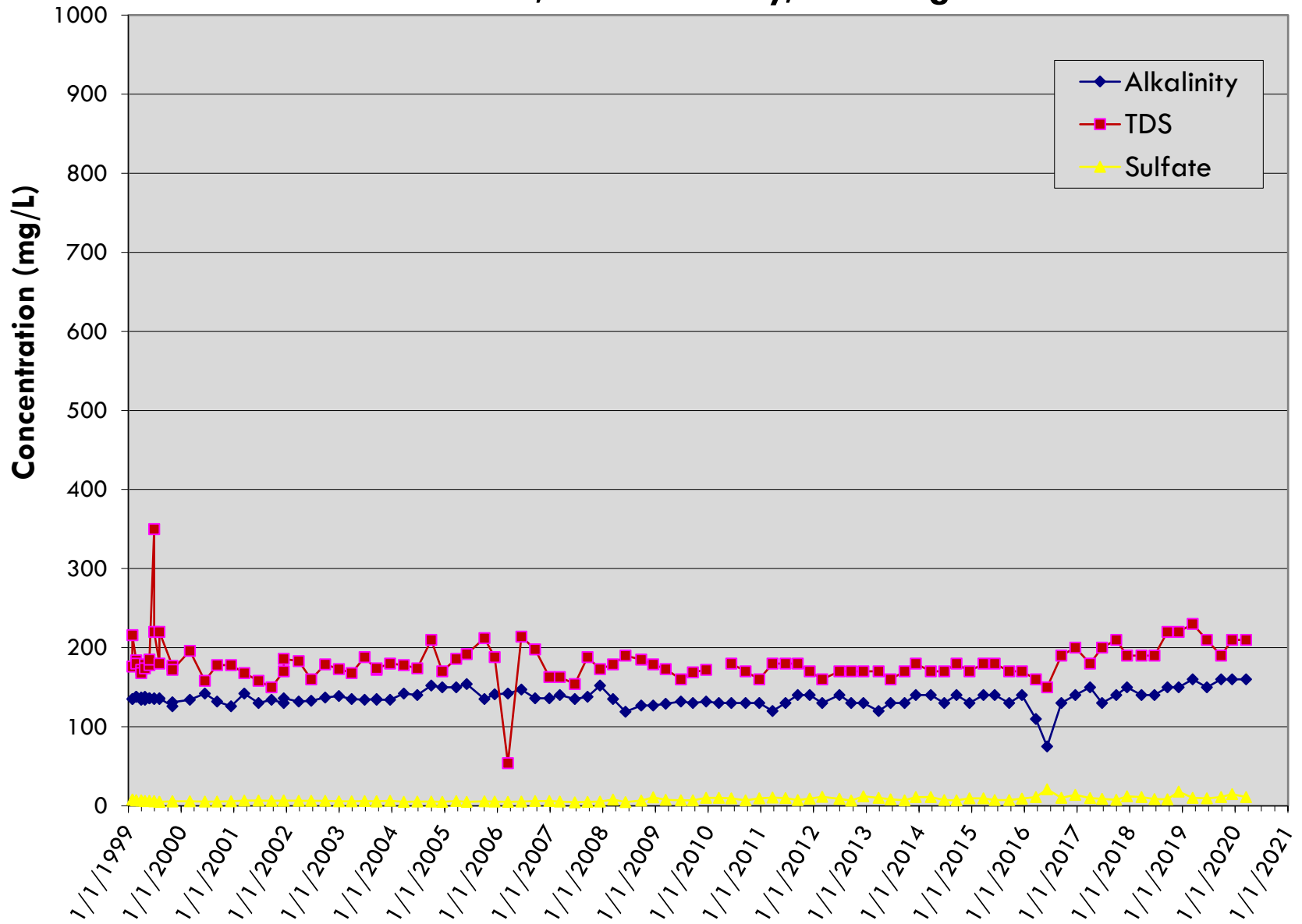
MW-2A
LRI Landfill, Pierce County, Washington



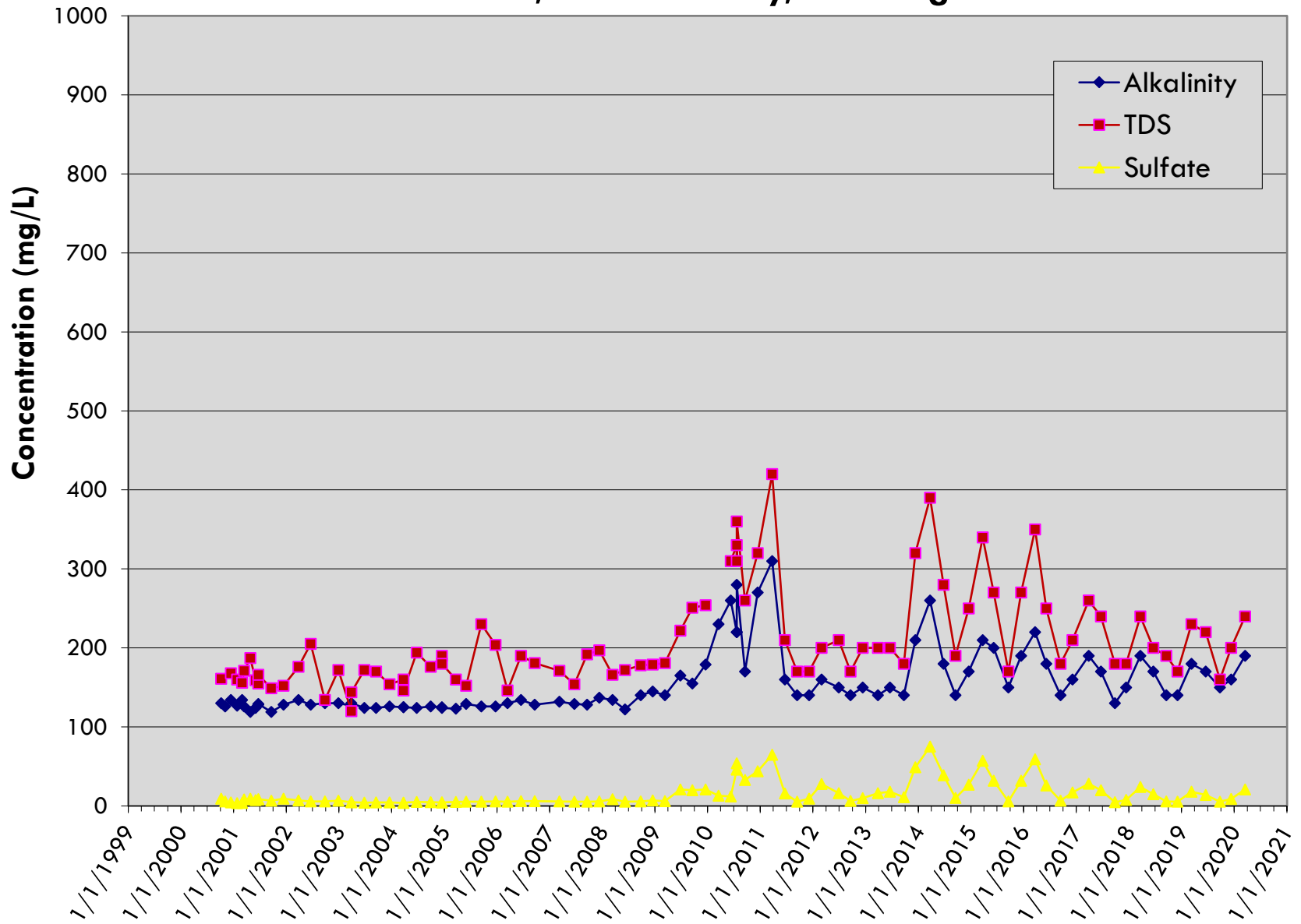
MW-3
LRI Landfill, Pierce County, Washington



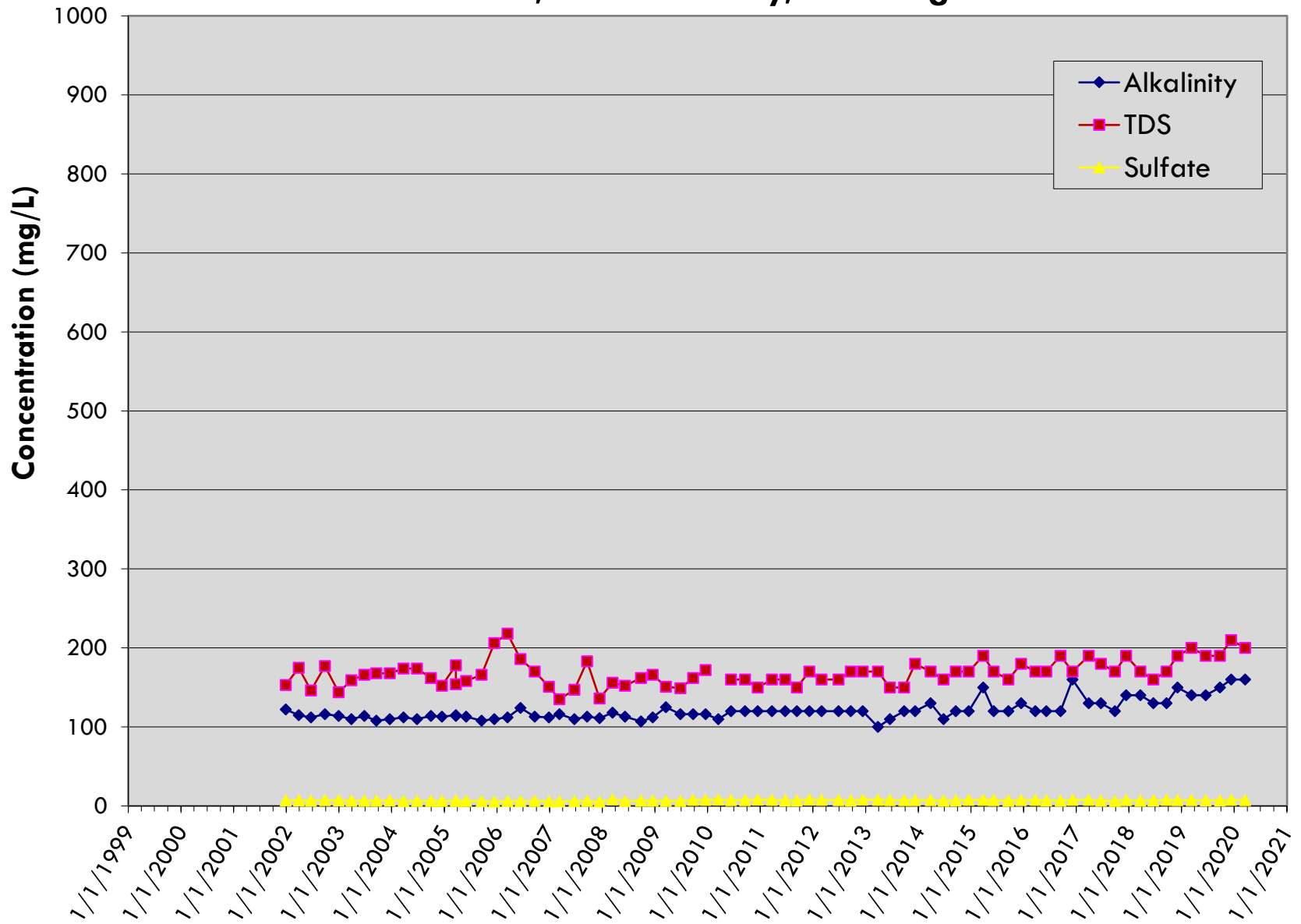
MW-4
LRI Landfill, Pierce County, Washington



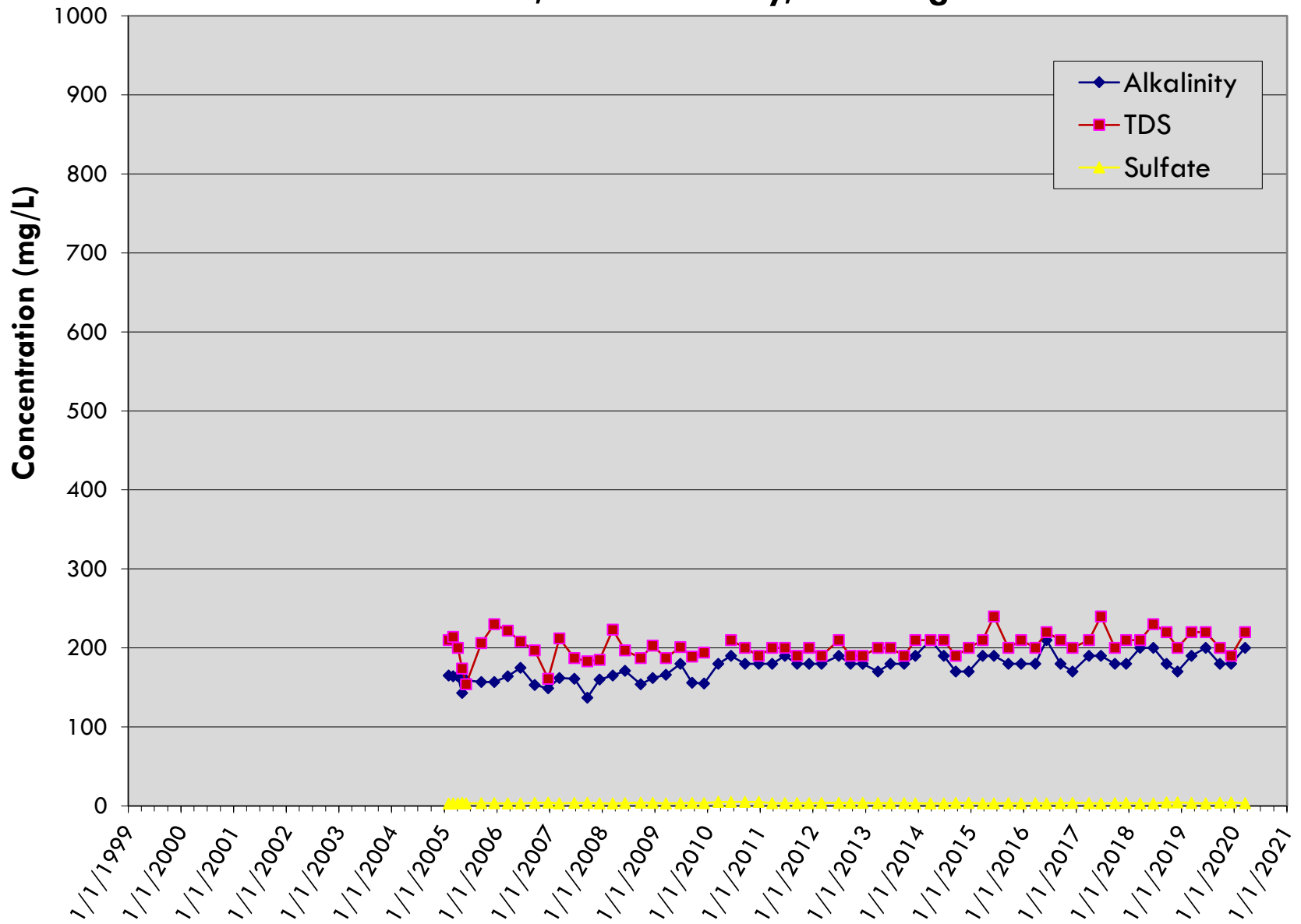
MW-5A
LRI Landfill, Pierce County, Washington



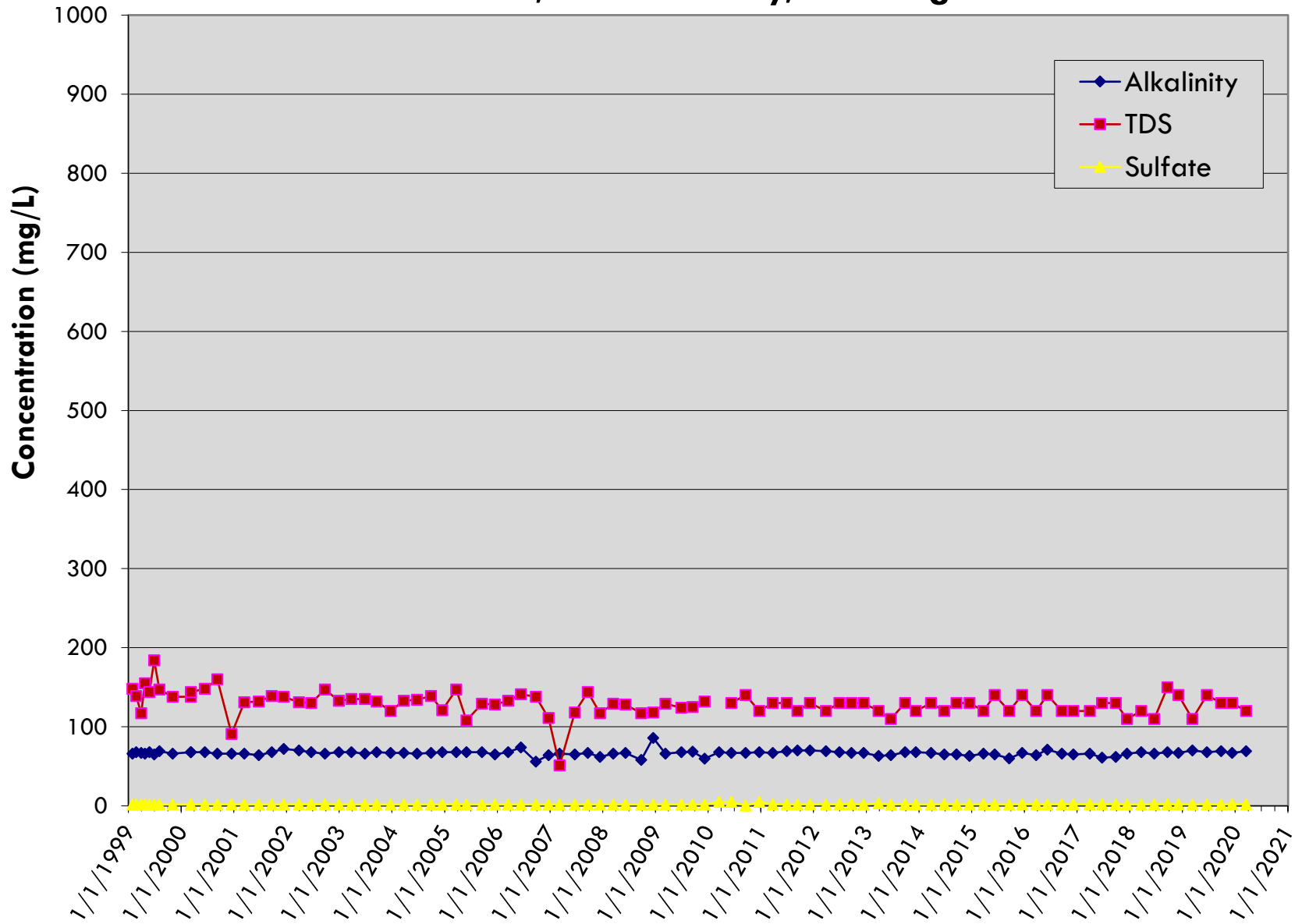
MW-6
LRI Landfill, Pierce County, Washington



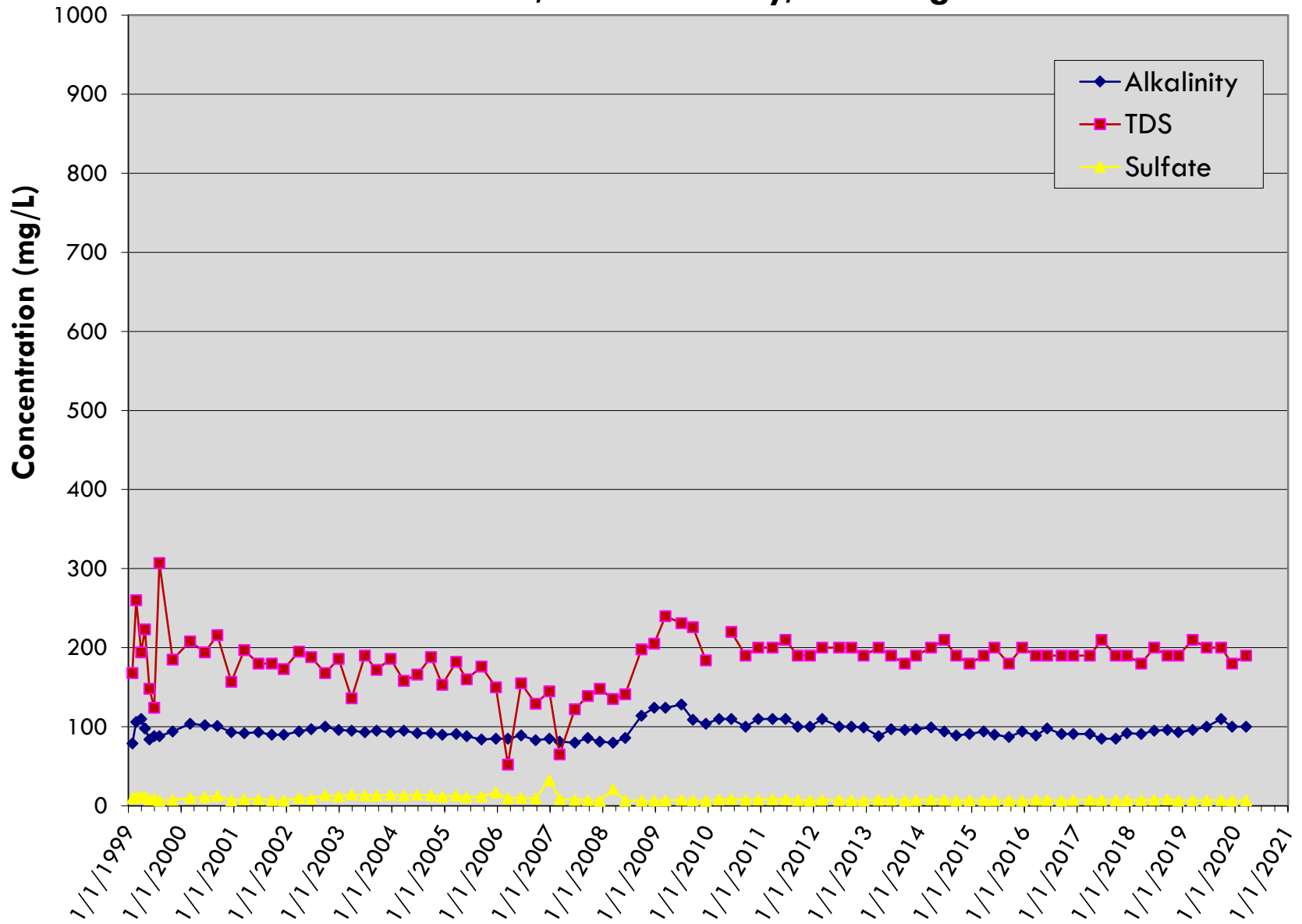
MW-7
LRI Landfill, Pierce County, Washington



MW-9 (Background)
LRI Landfill, Pierce County, Washington

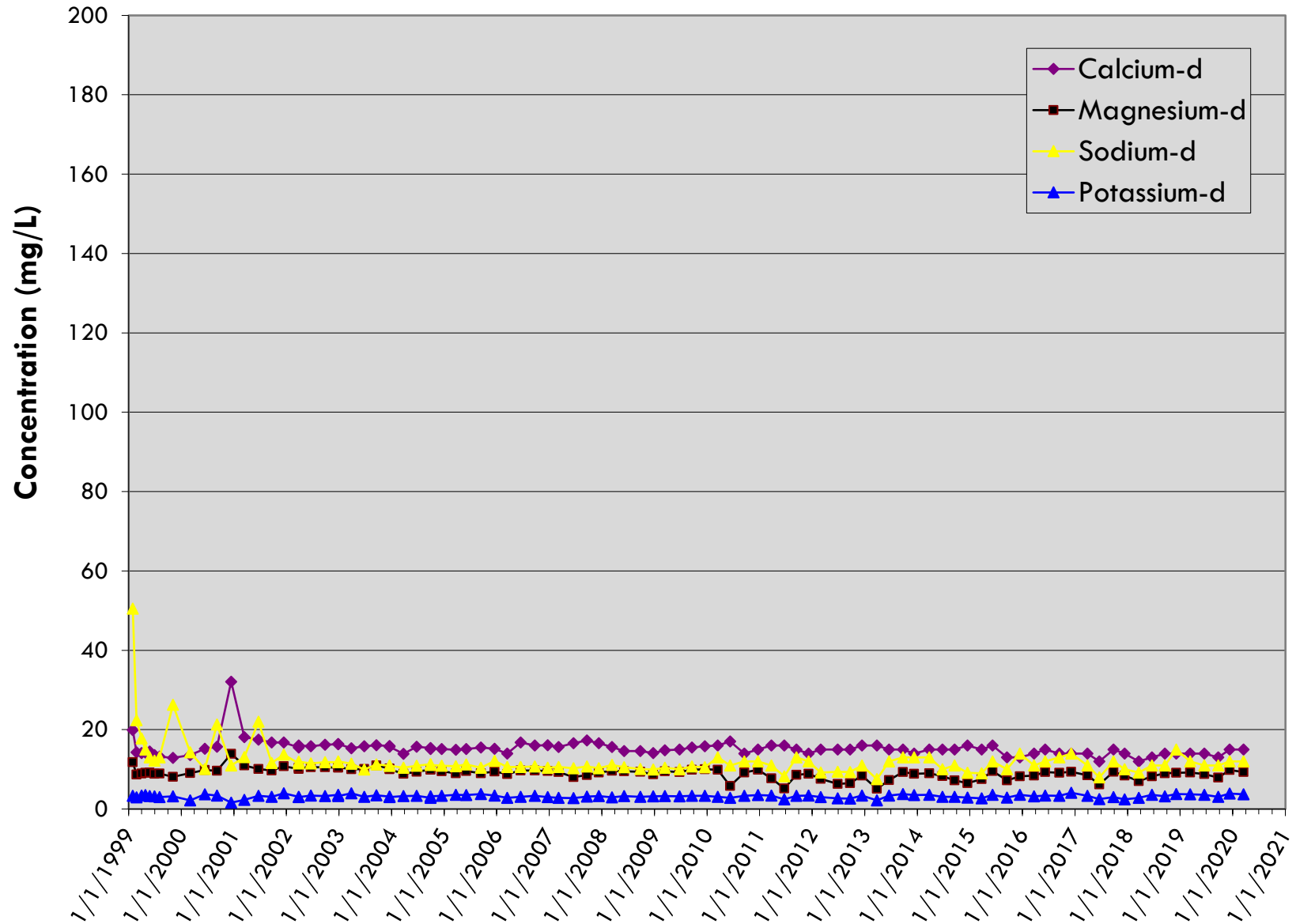


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LRI Landfill, Pierce County, Washington

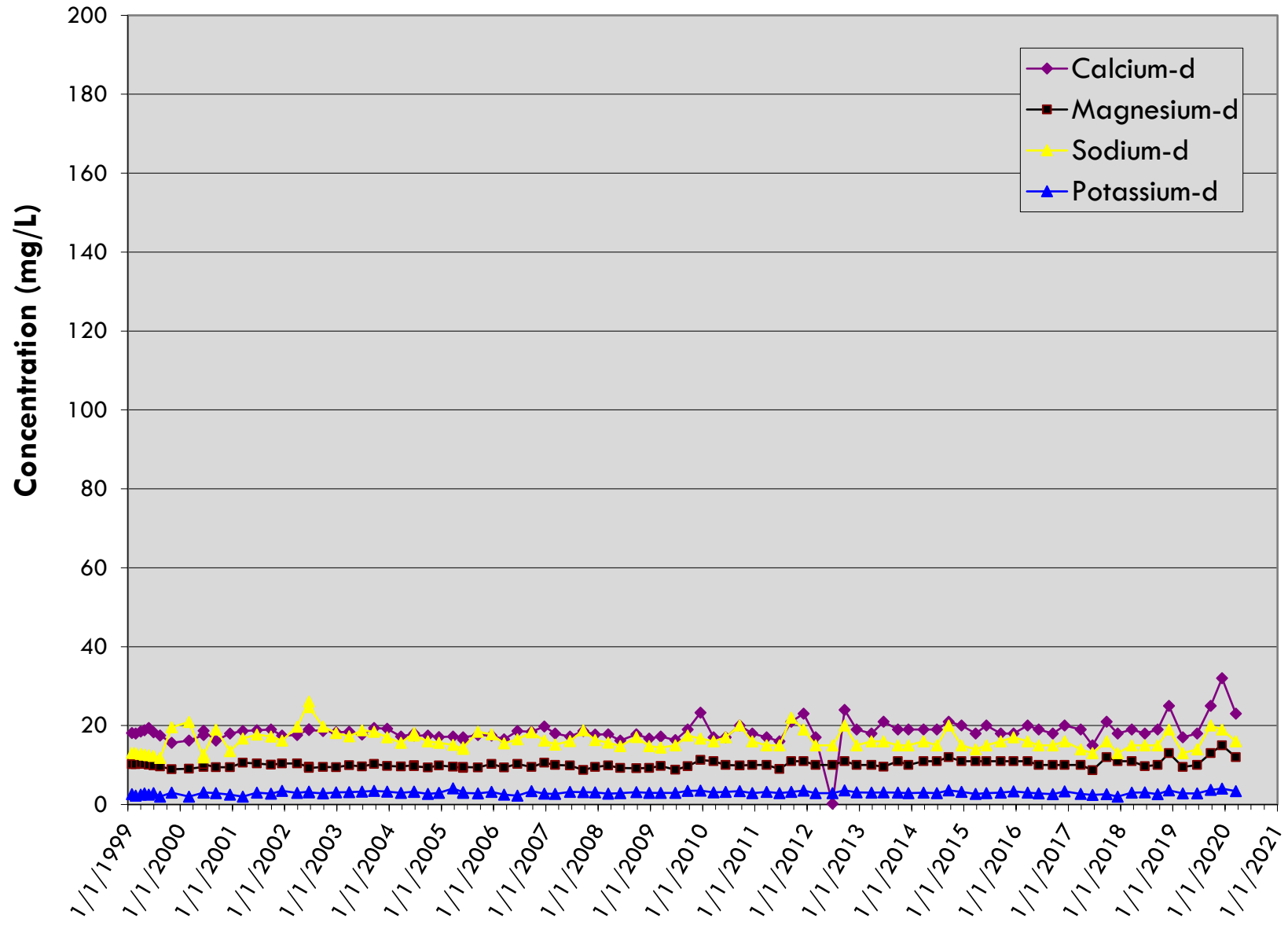


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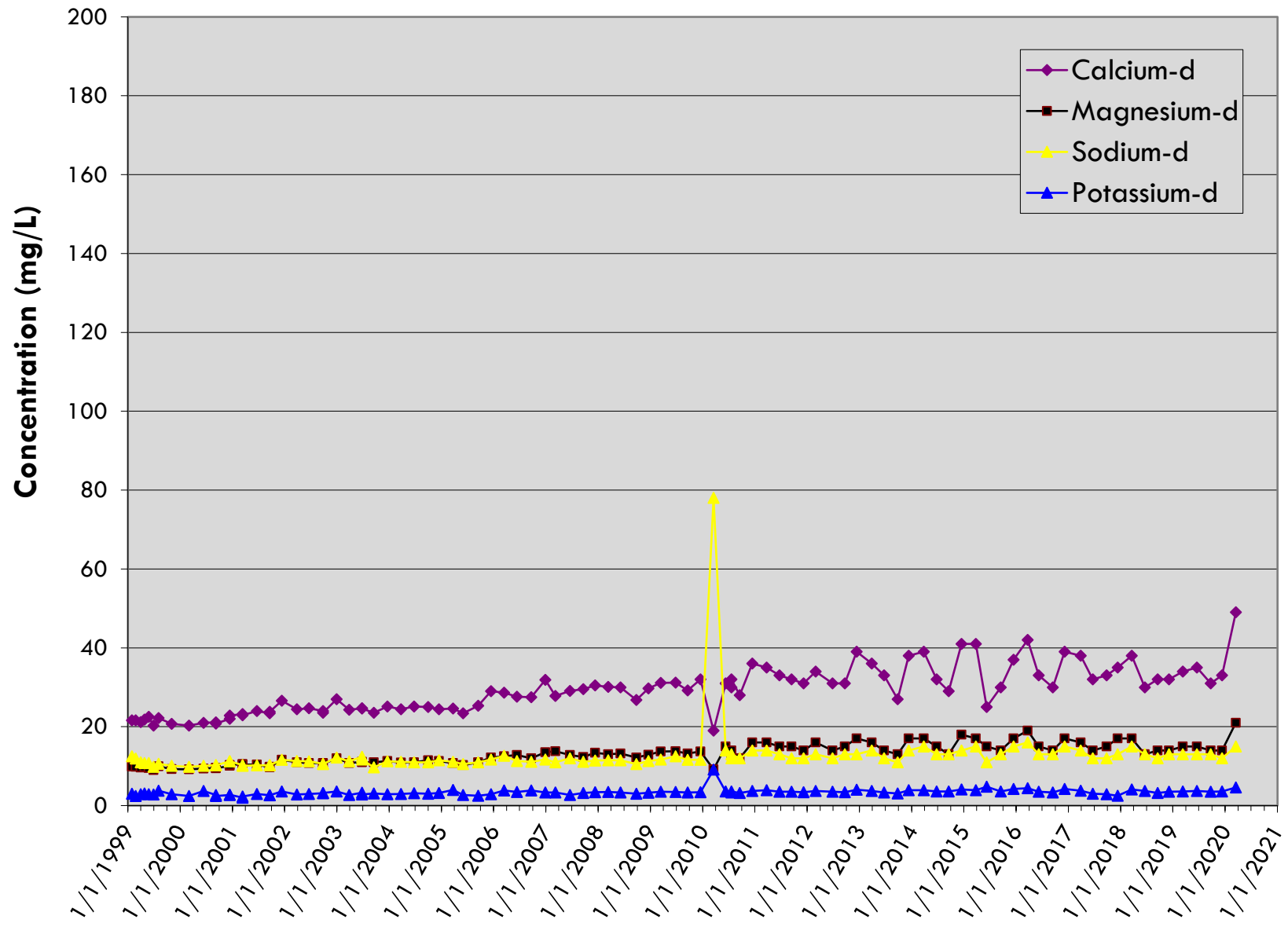
LRI Landfill, Pierce County, Washington



MW-2A
LRI Landfill, Pierce County, Washington

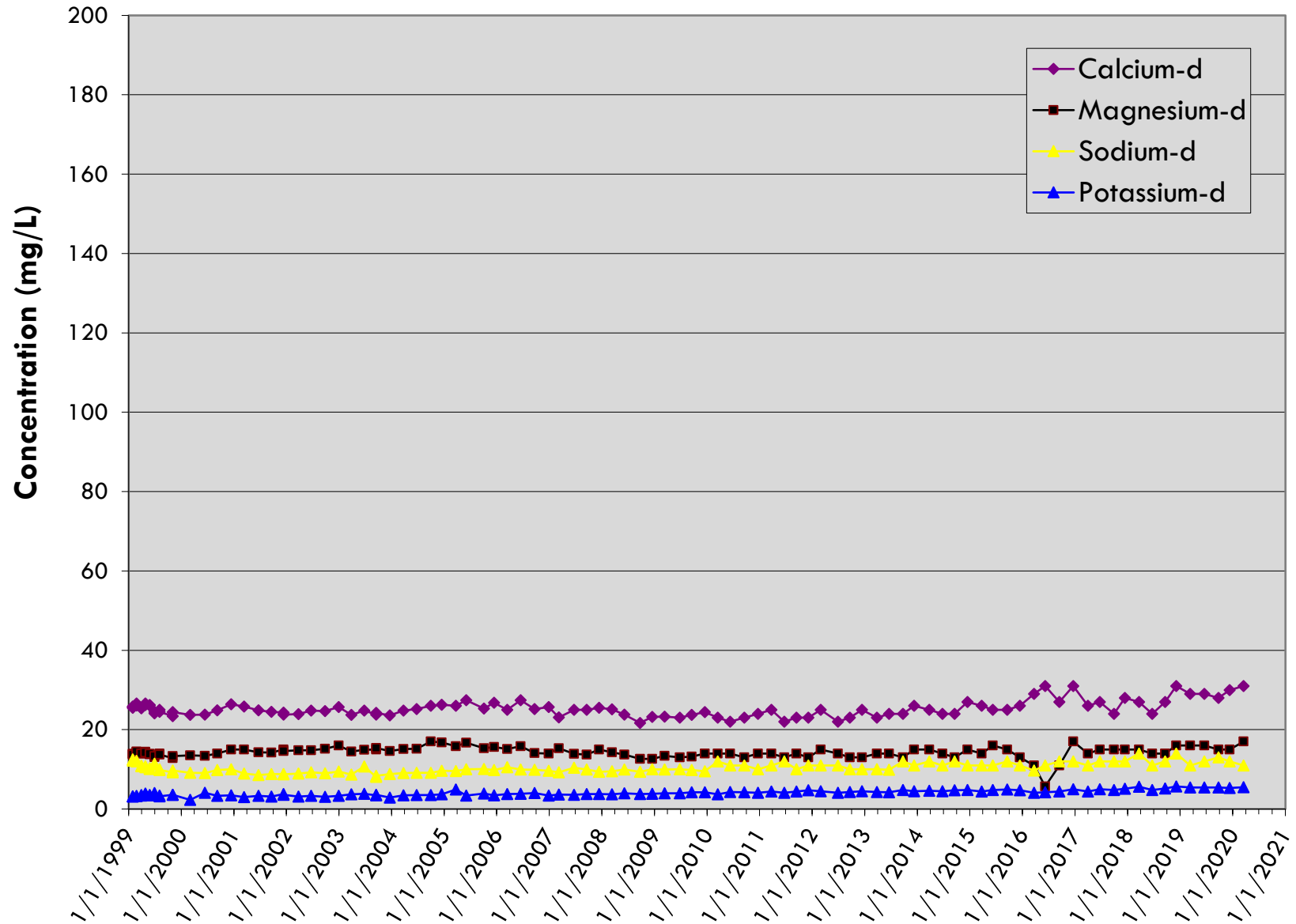


MW-3
LRI Landfill, Pierce County, Washington



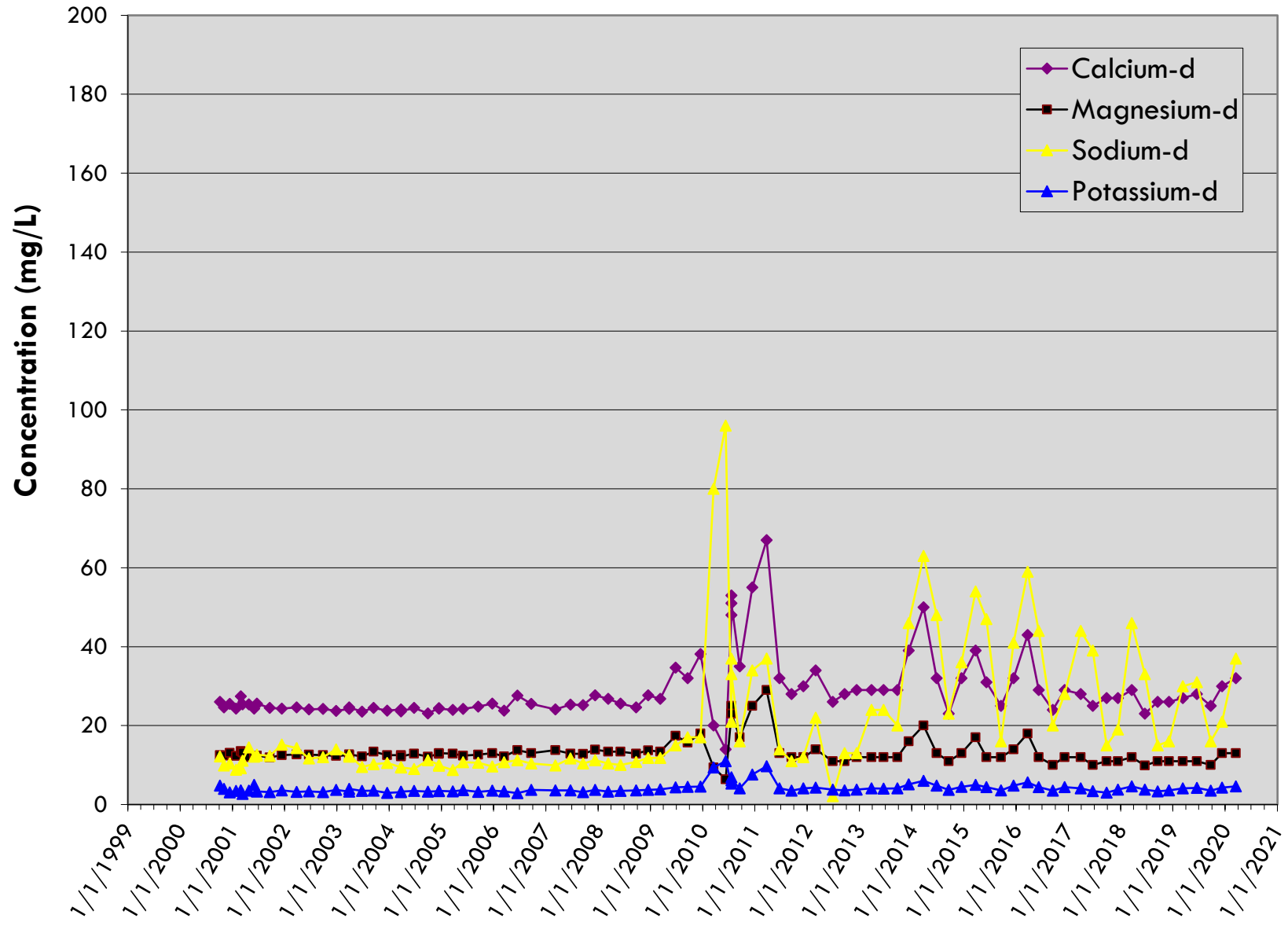
MW-4

LRI Landfill, Pierce County, Washington



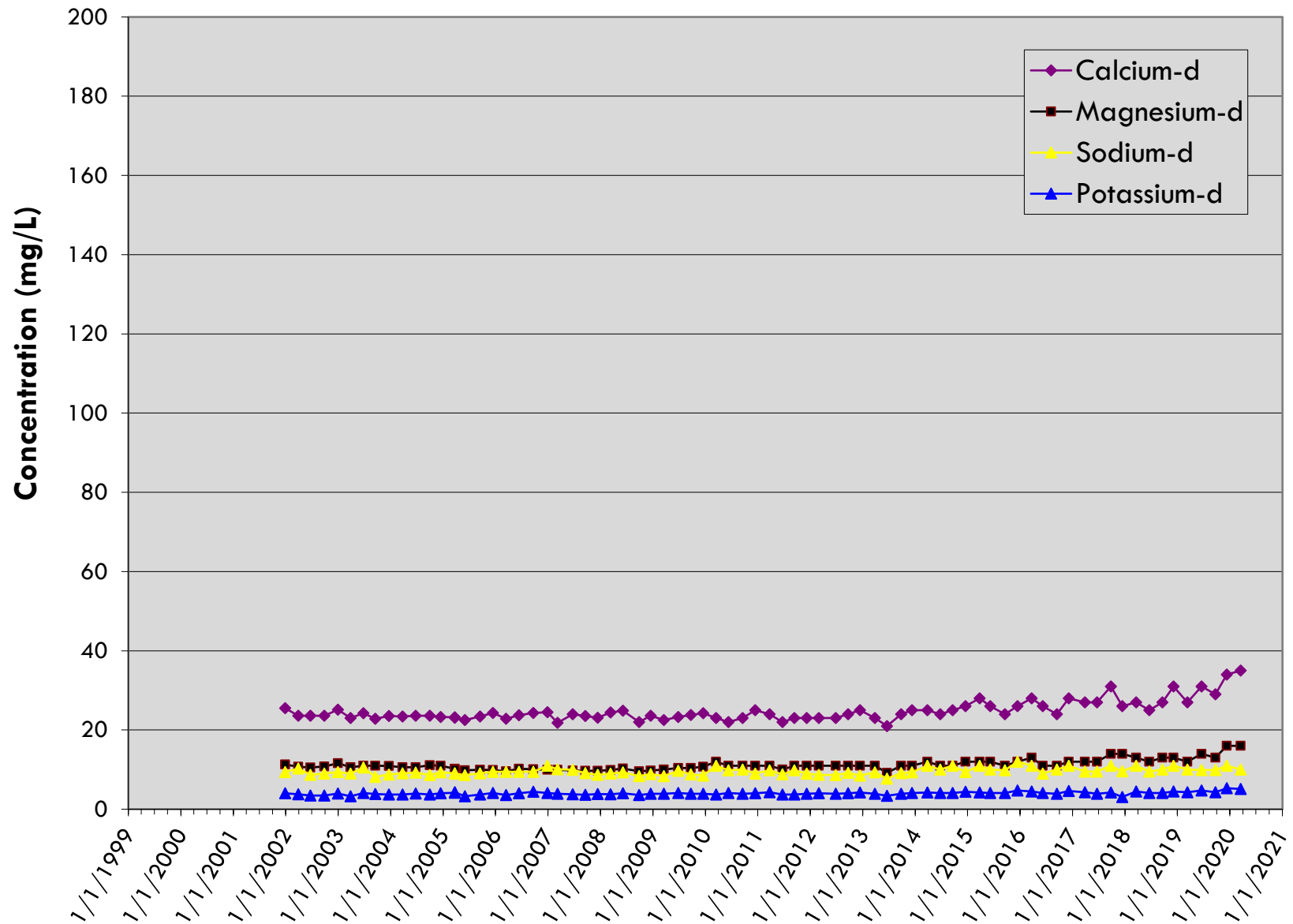
MW-5A

LRI Landfill, Pierce County, Washington

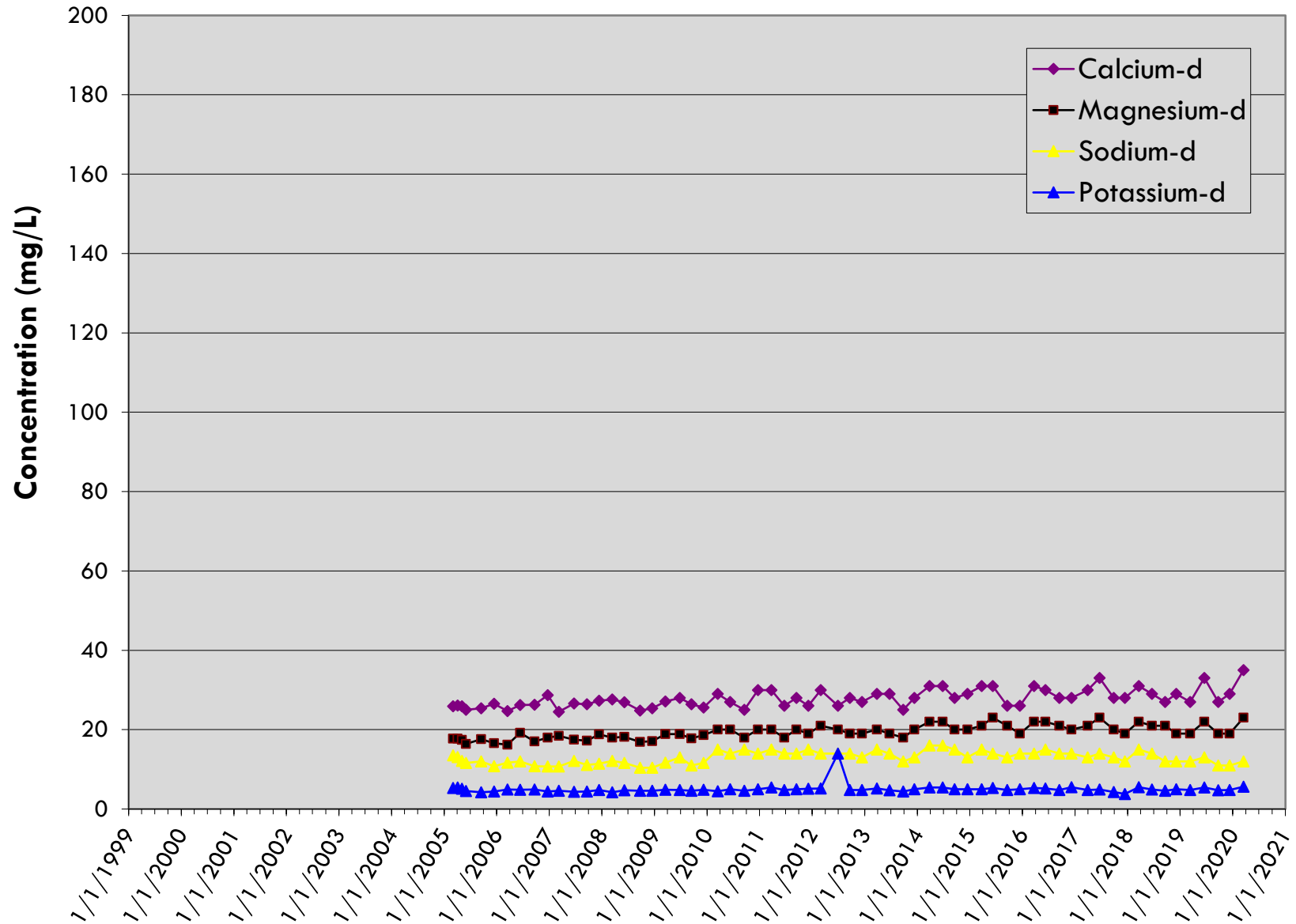


MW-6

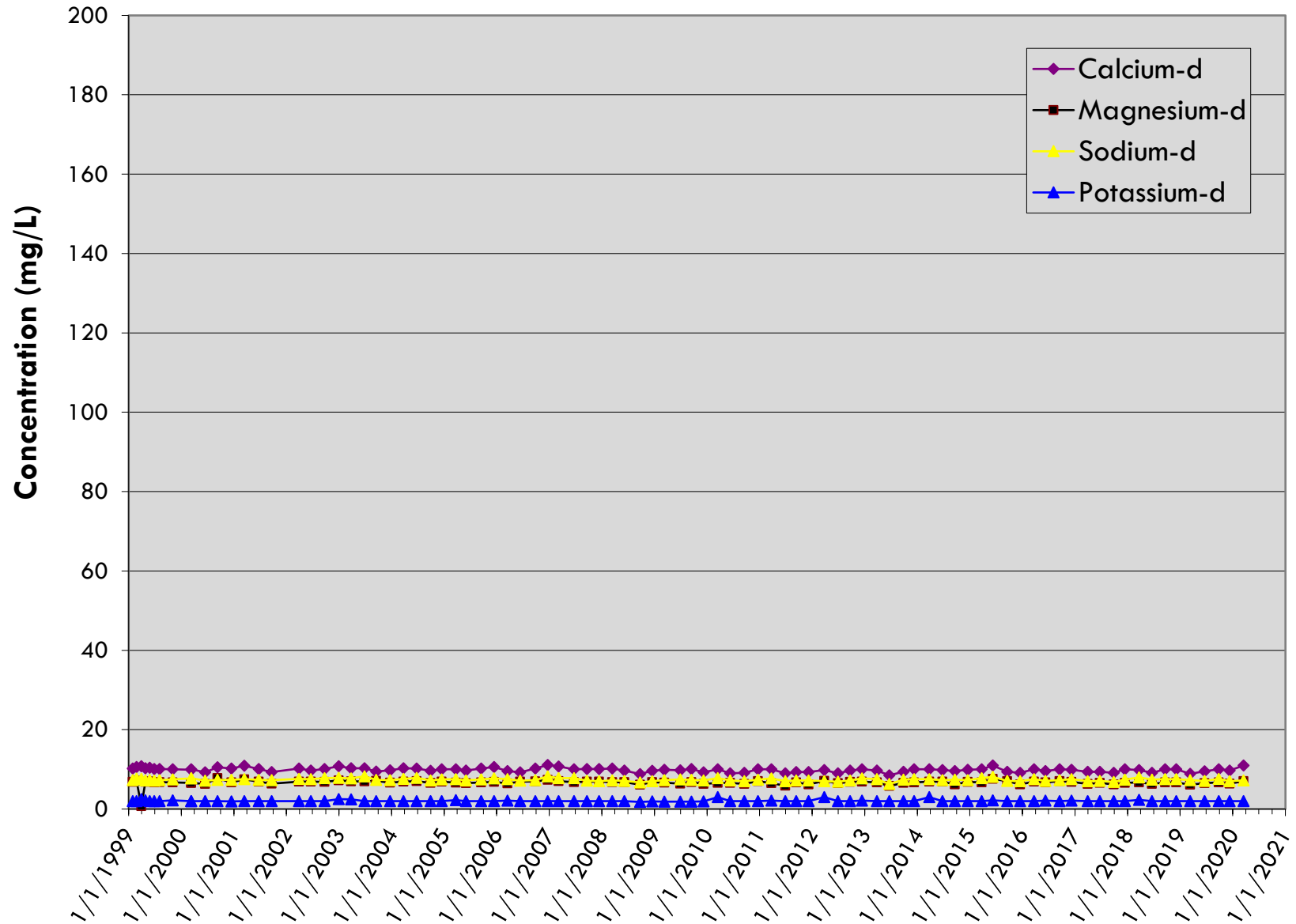
LRI Landfill, Pierce County, Washington



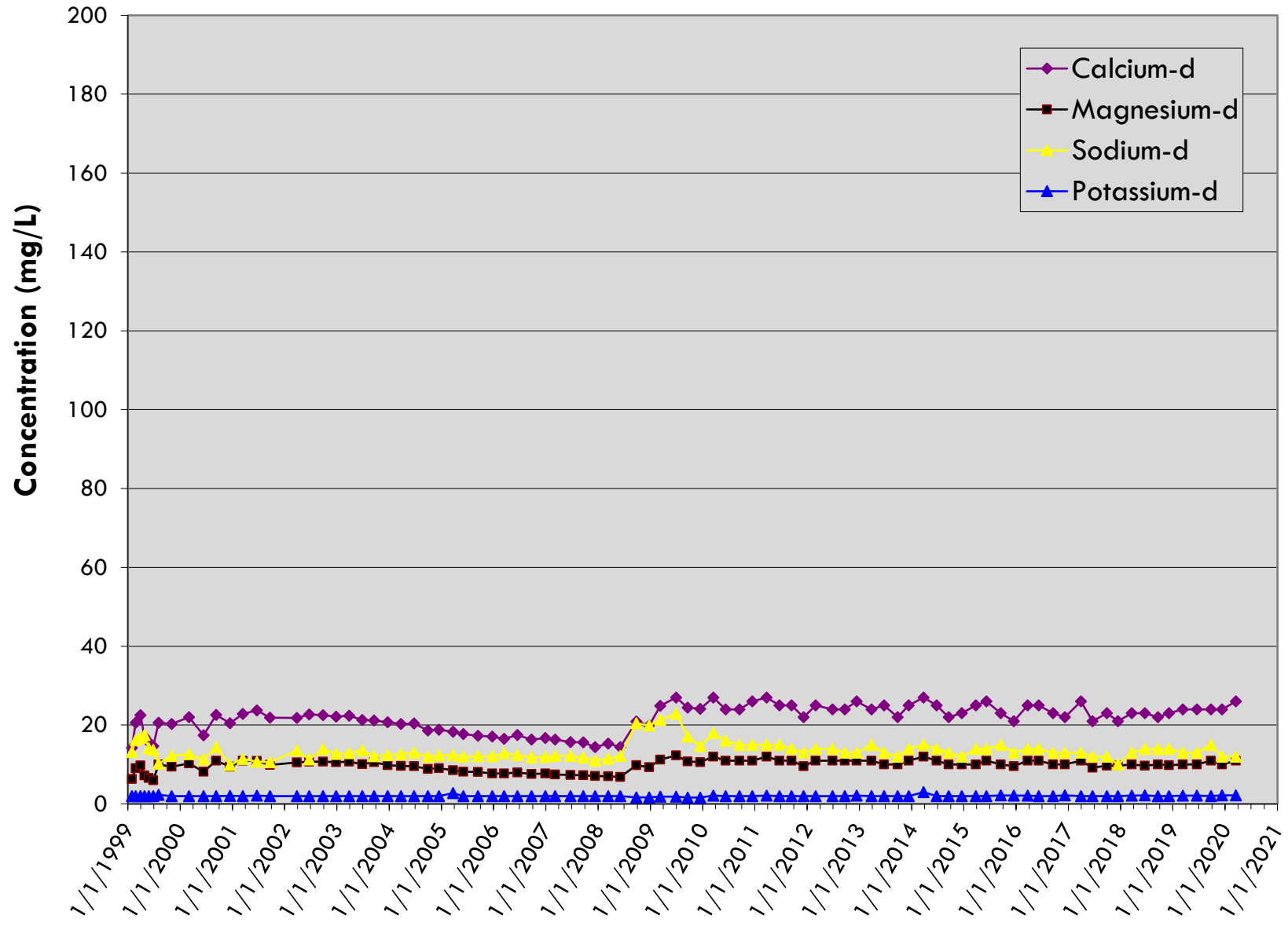
MW-7
LRI Landfill, Pierce County, Washington



MW-9 (Background)
LRI Landfill, Pierce County, Washington

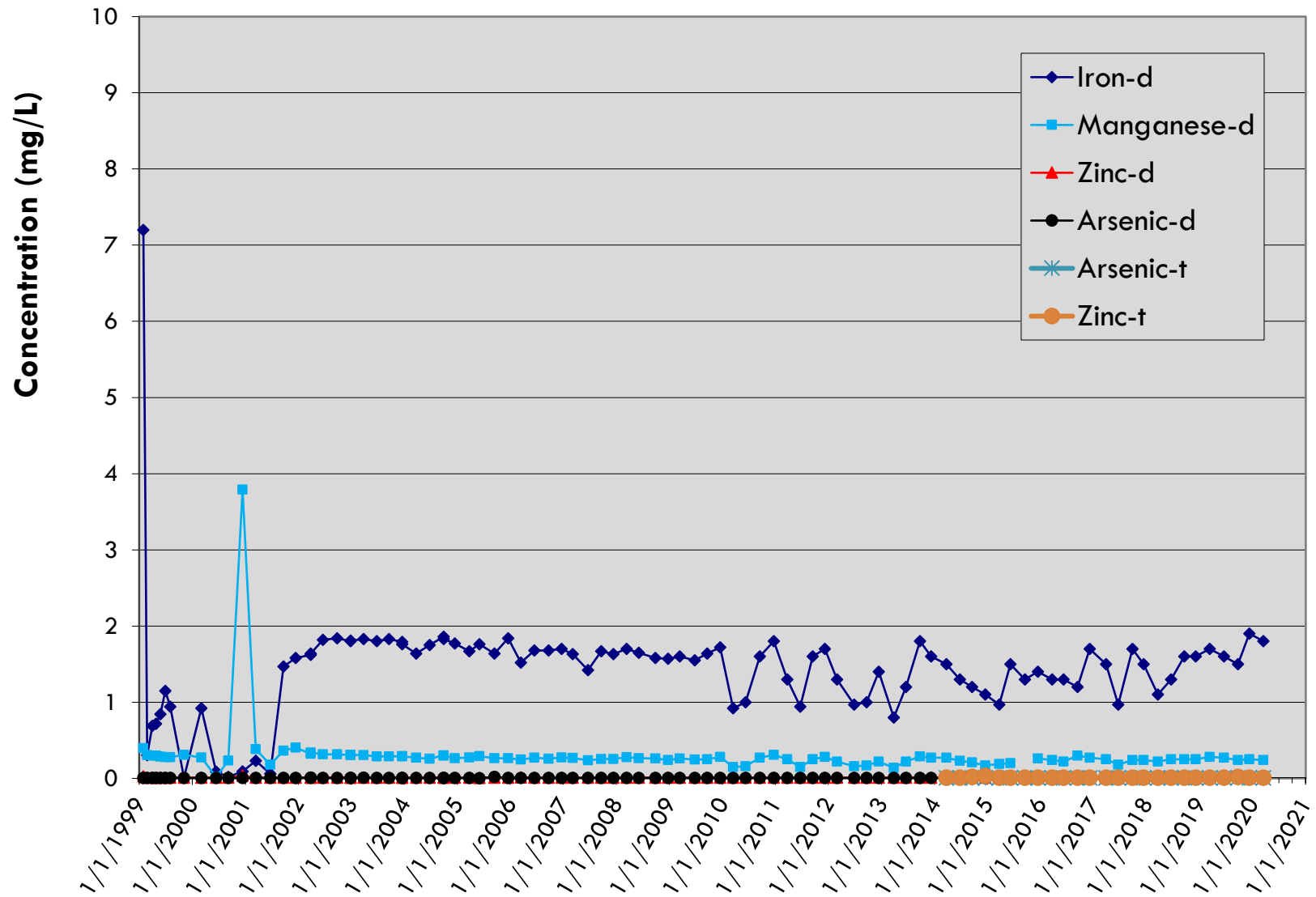


MW-10 (Background) LRI Landfill, Pierce County, Washington



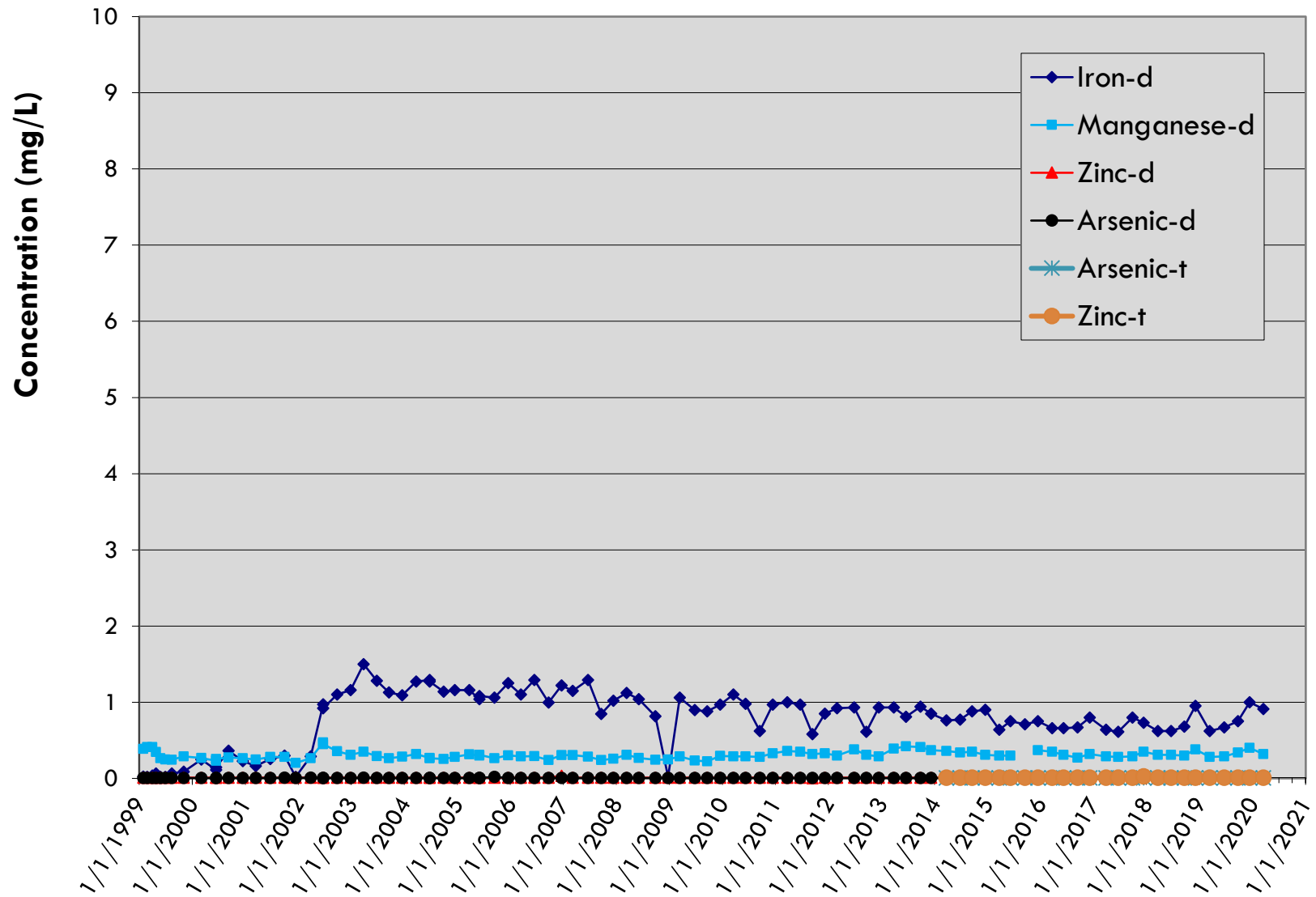
MW-1A

LRI Landfill, Pierce County, Washington



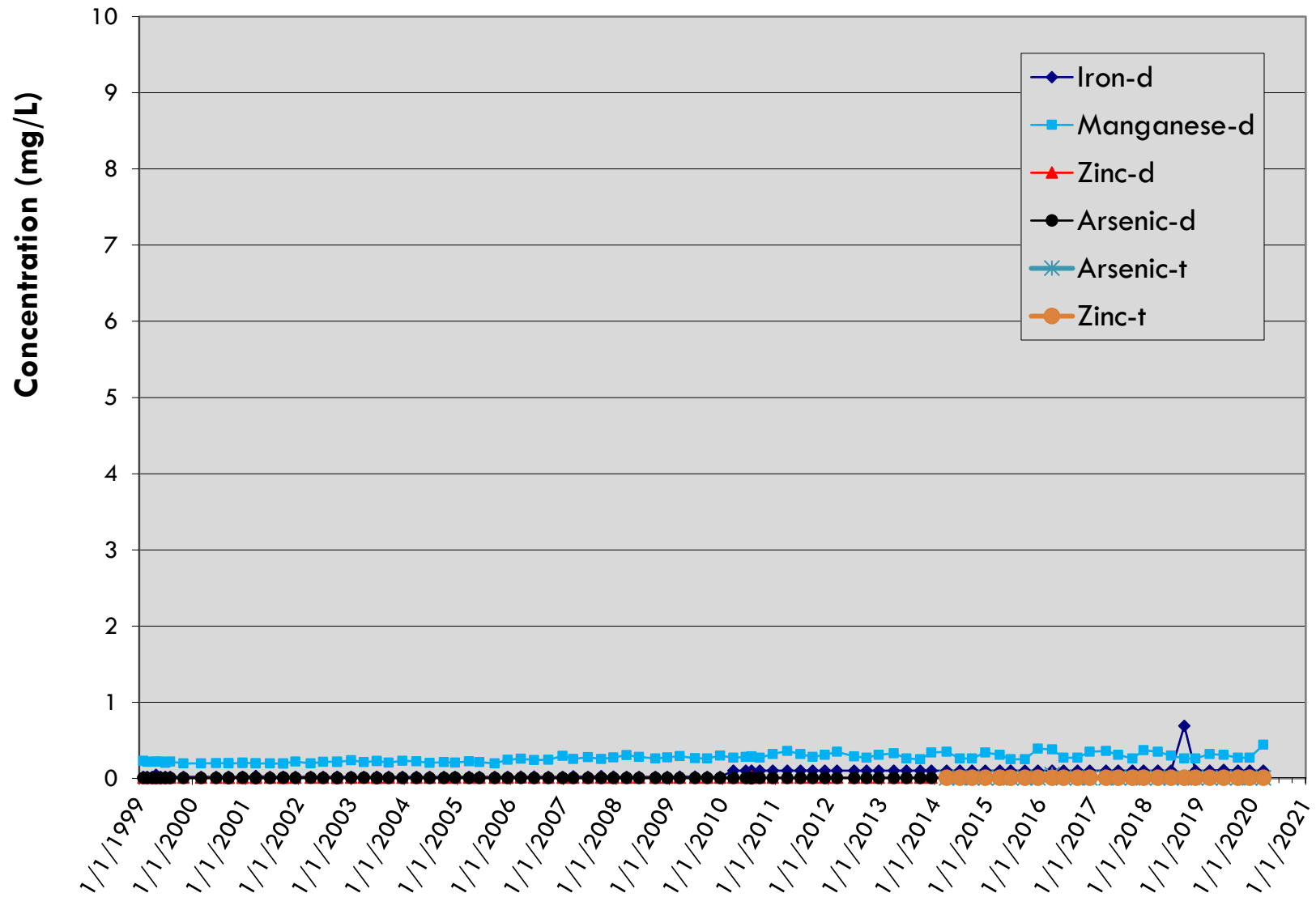
MW-2A

LRI Landfill, Pierce County, Washington

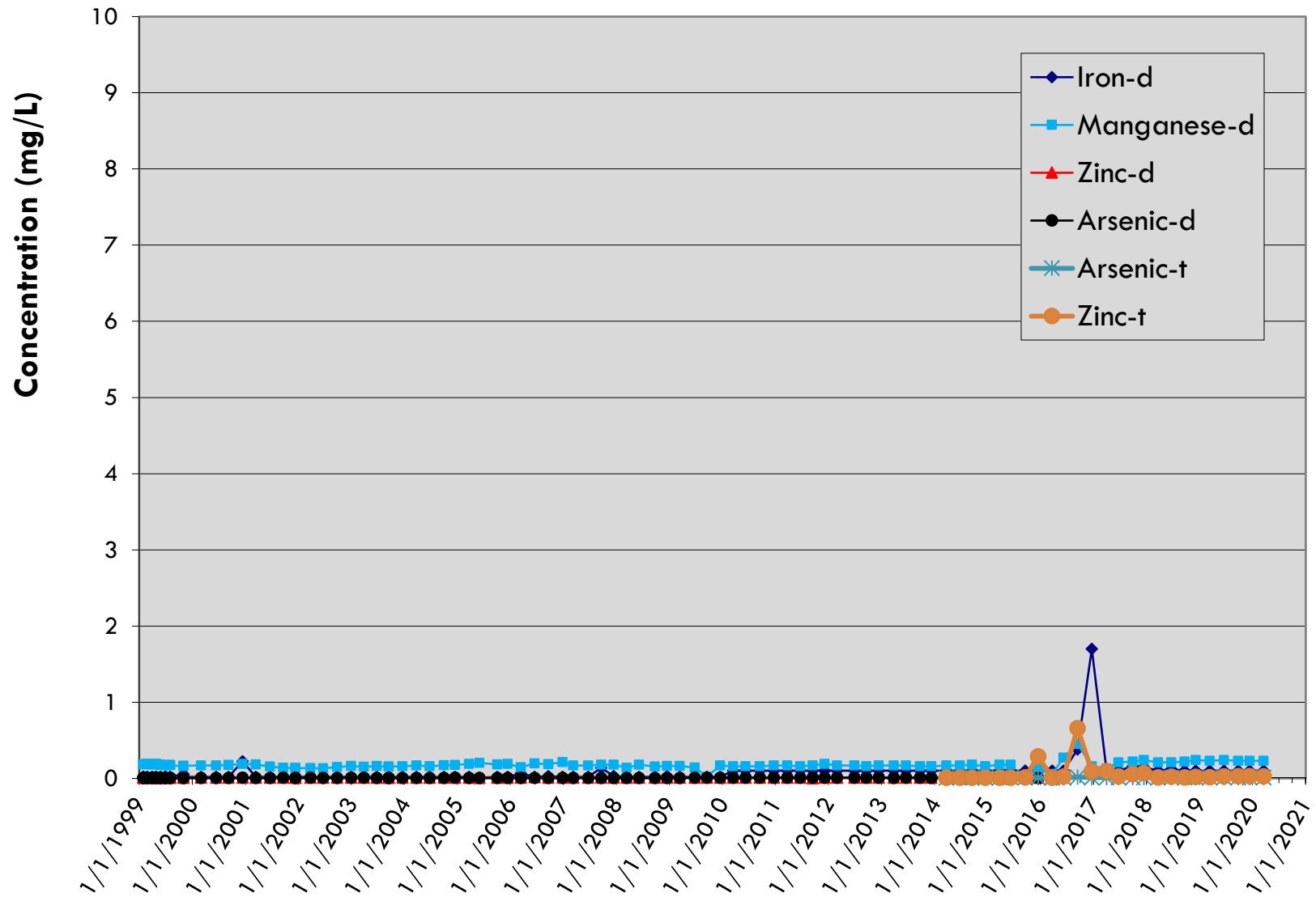


MW-3

LRI Landfill, Pierce County, Washington

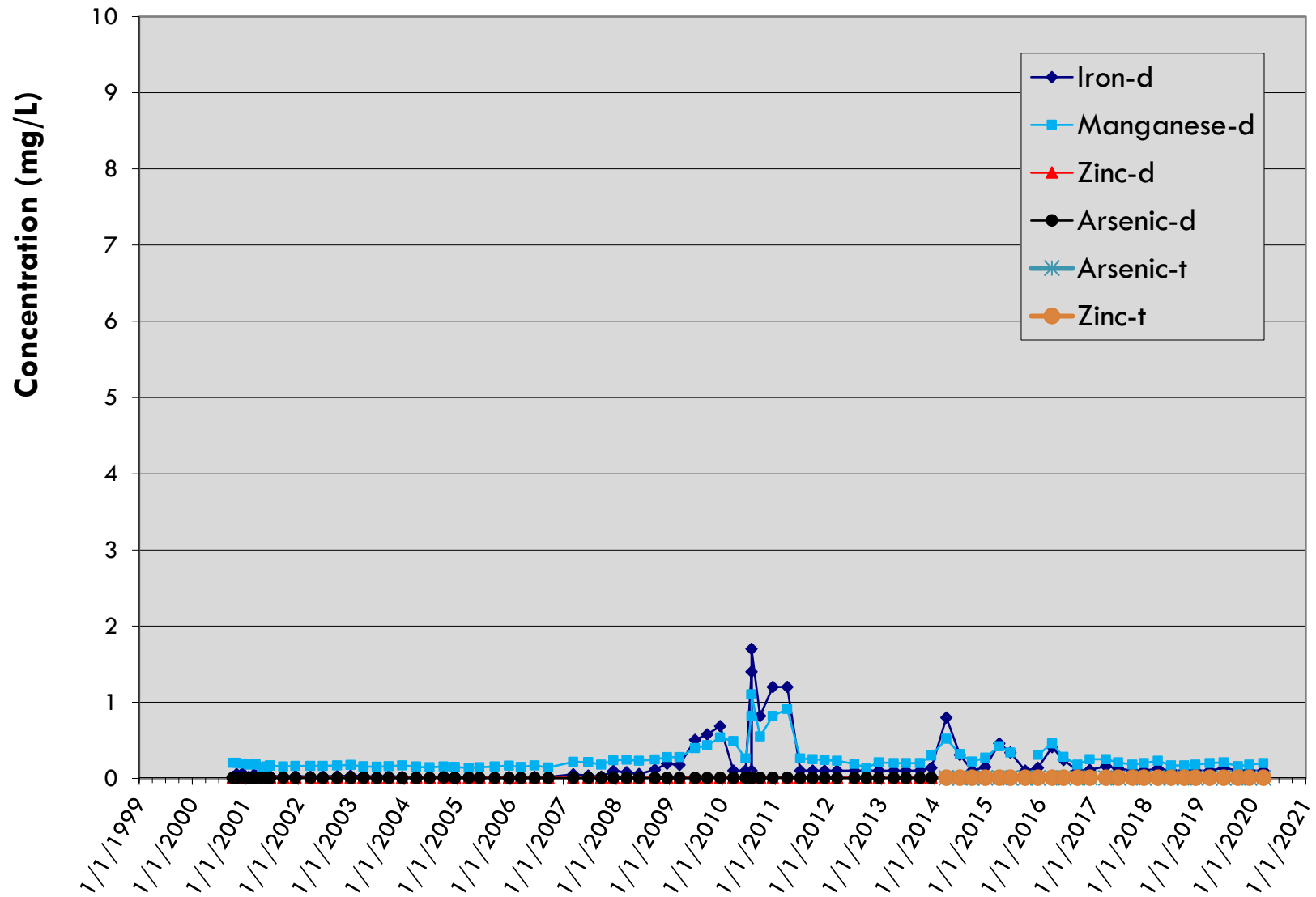


MW-4
LRI Landfill, Pierce County, Washington



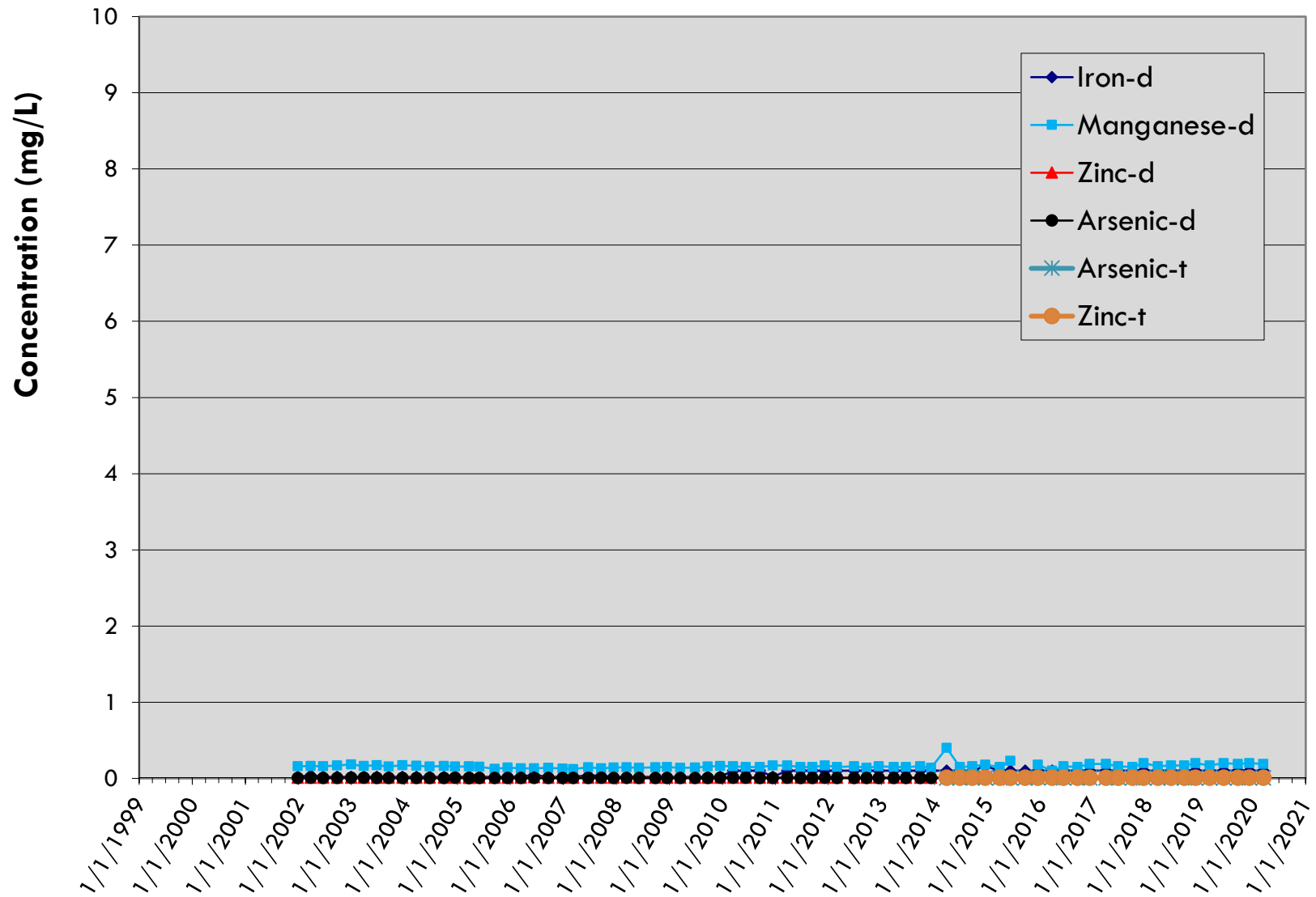
MW-5A

LRI Landfill, Pierce County, Washington

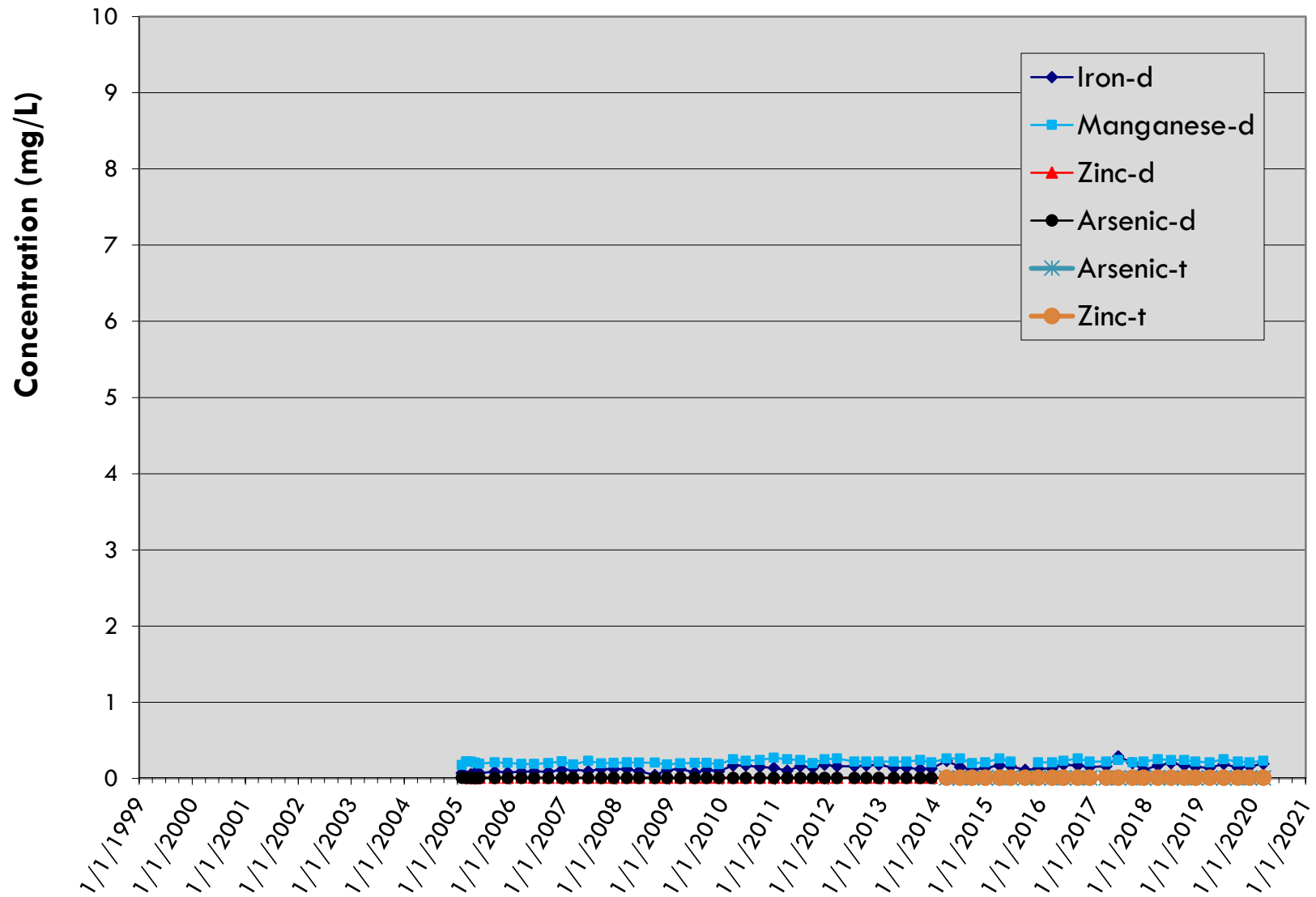


MW-6

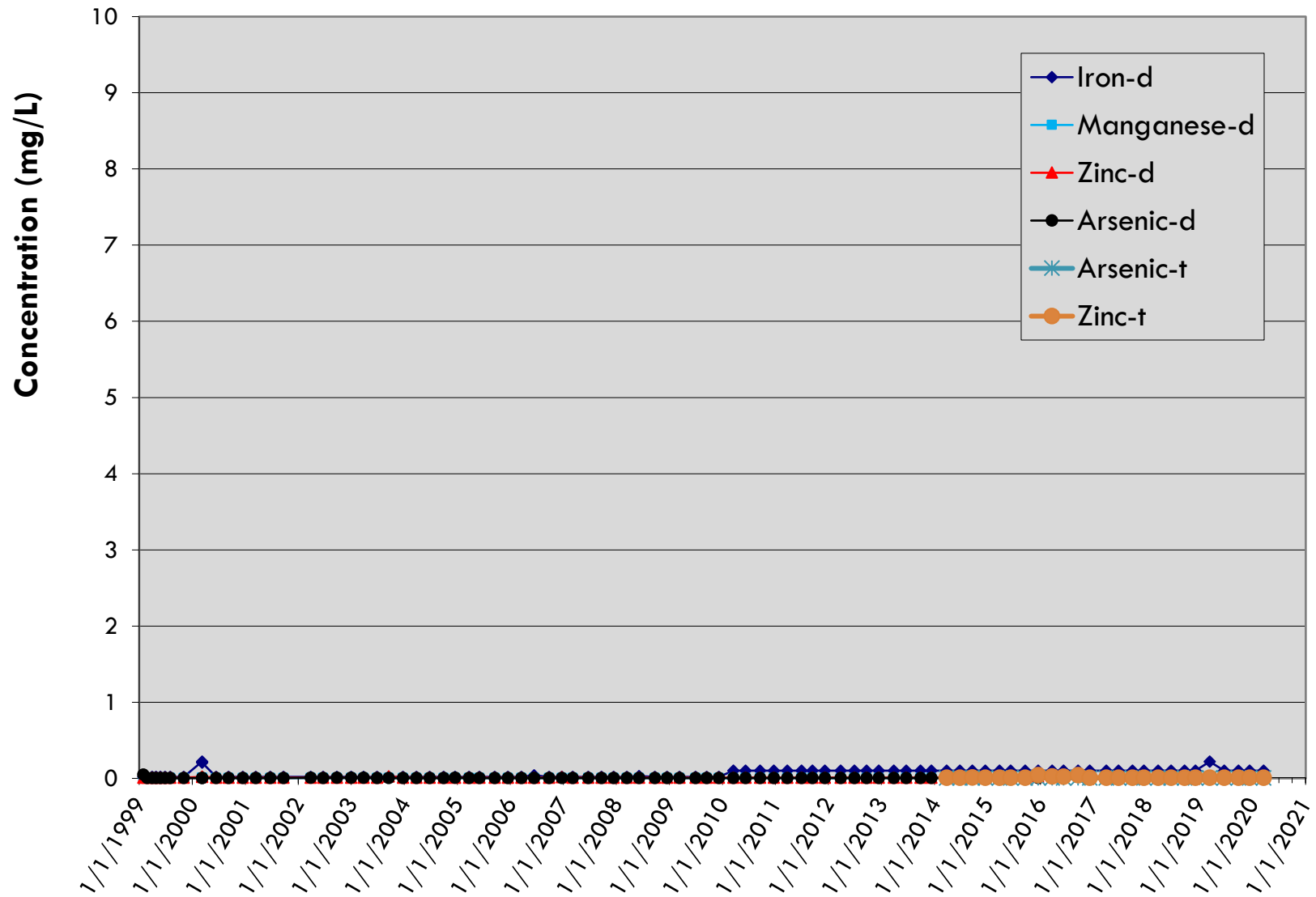
LRI Landfill, Pierce County, Washington



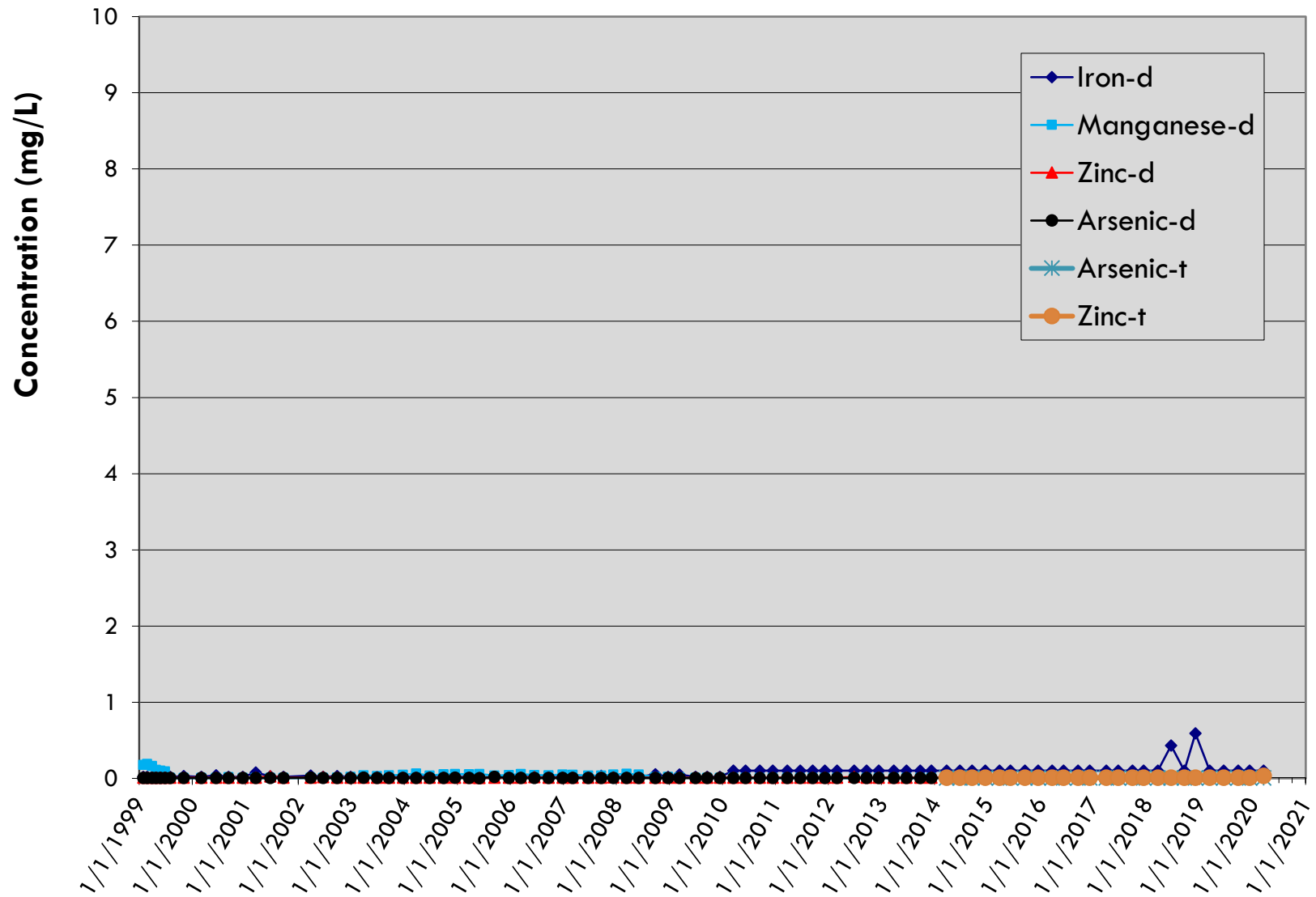
MW-7
LRI Landfill, Pierce County, Washington



MW-9 (Background)
LRI Landfill, Pierce County, Washington

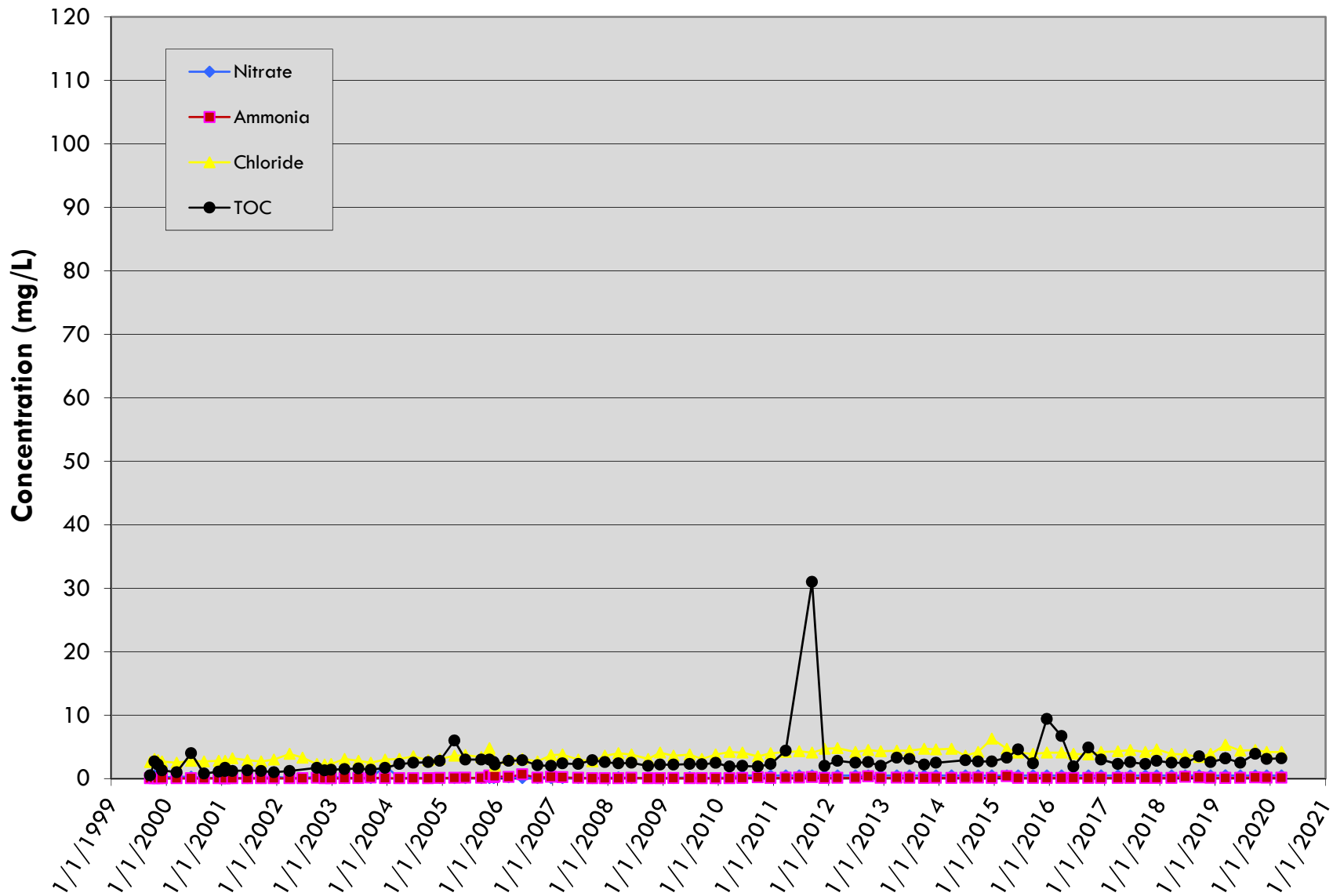


MW-10 (Background)
LRI Landfill, Pierce County, Washington



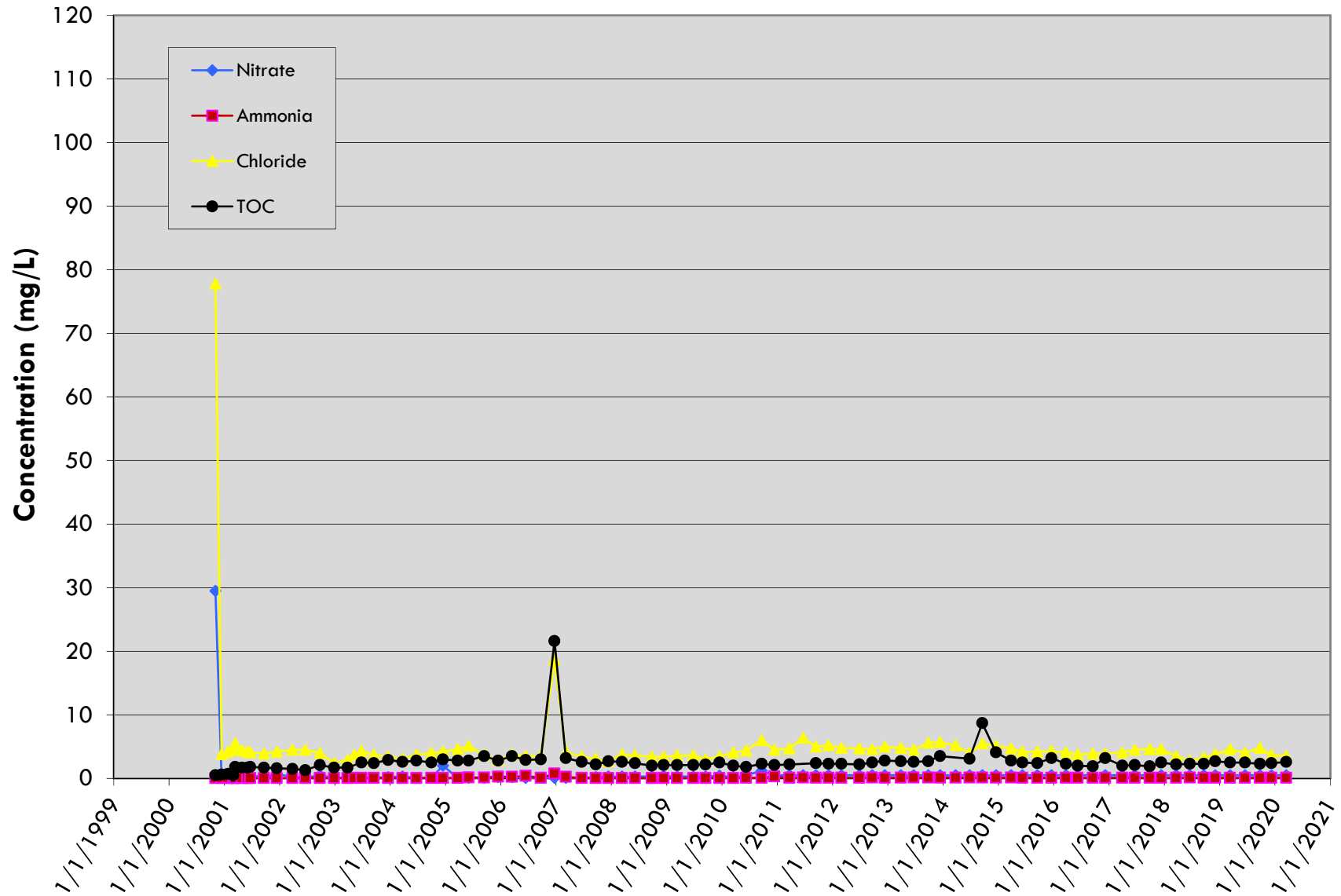
LDCS-1

LRI Landfill, Pierce County, Washington



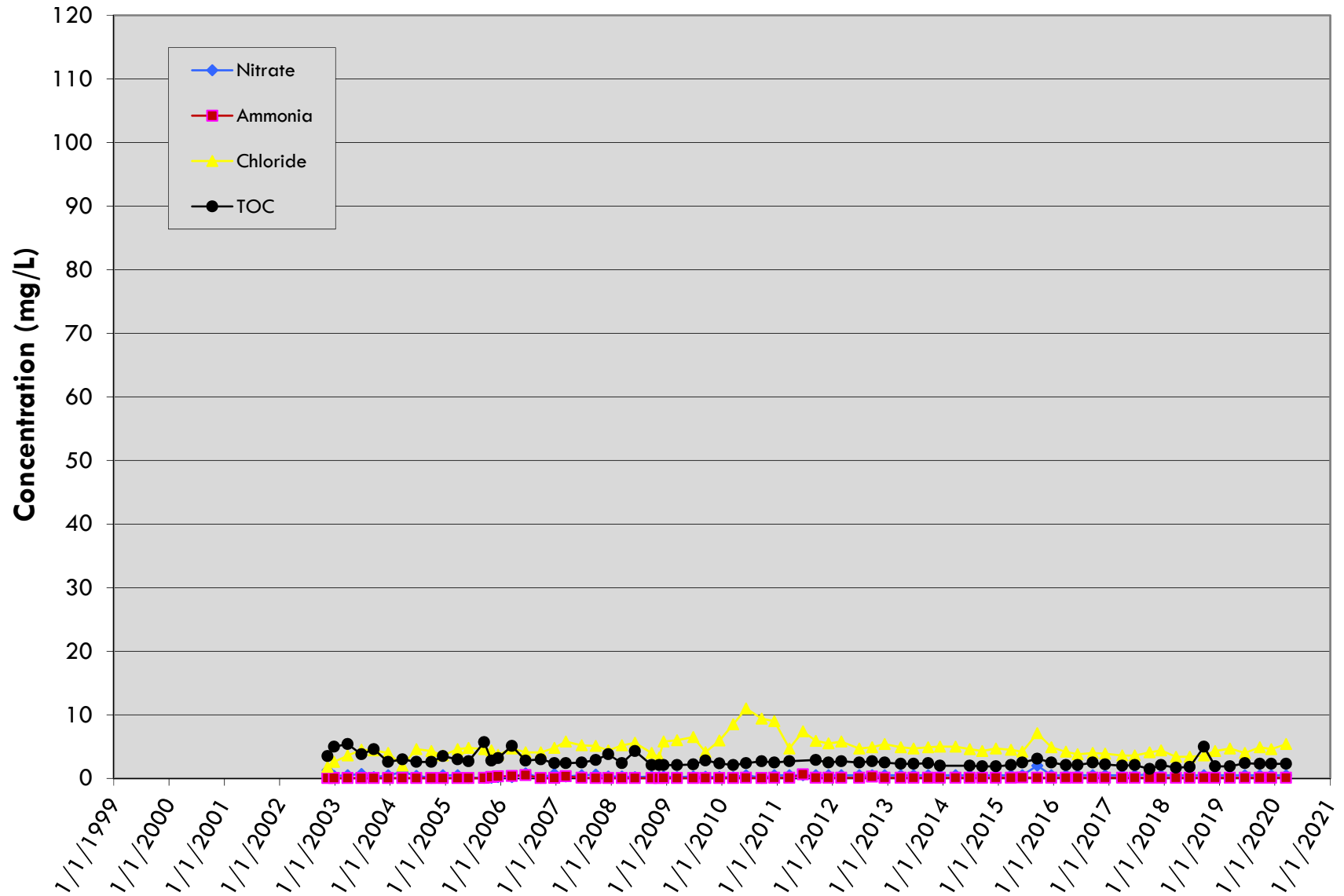
LDCS-2A

LRI Landfill, Pierce County, Washington



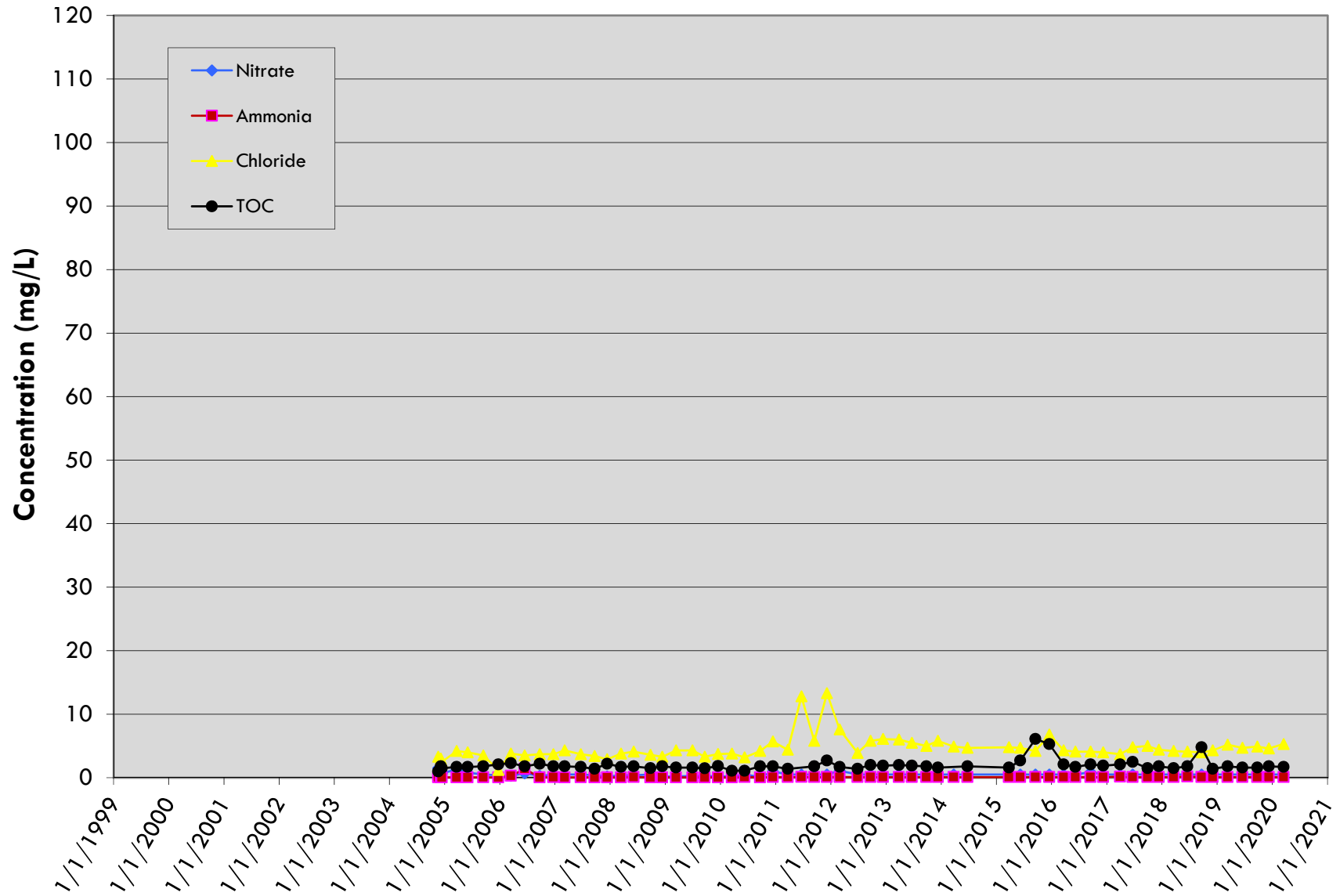
LDCS-2B

LRI Landfill, Pierce County, Washington



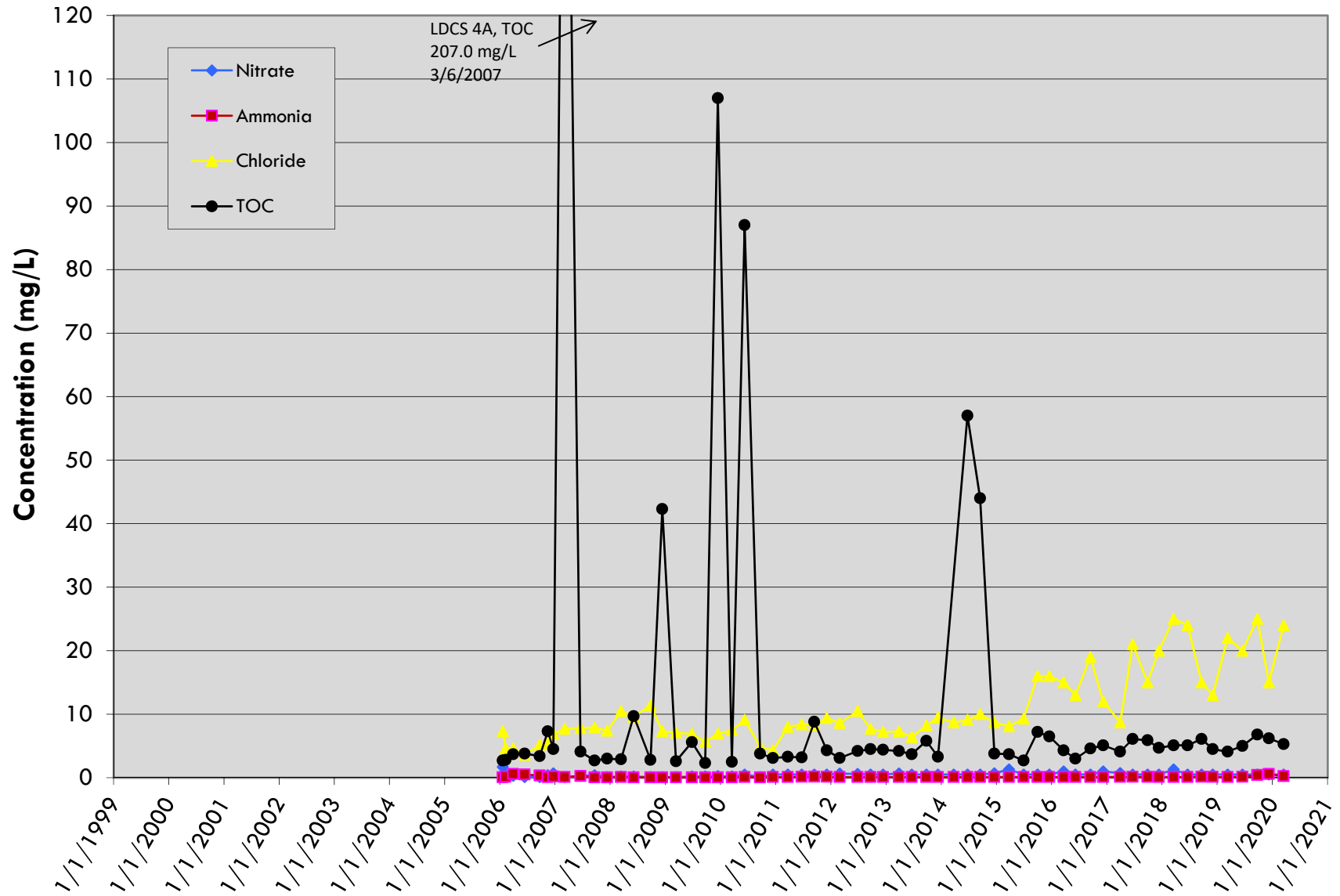
LDCS-3A

LRI Landfill, Pierce County, Washington



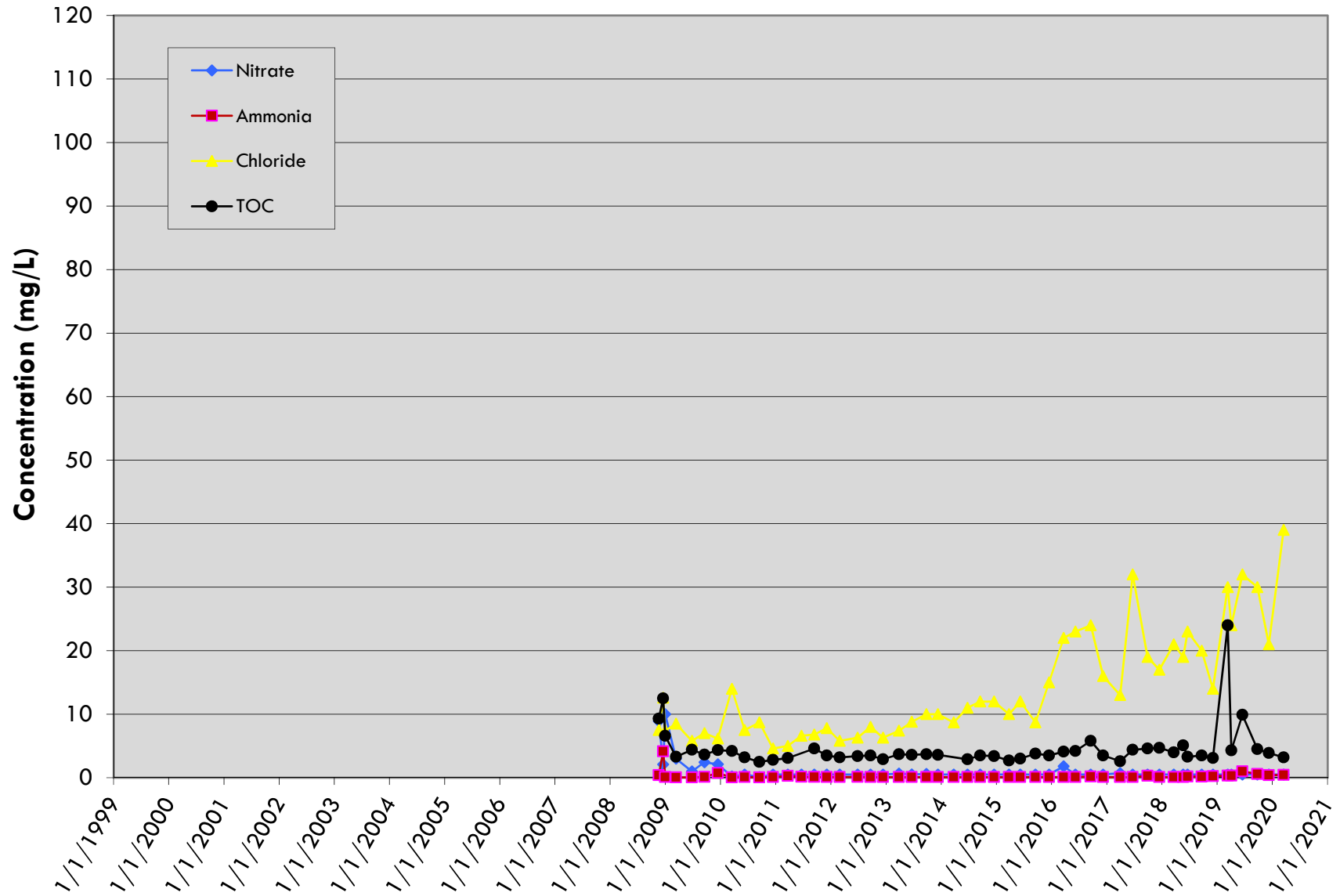
LDCS-4A

LRI Landfill, Pierce County, Washington



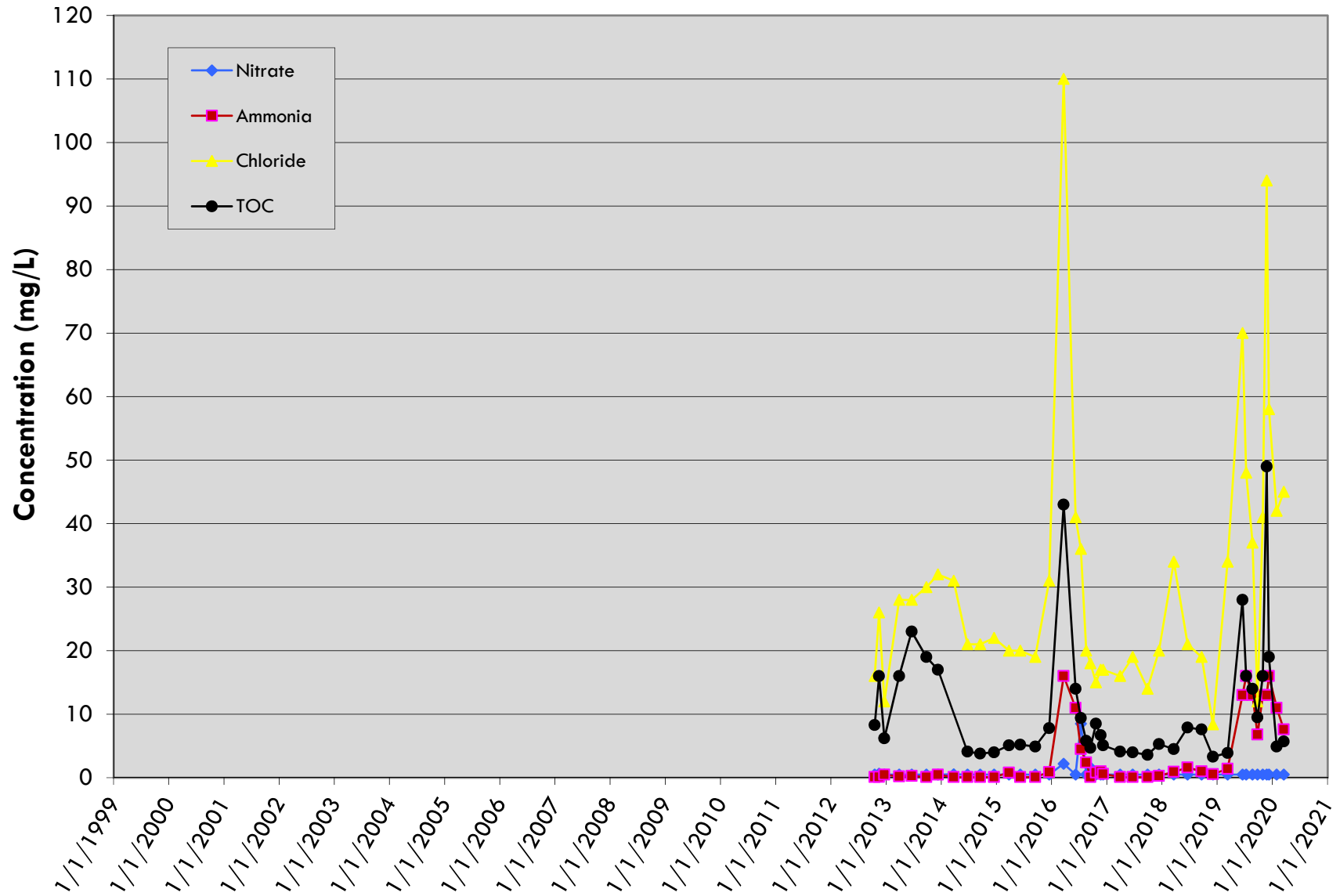
LDCS-4B

LRI Landfill, Pierce County, Washington



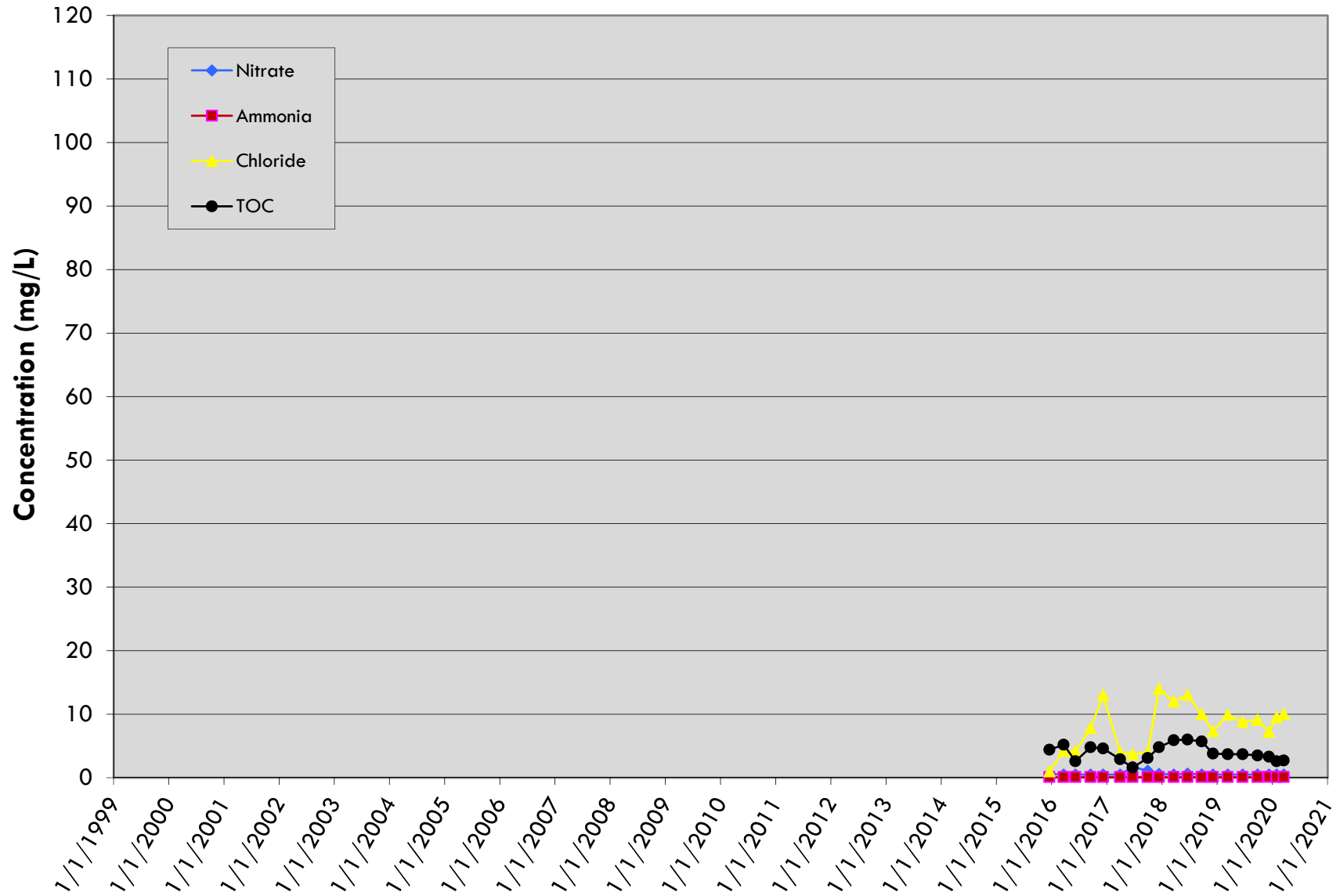
LDCS-5

LRI Landfill, Pierce County, Washington



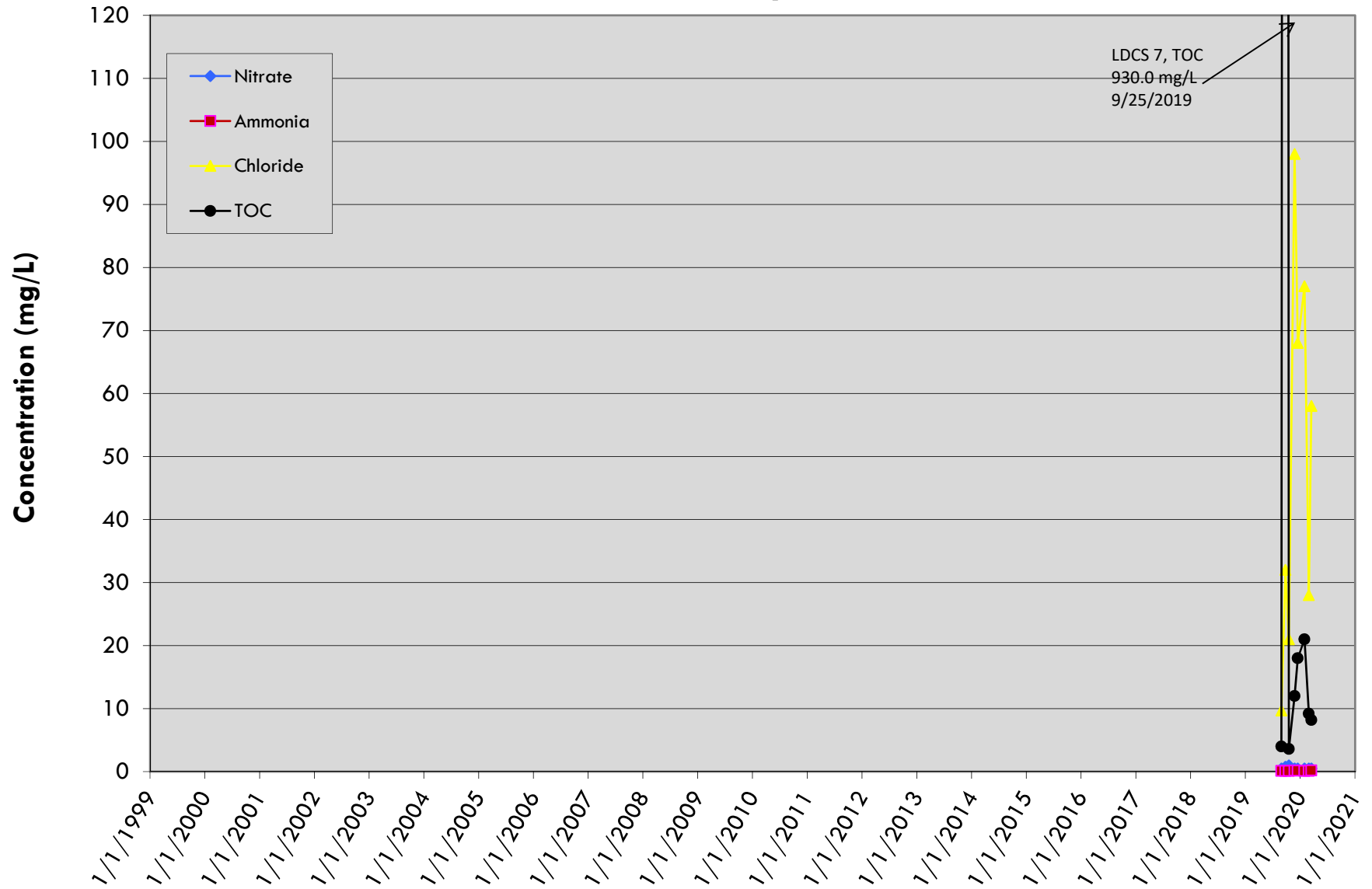
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LRI Landfill, Pierce County, Washington



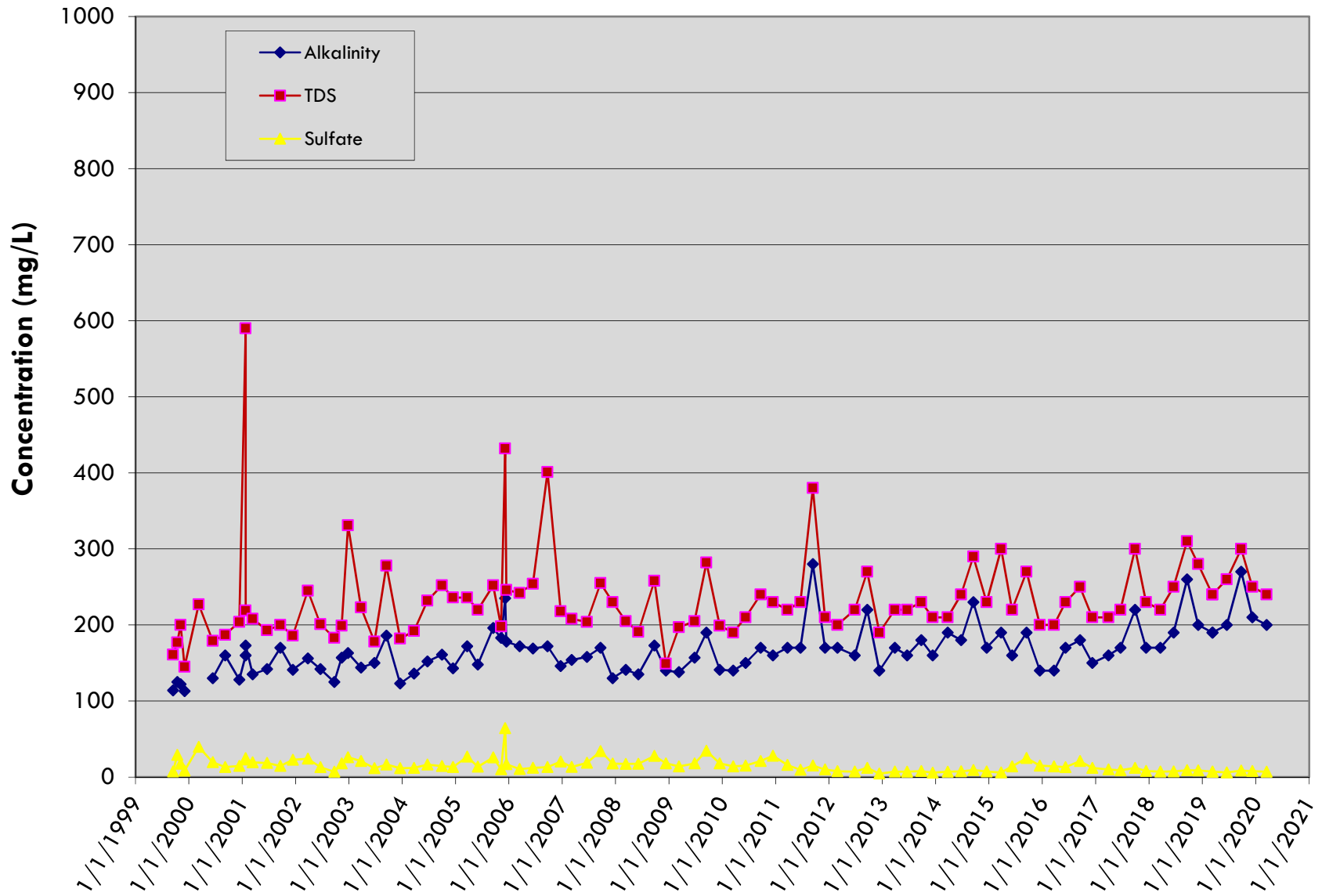
LDCS-7

LRI Landfill, Pierce County, Washington



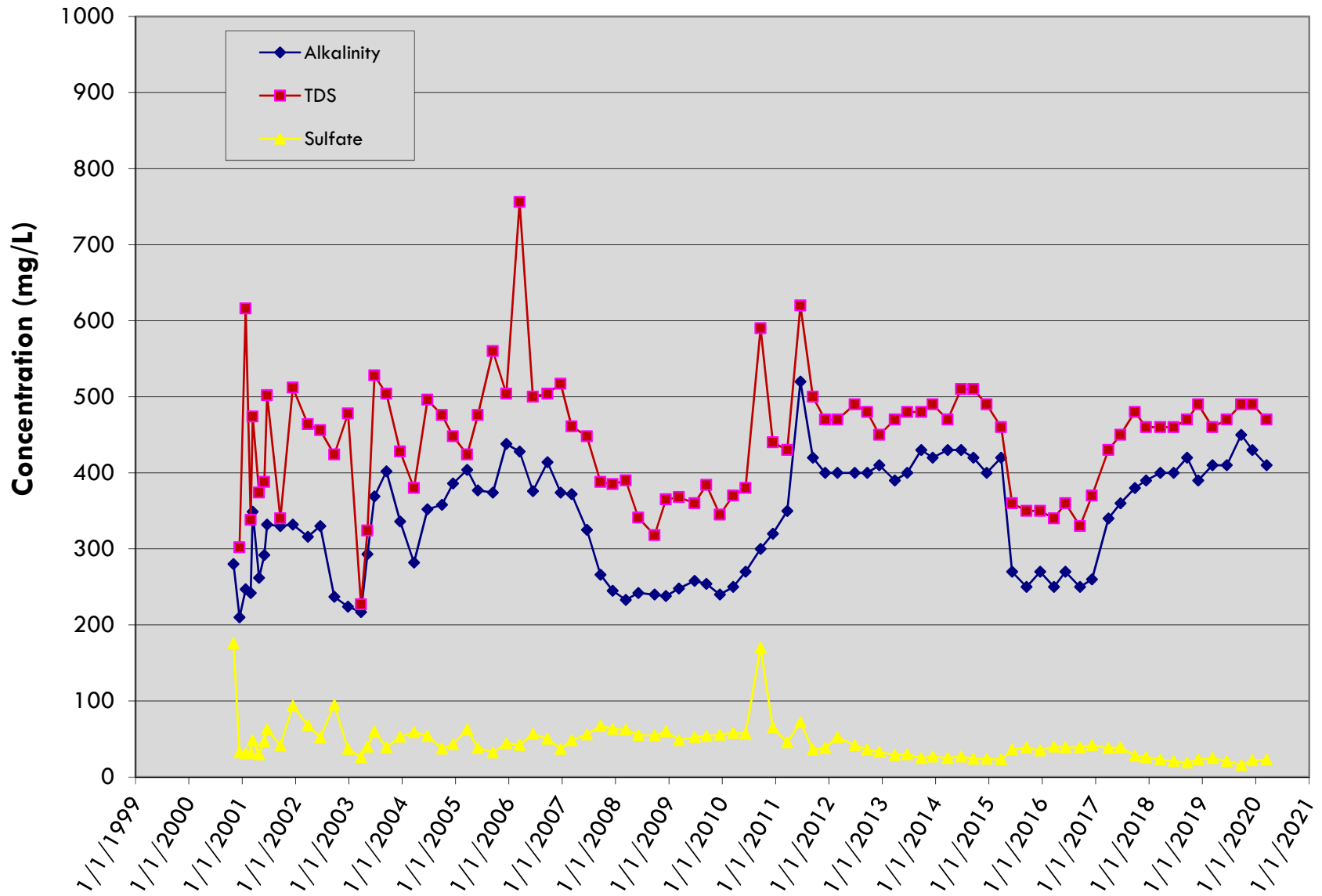
LDCS-1

LRI Landfill, Pierce County, Washington



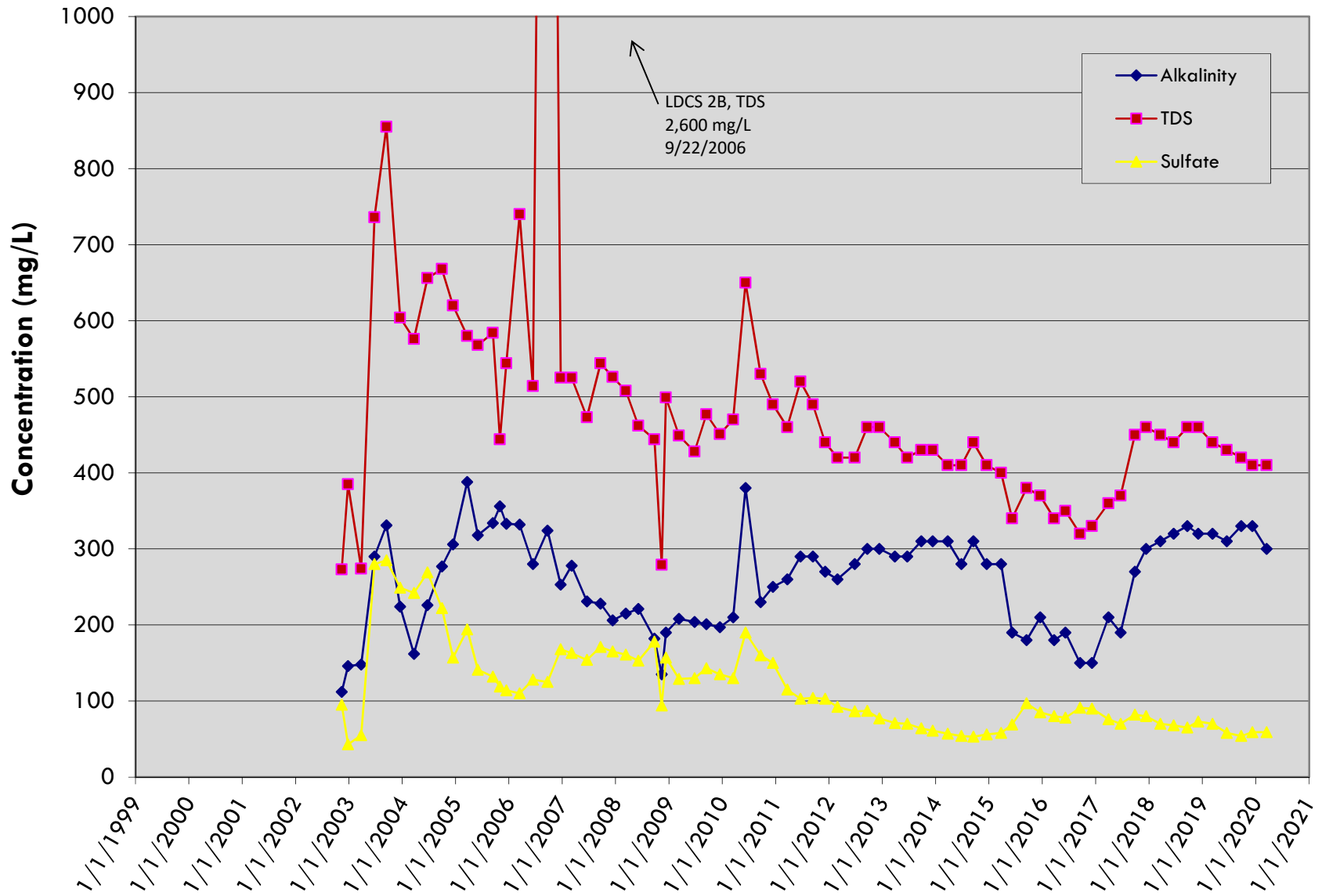
LDCS-2A

LRI Landfill, Pierce County, Washington



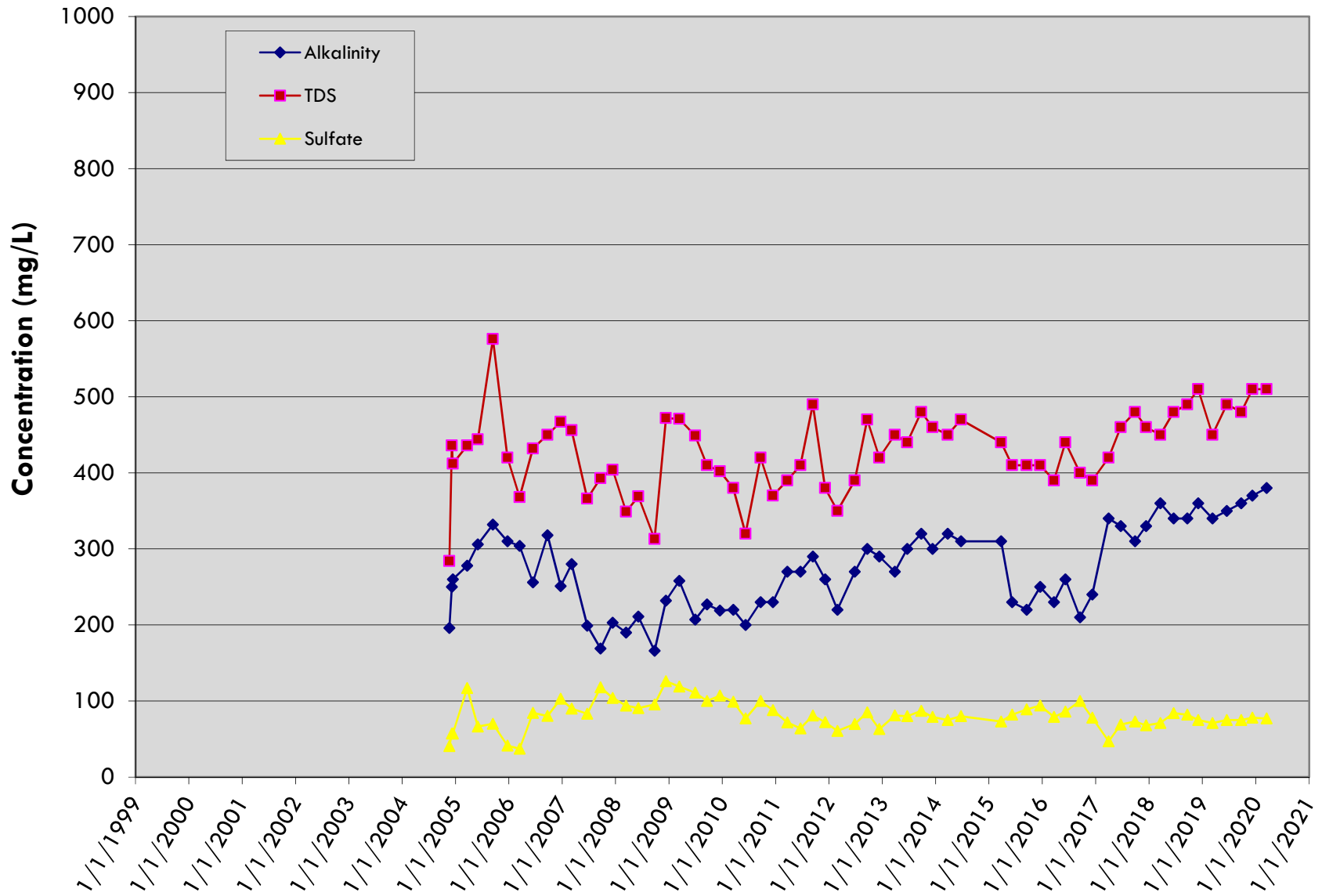
LDCS-2B

LRI Landfill, Pierce County, Washington



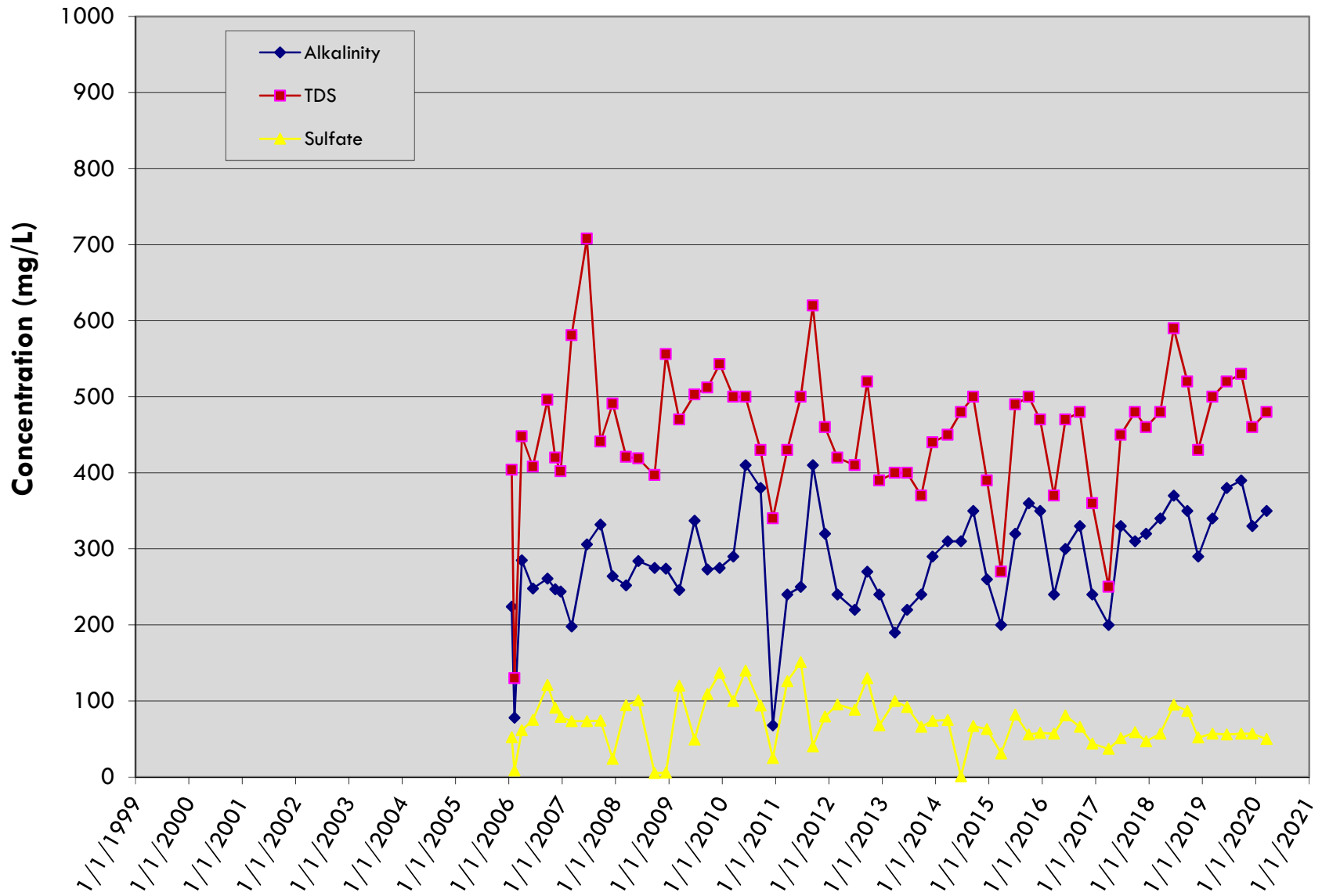
LDCS-3A

LRI Landfill, Pierce County, Washington



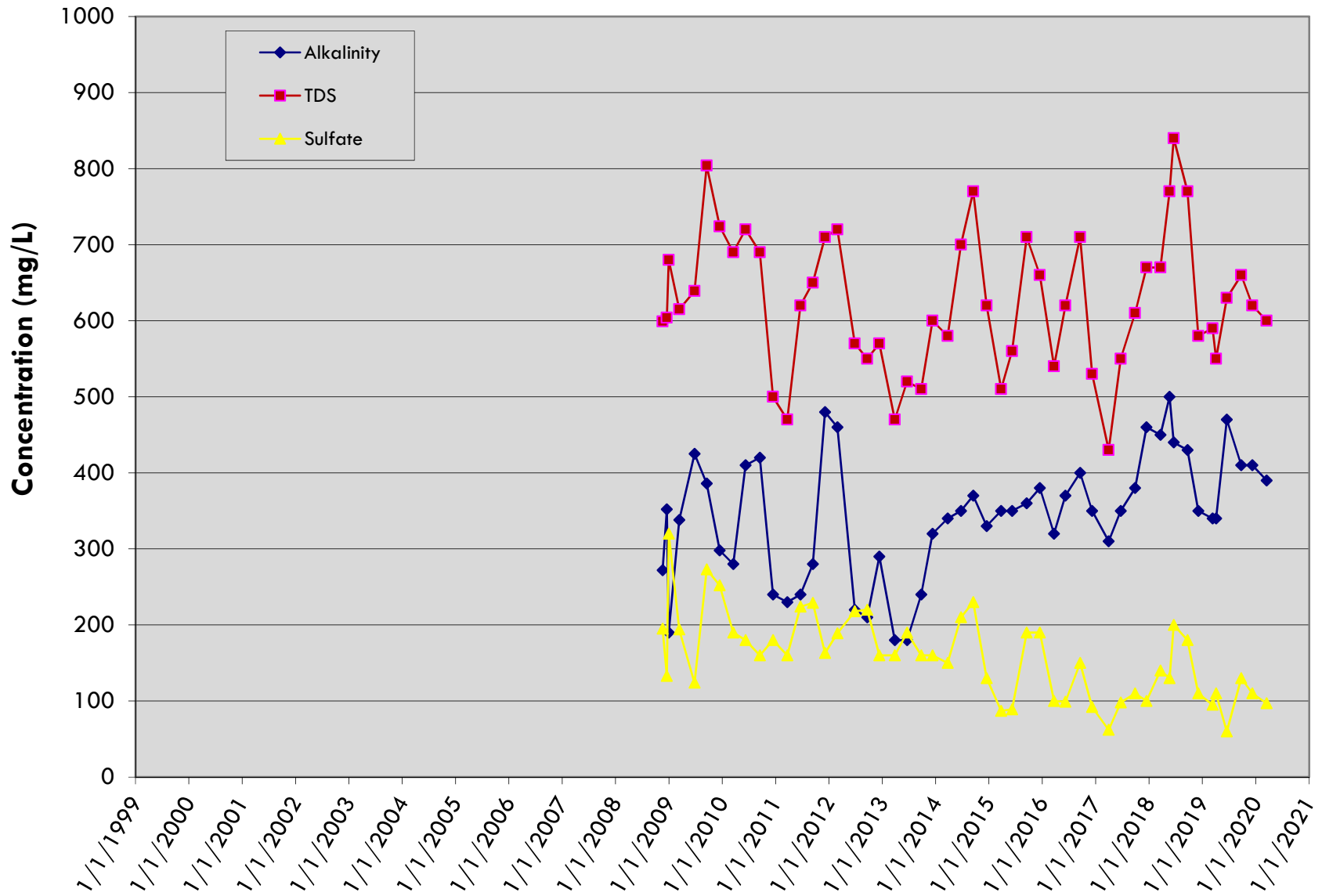
LDCS-4A

LRI Landfill, Pierce County, Washington



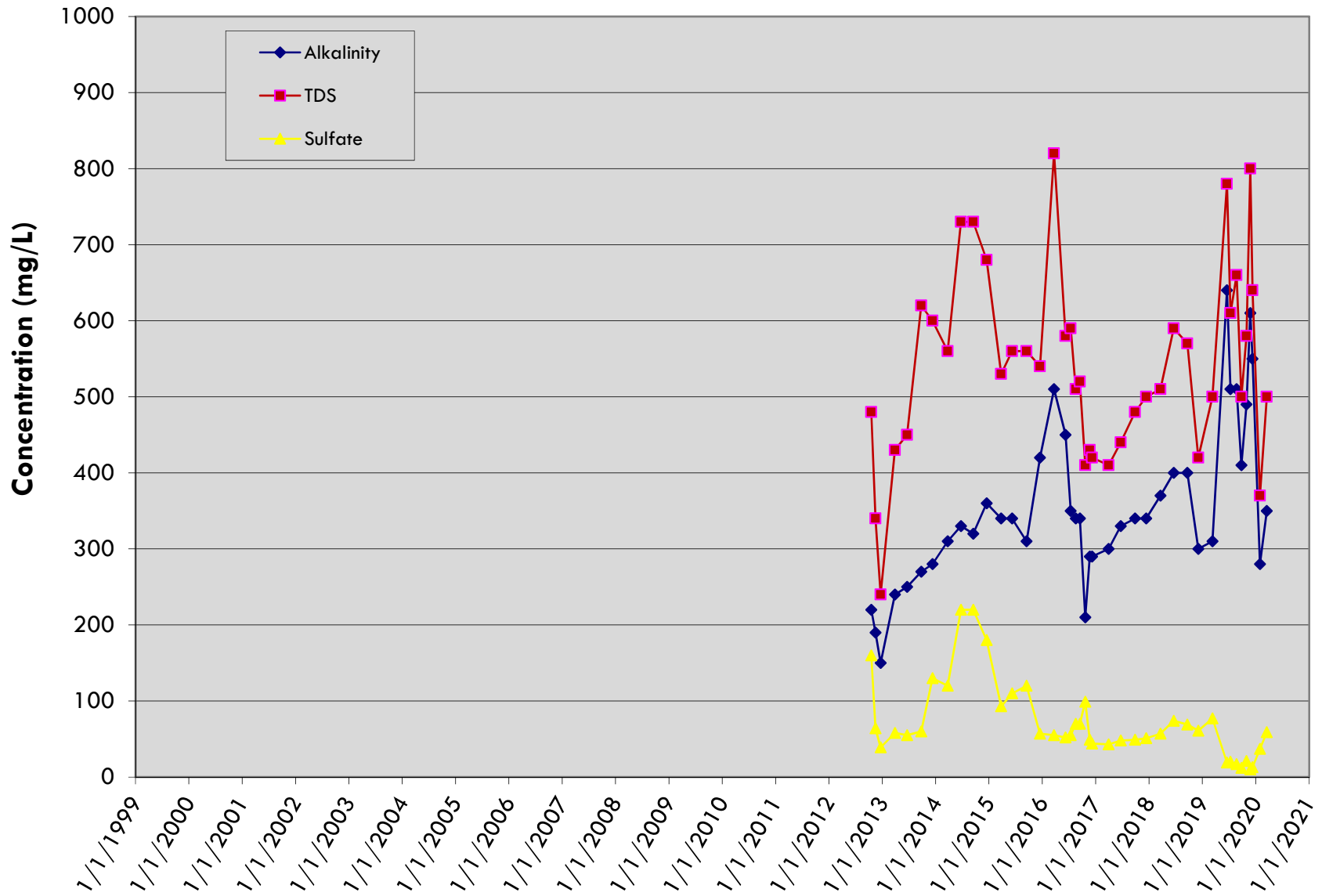
LDCS-4B

LRI Landfill, Pierce County, Washington



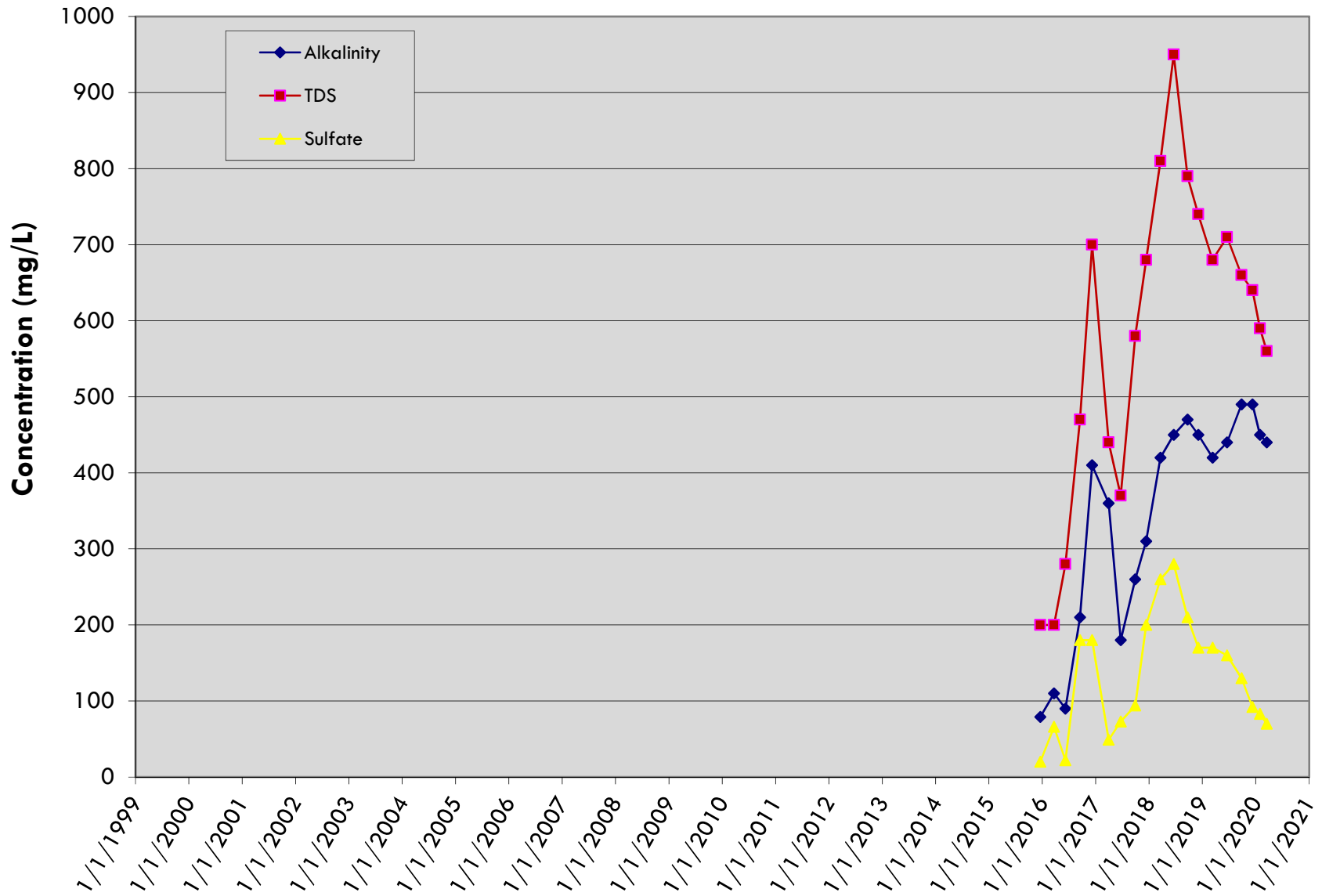
LDCS-5

LRI Landfill, Pierce County, Washington



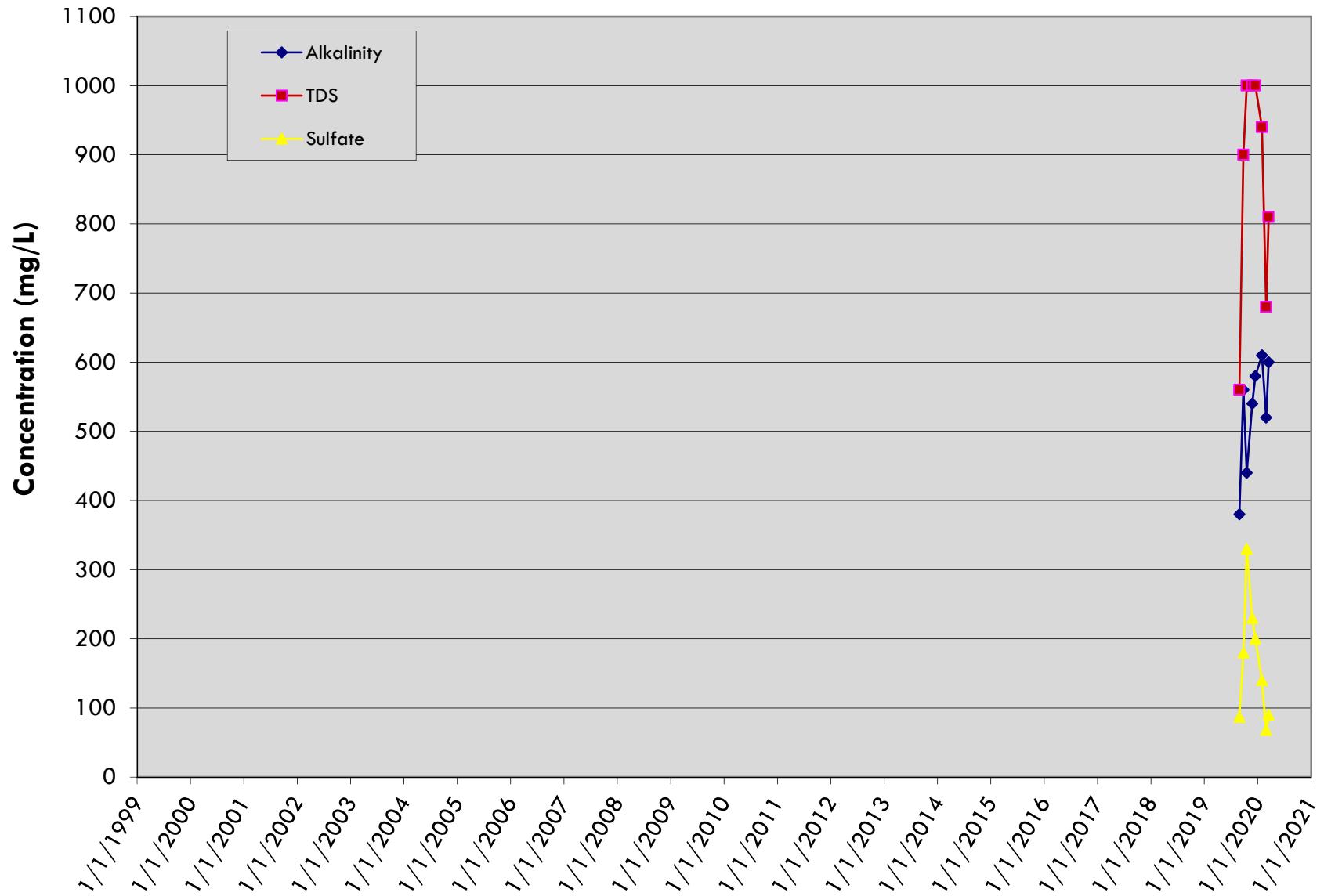
LDCS-6A

LRI Landfill, Pierce County, Washington



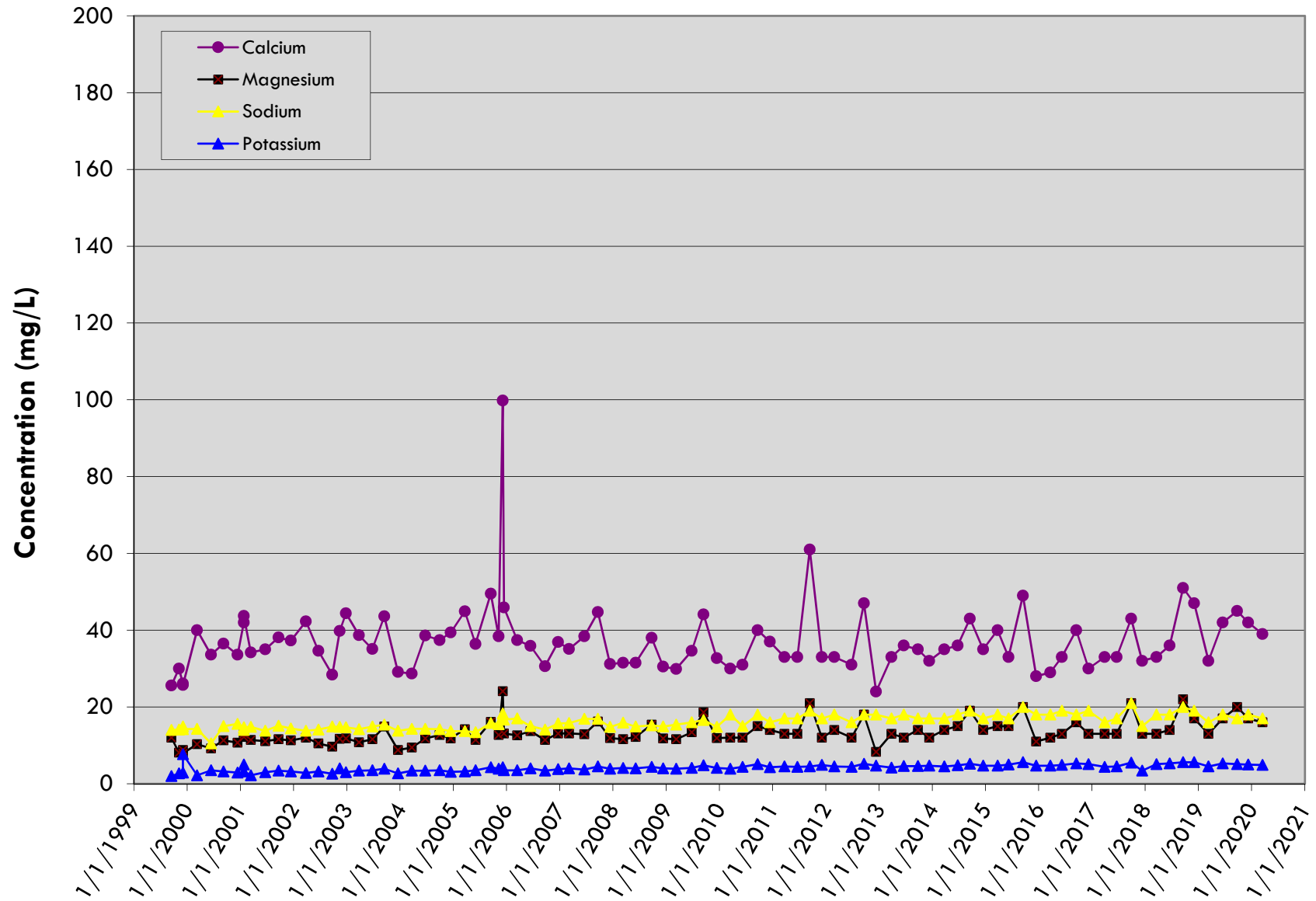
LDCS-7

LRI Landfill, Pierce County, Washington



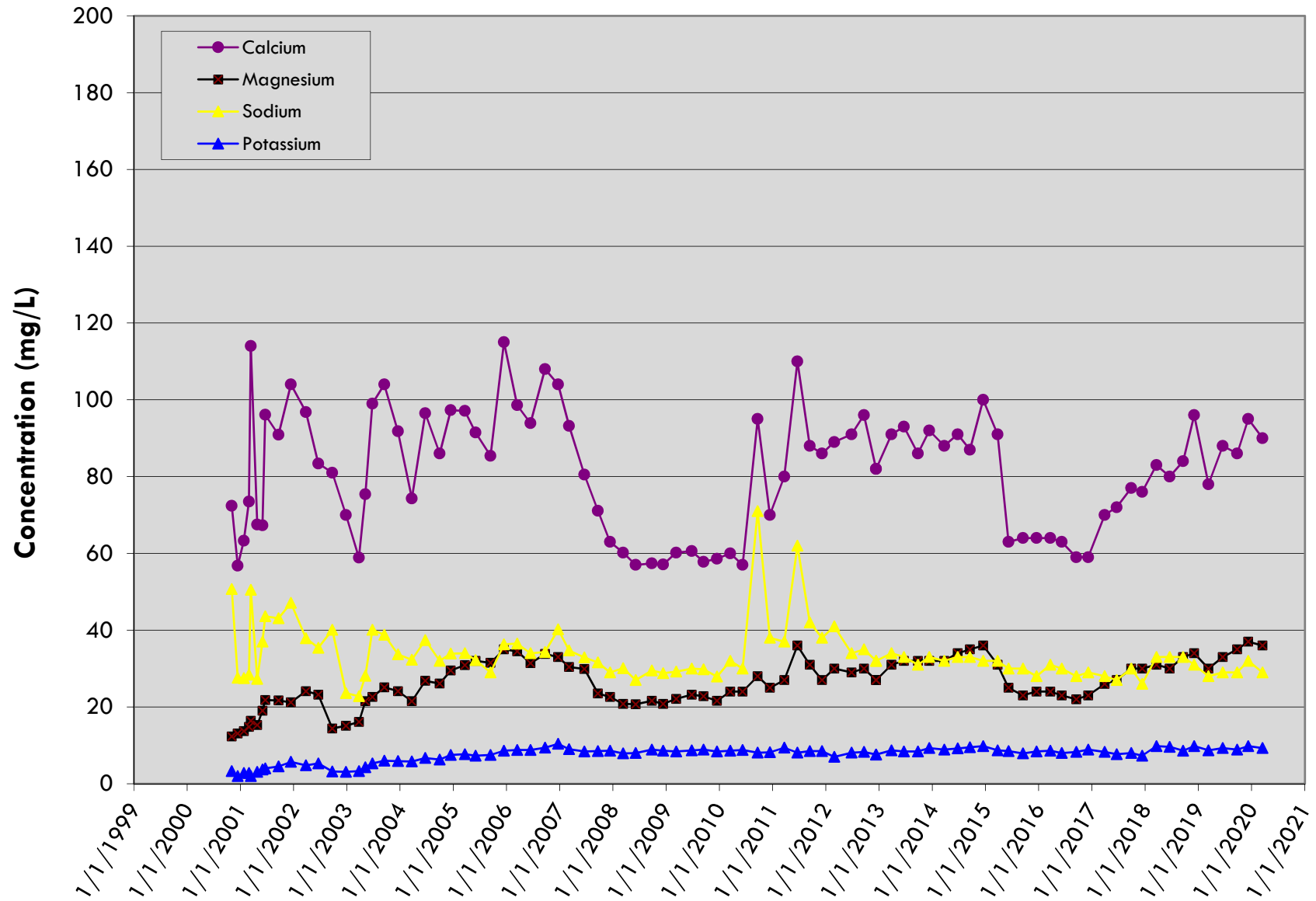
LDCS-1

LRI Landfill, Pierce County, Washington



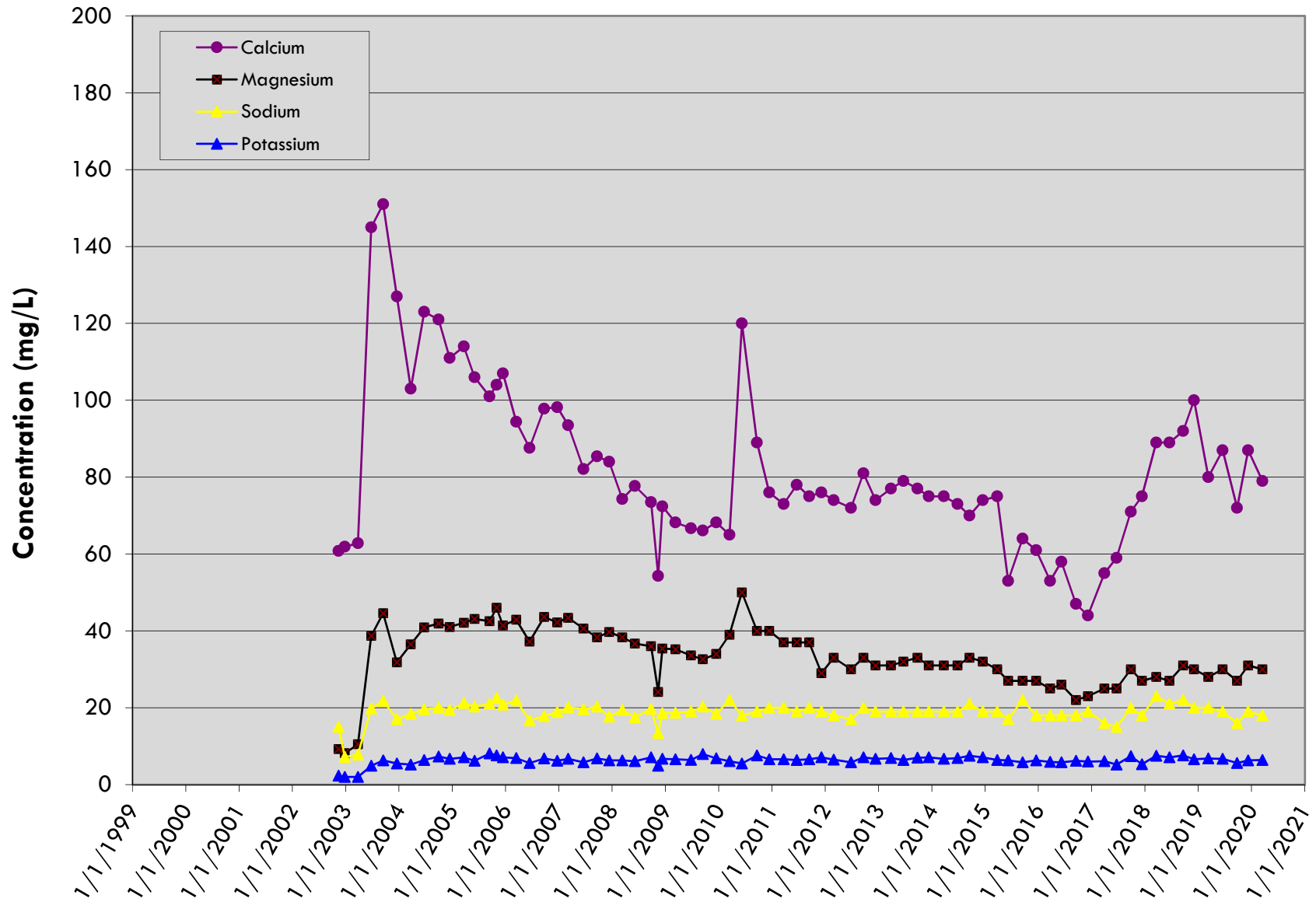
LDCS-2A

LRI Landfill, Pierce County, Washington



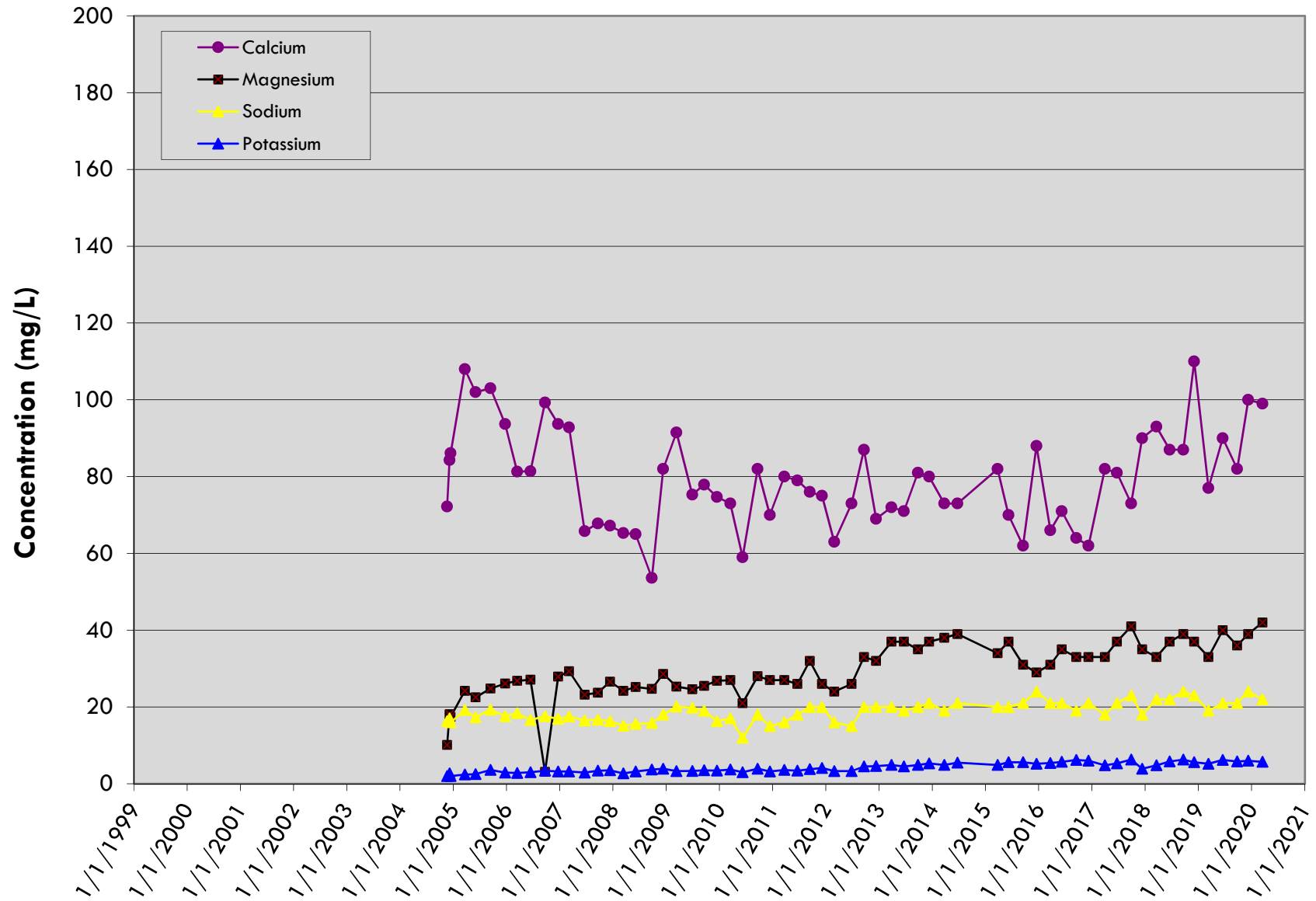
LDCS-2B

LRI Landfill, Pierce County, Washington



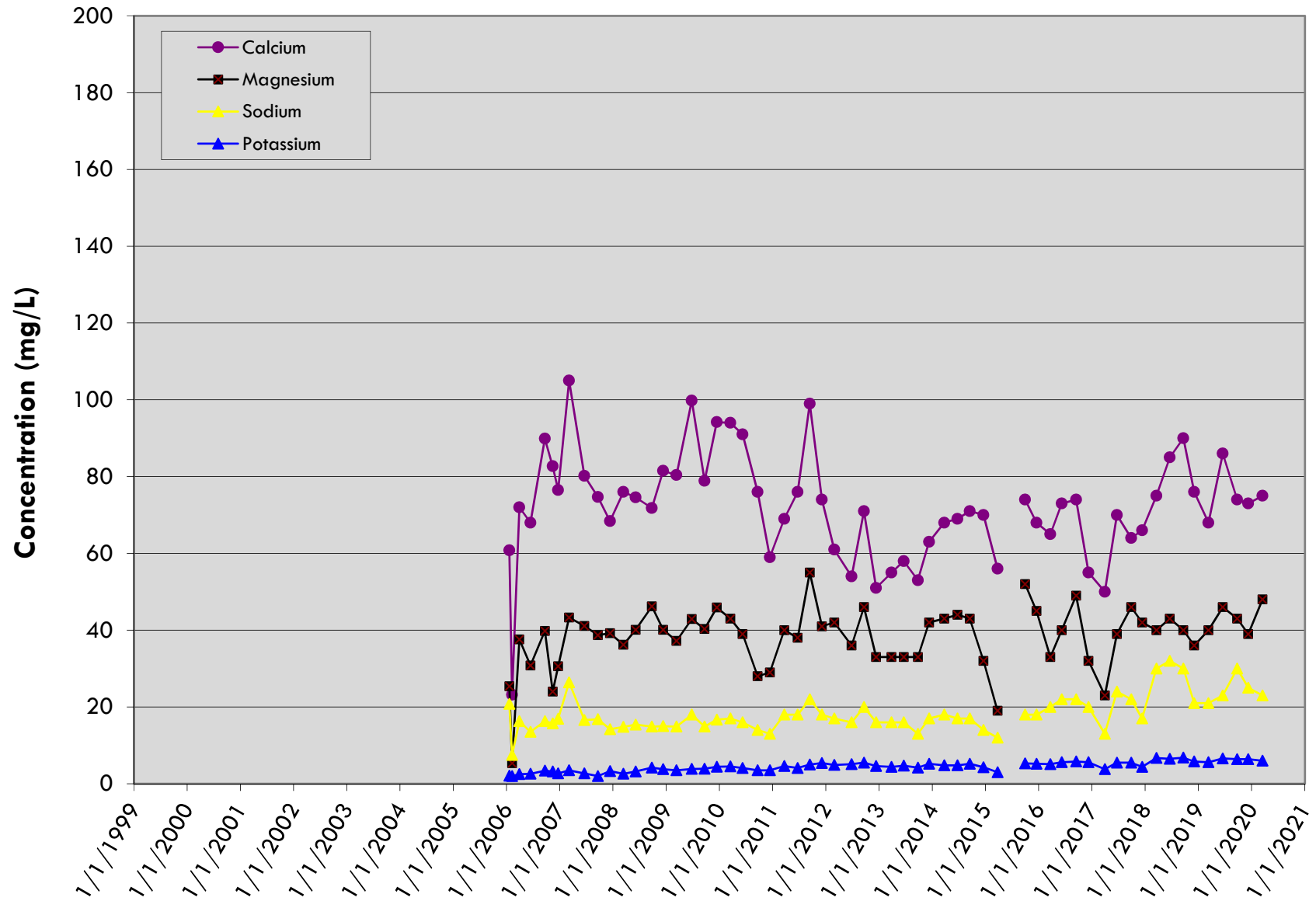
LDCS-3A

LRI Landfill, Pierce County, Washington



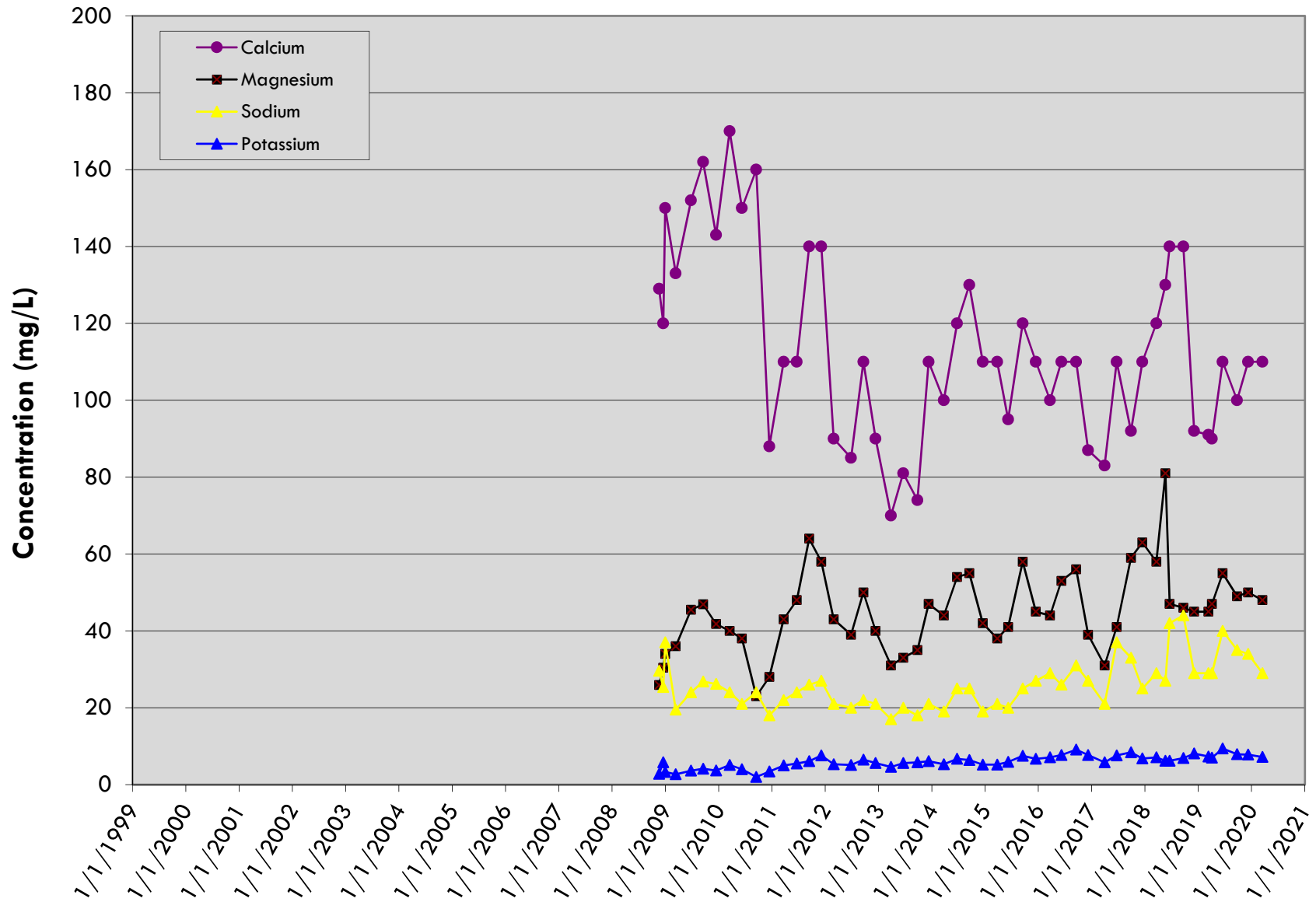
LDCS-4A

LRI Landfill, Pierce County, Washington



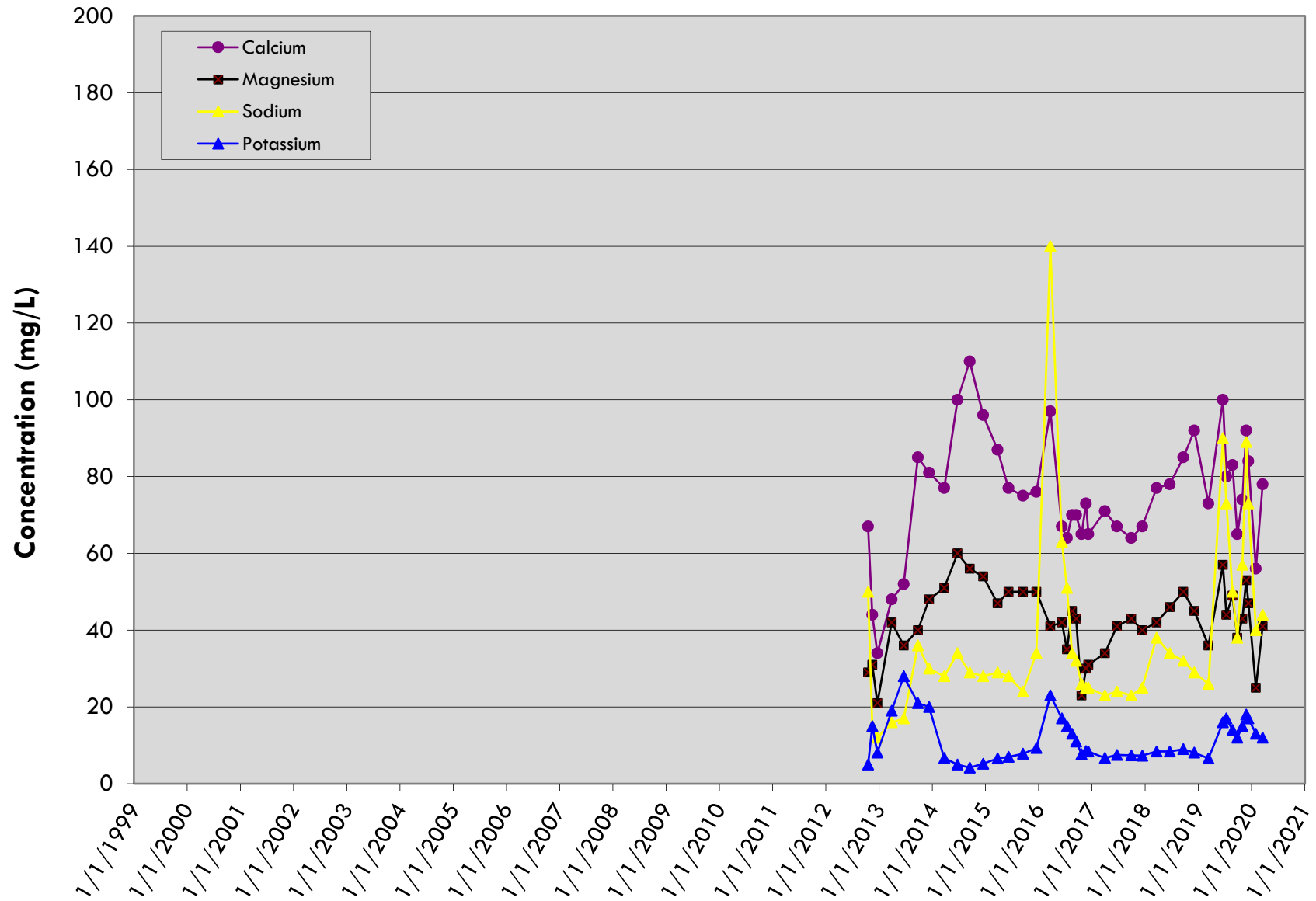
LDCS-4B

LRI Landfill, Pierce County, Washington



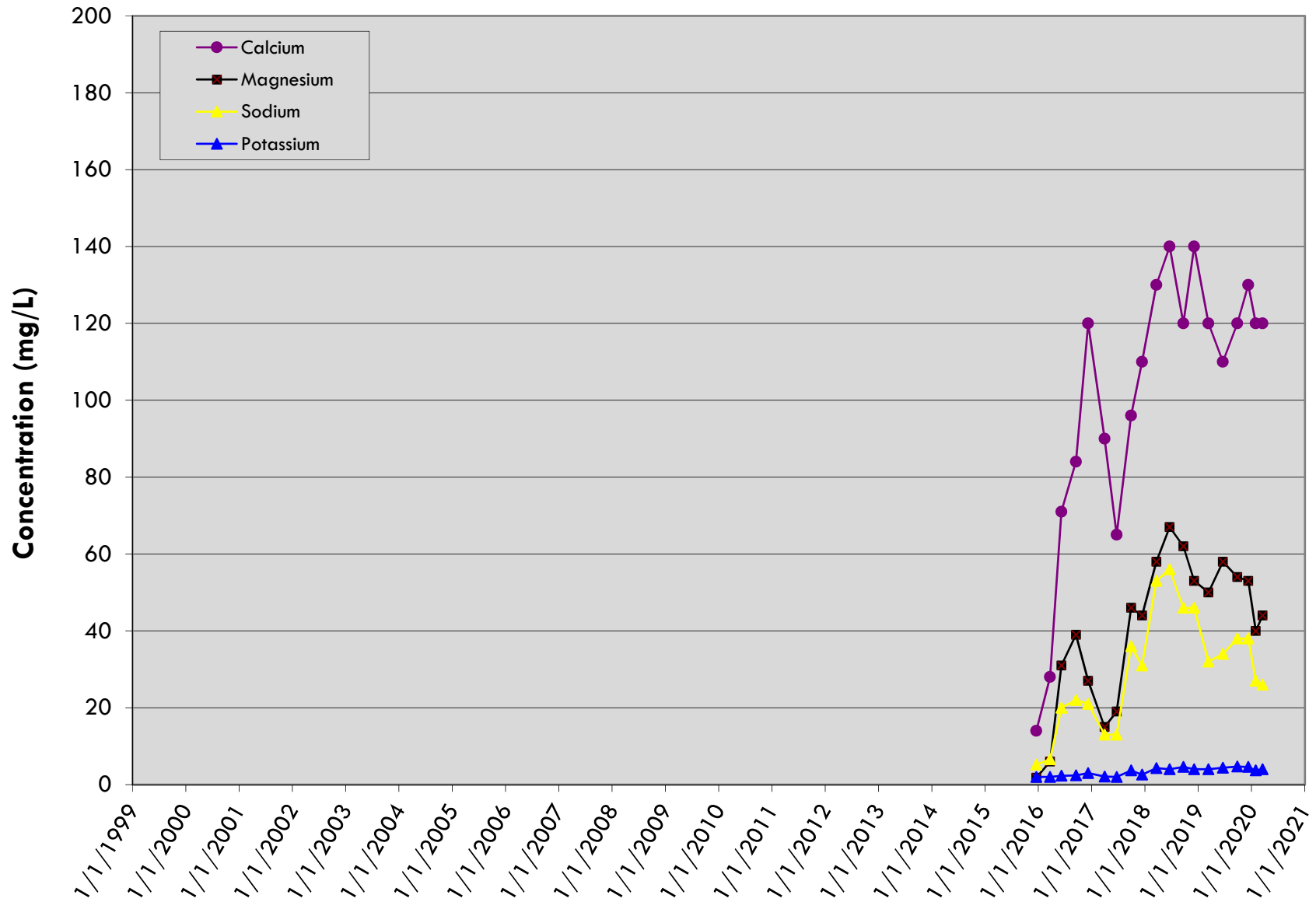
LDCS-5

LRI Landfill, Pierce County, Washington



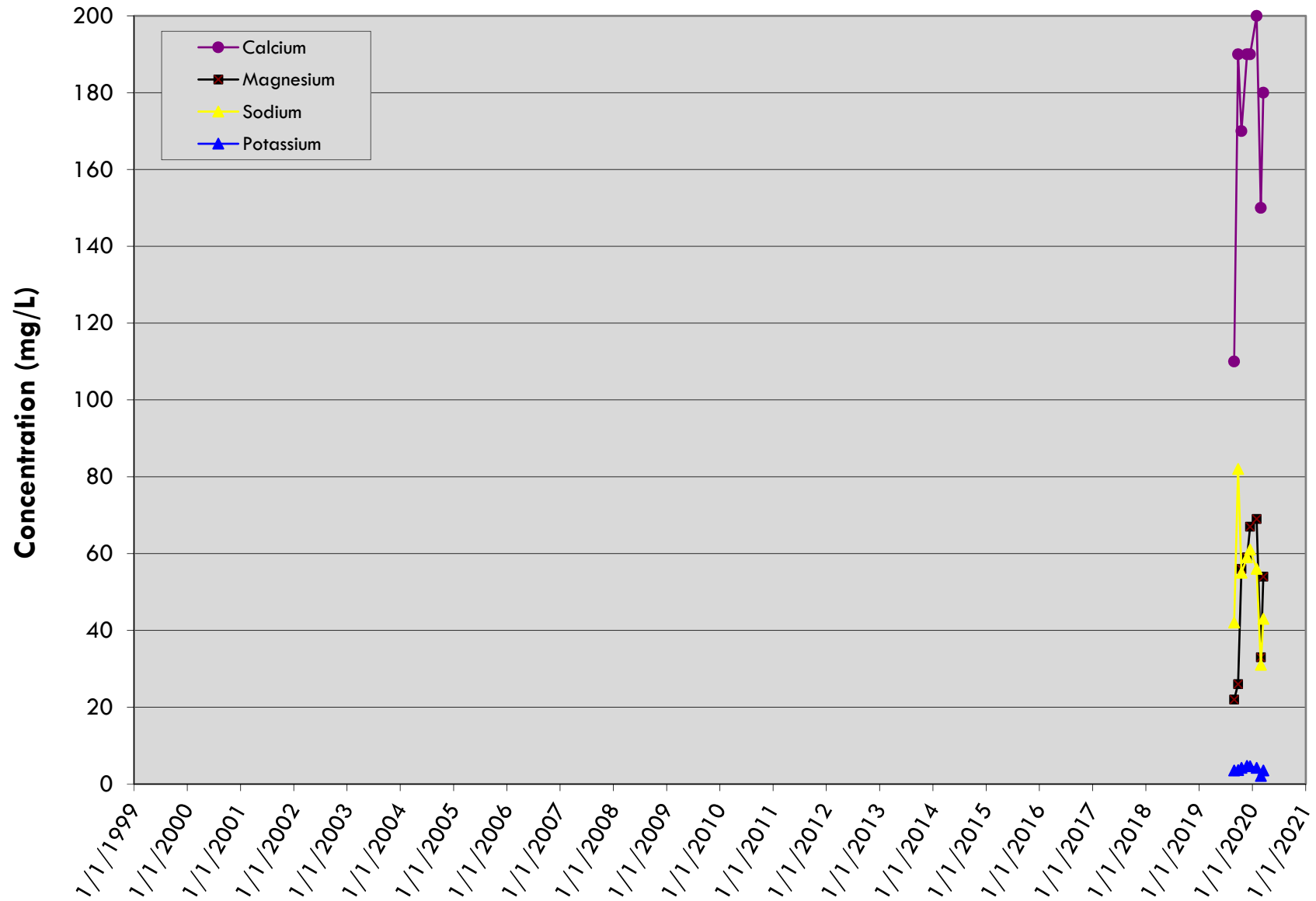
LDCS-6A

LRI Landfill, Pierce County, Washington



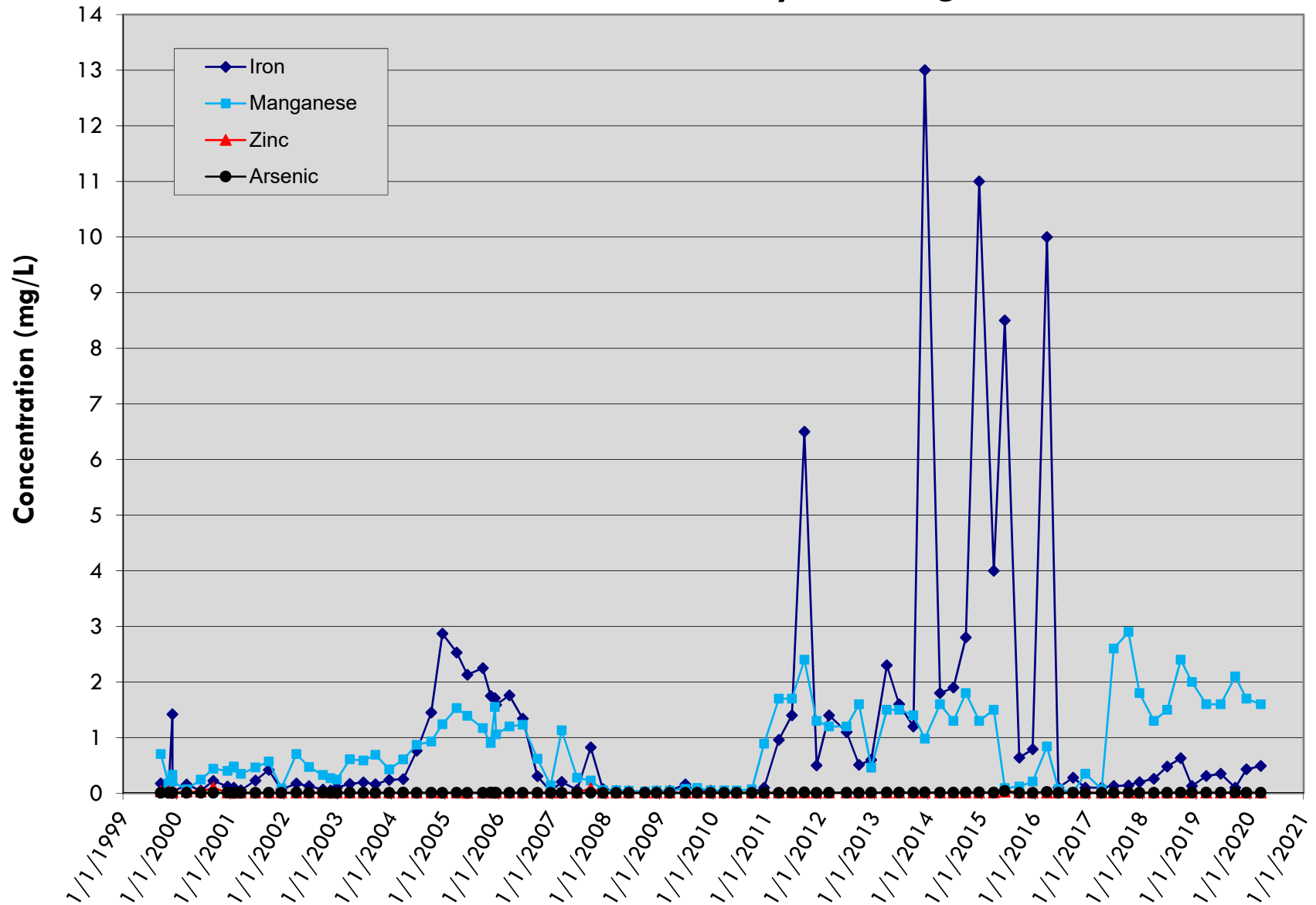
LDCS-7

LRI Landfill, Pierce County, Washington



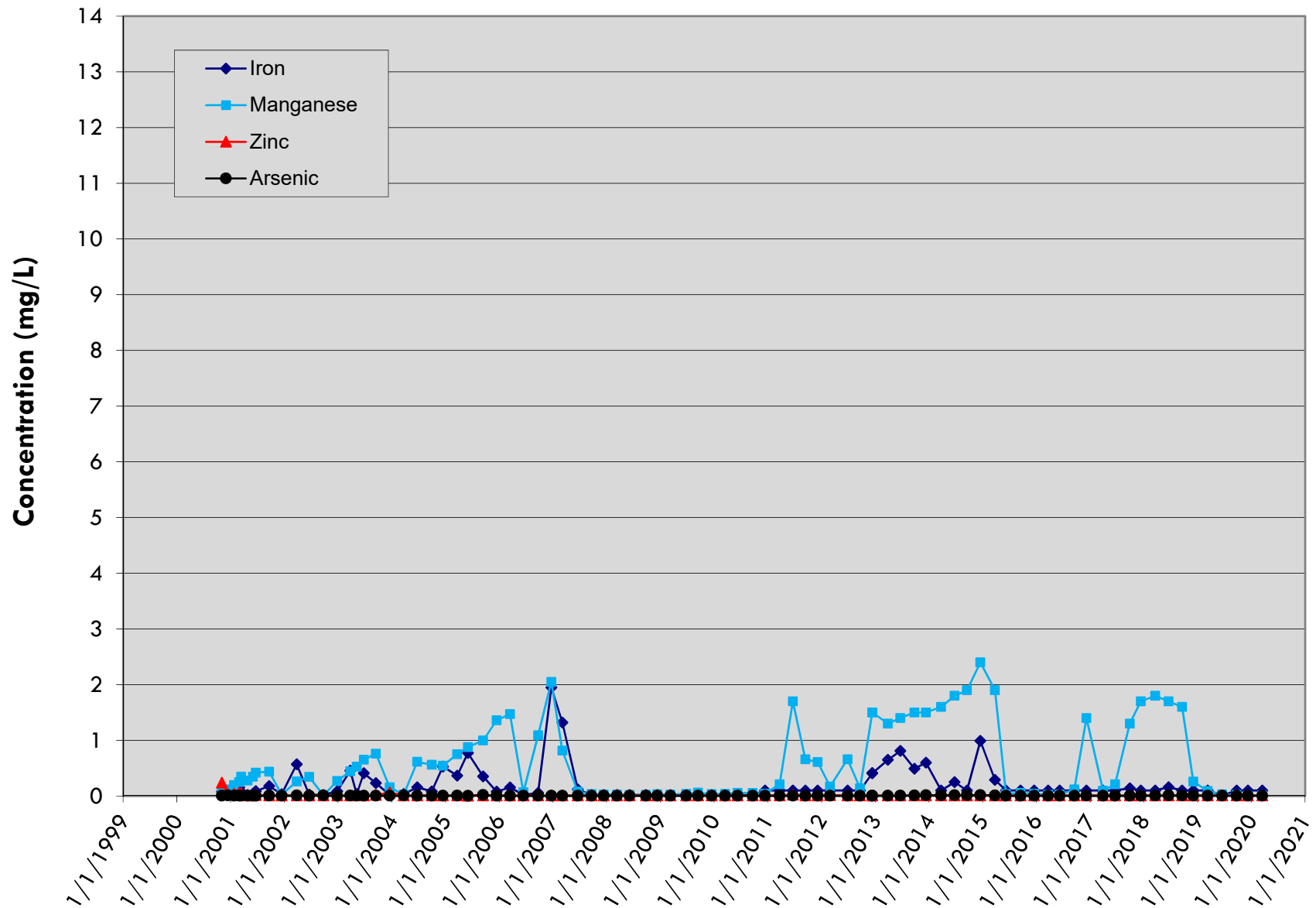
LDCS-1

LRI Landfill, Pierce County, Washington



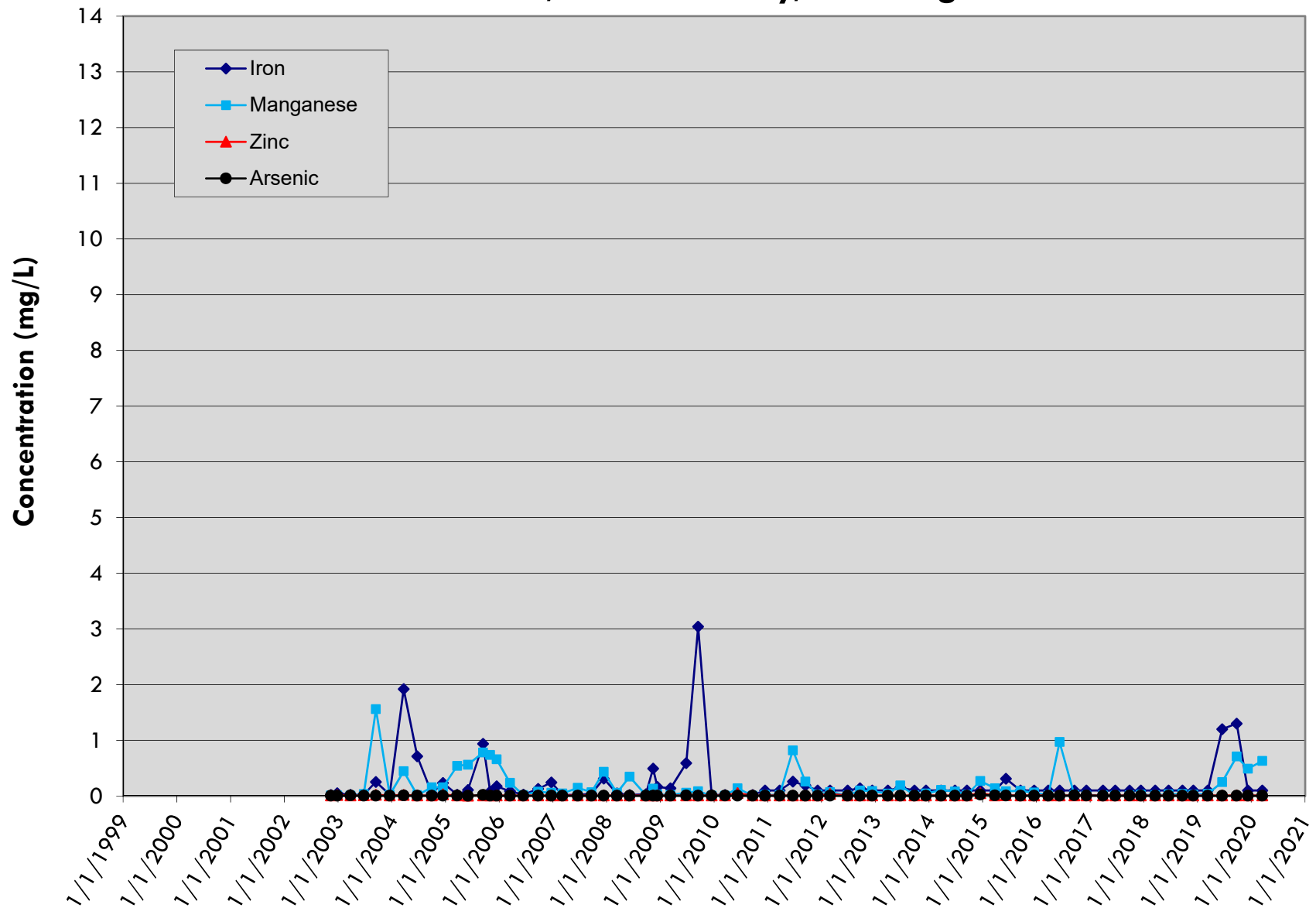
LDCS-2A

LRI Landfill, Pierce County, Washington



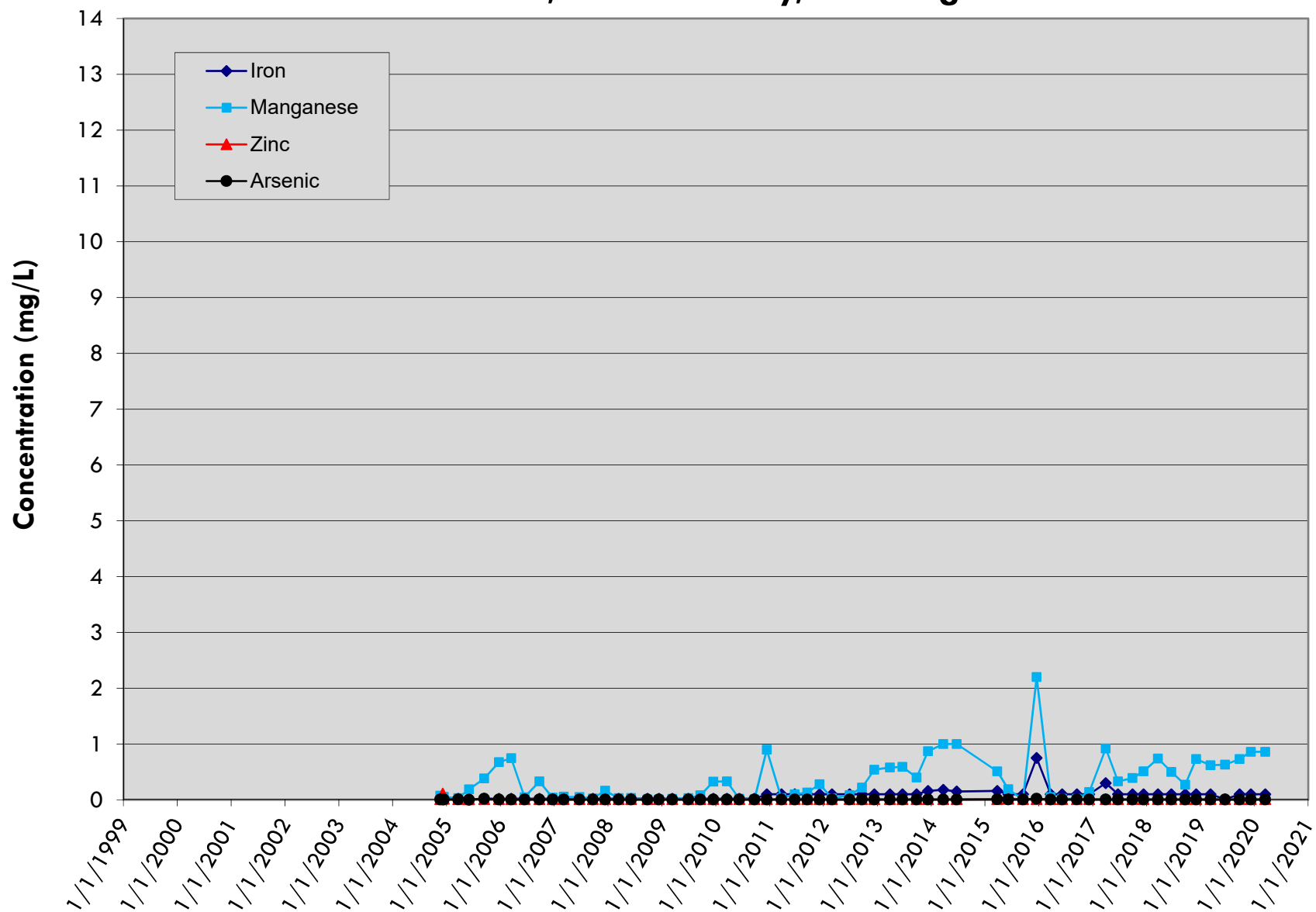
LDCS-2B

LRI Landfill, Pierce County, Washington



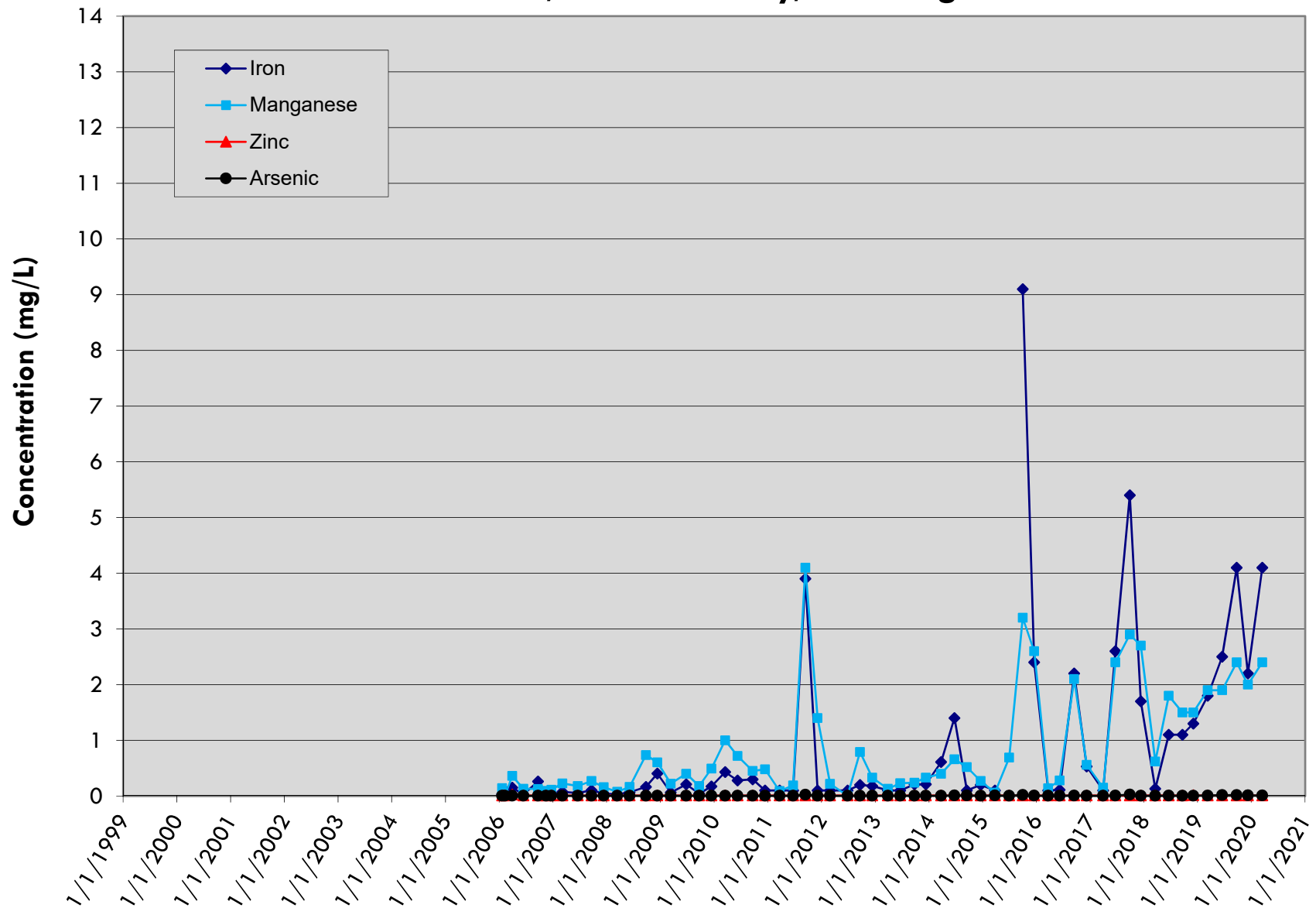
LDCS-3A

LRI Landfill, Pierce County, Washington



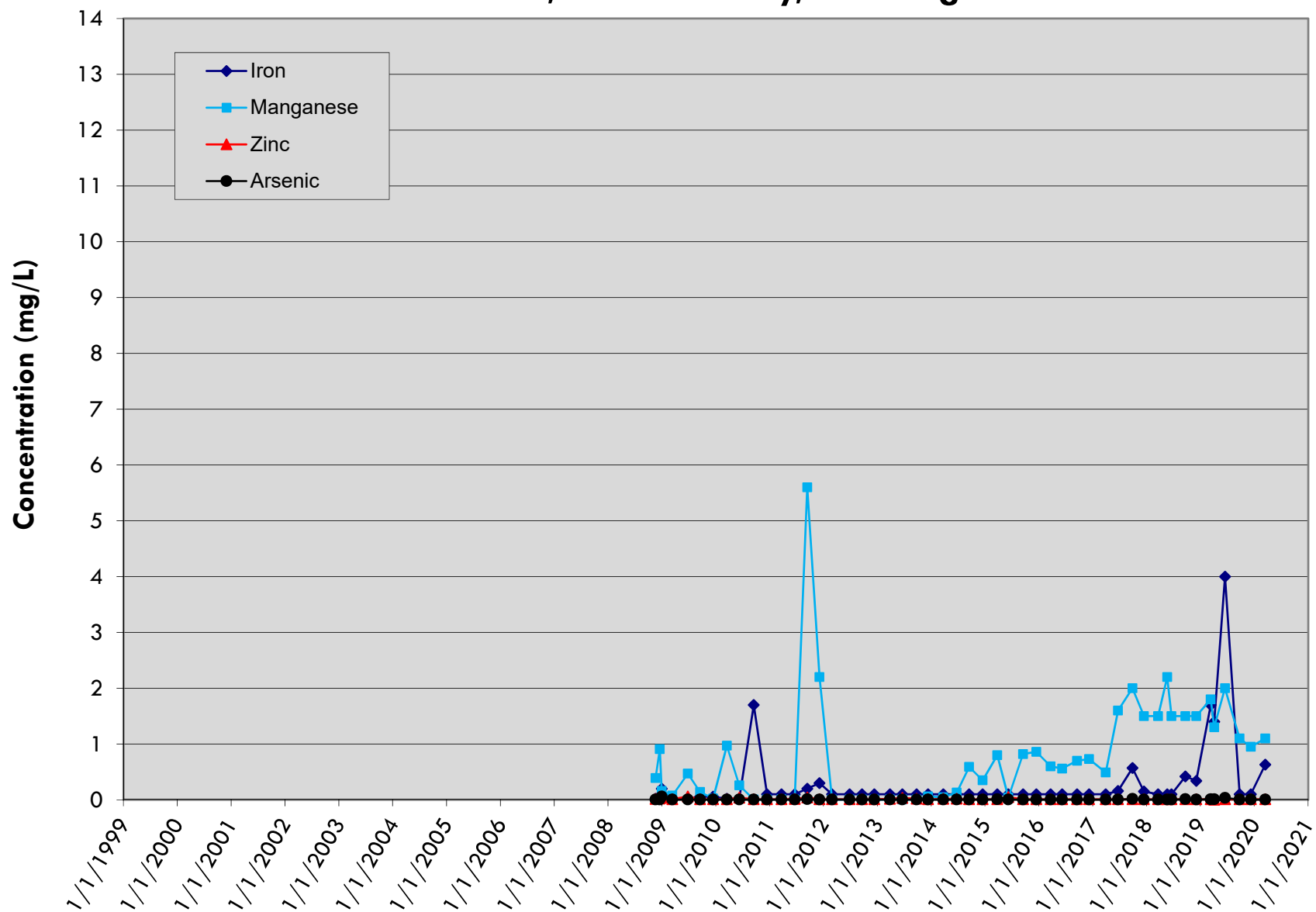
LDCS-4A

LRI Landfill, Pierce County, Washington



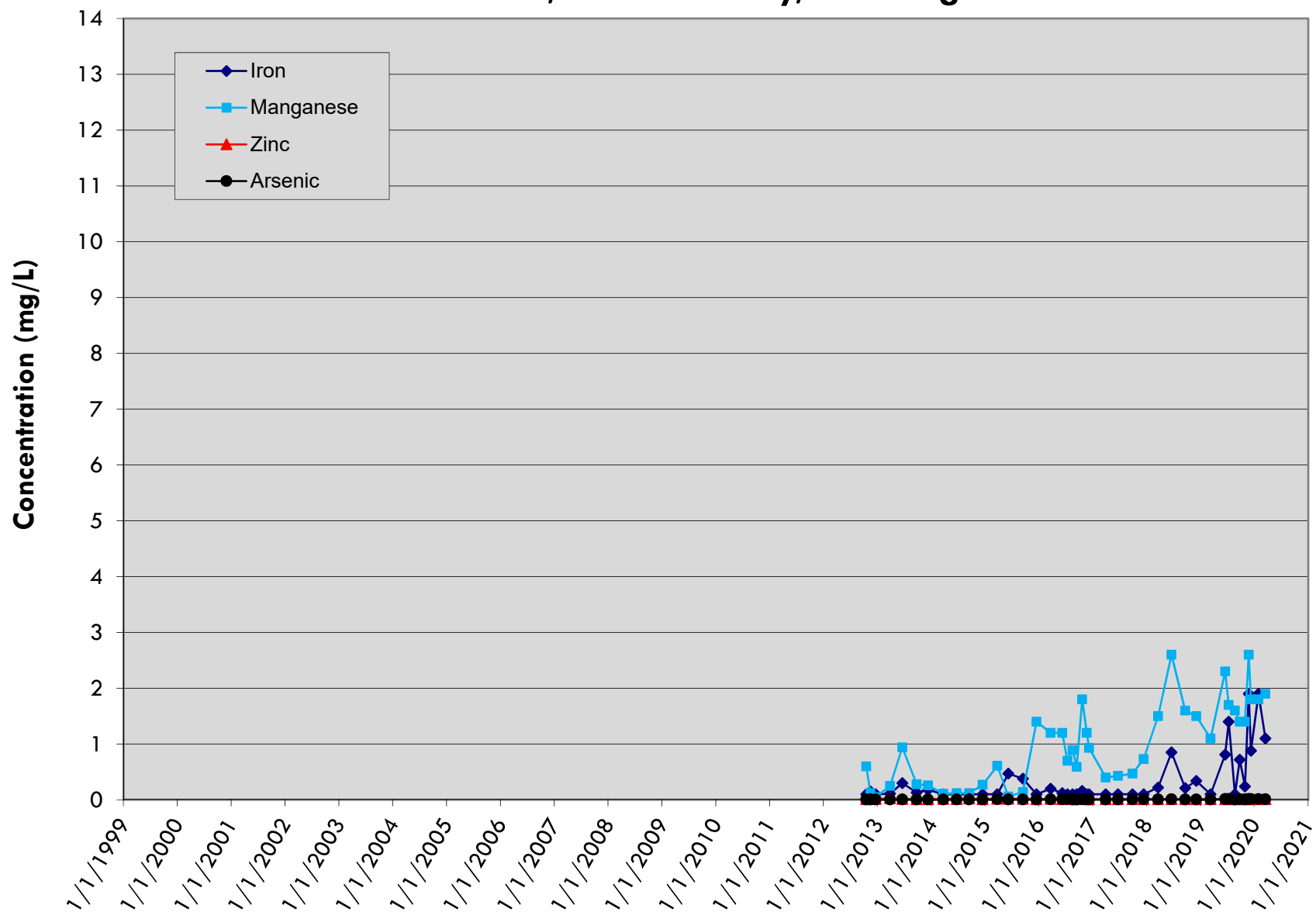
LDCS-4B

LRI Landfill, Pierce County, Washington



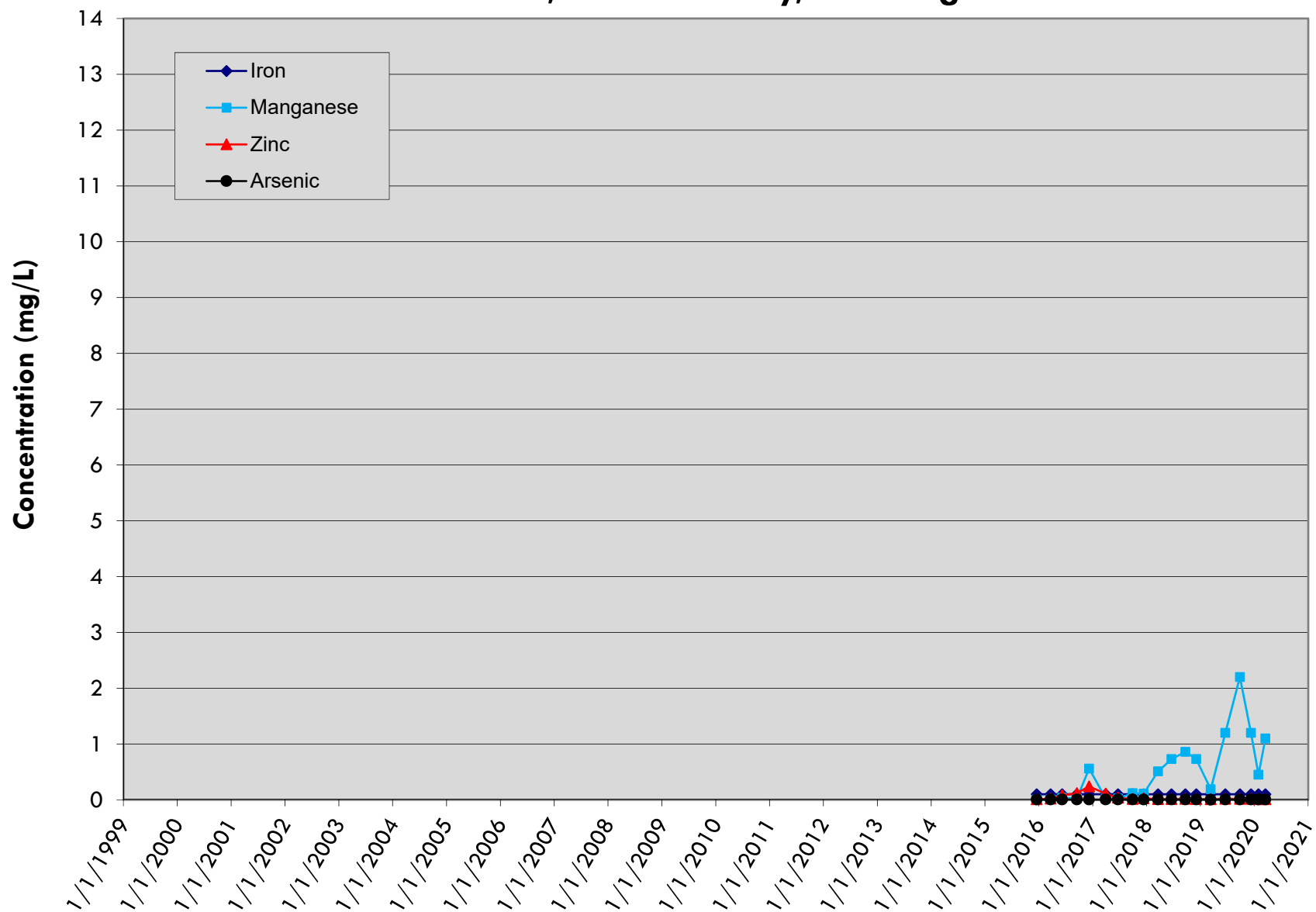
LDCS-5

LRI Landfill, Pierce County, Washington



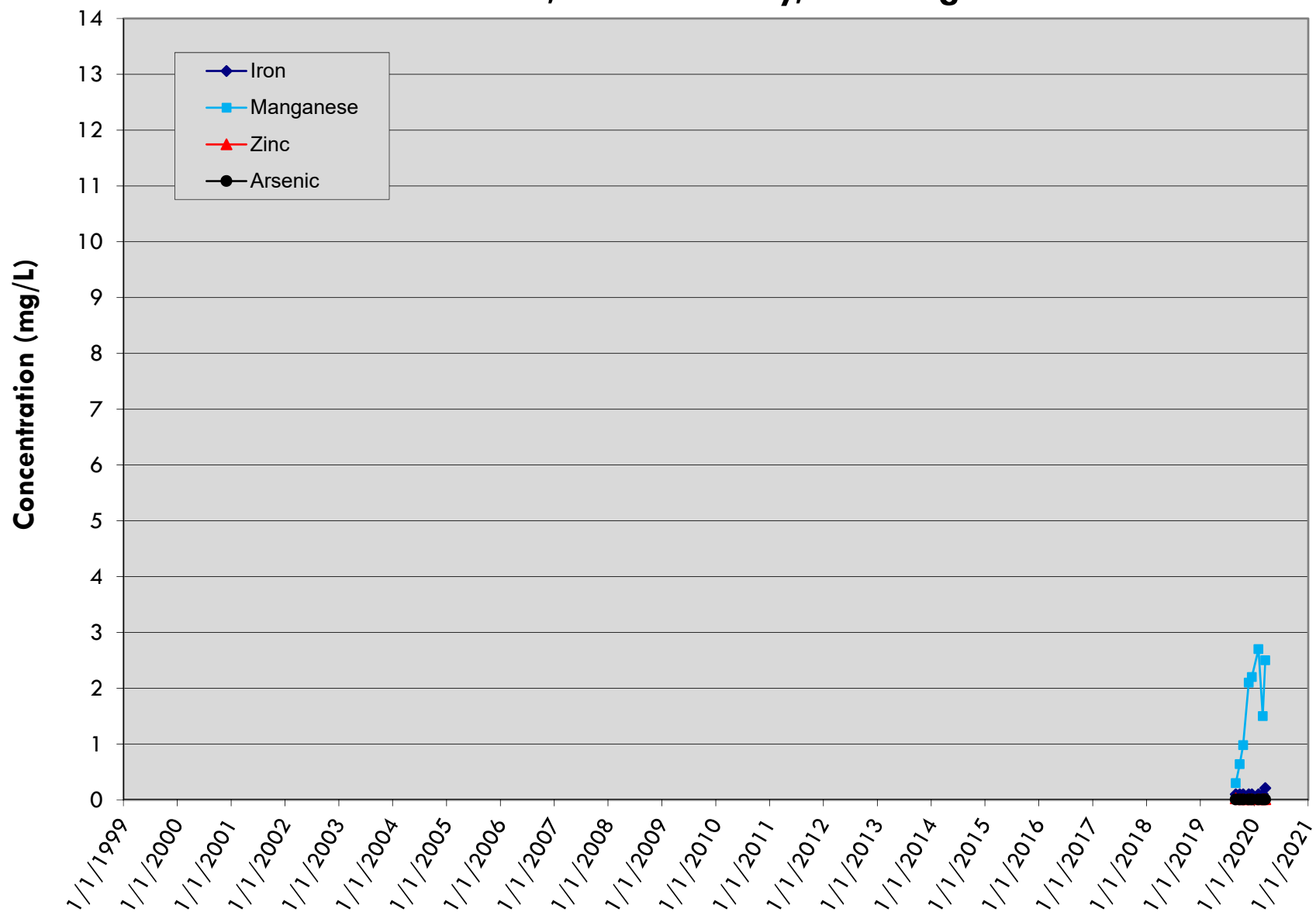
LDCS-6A

LRI Landfill, Pierce County, Washington



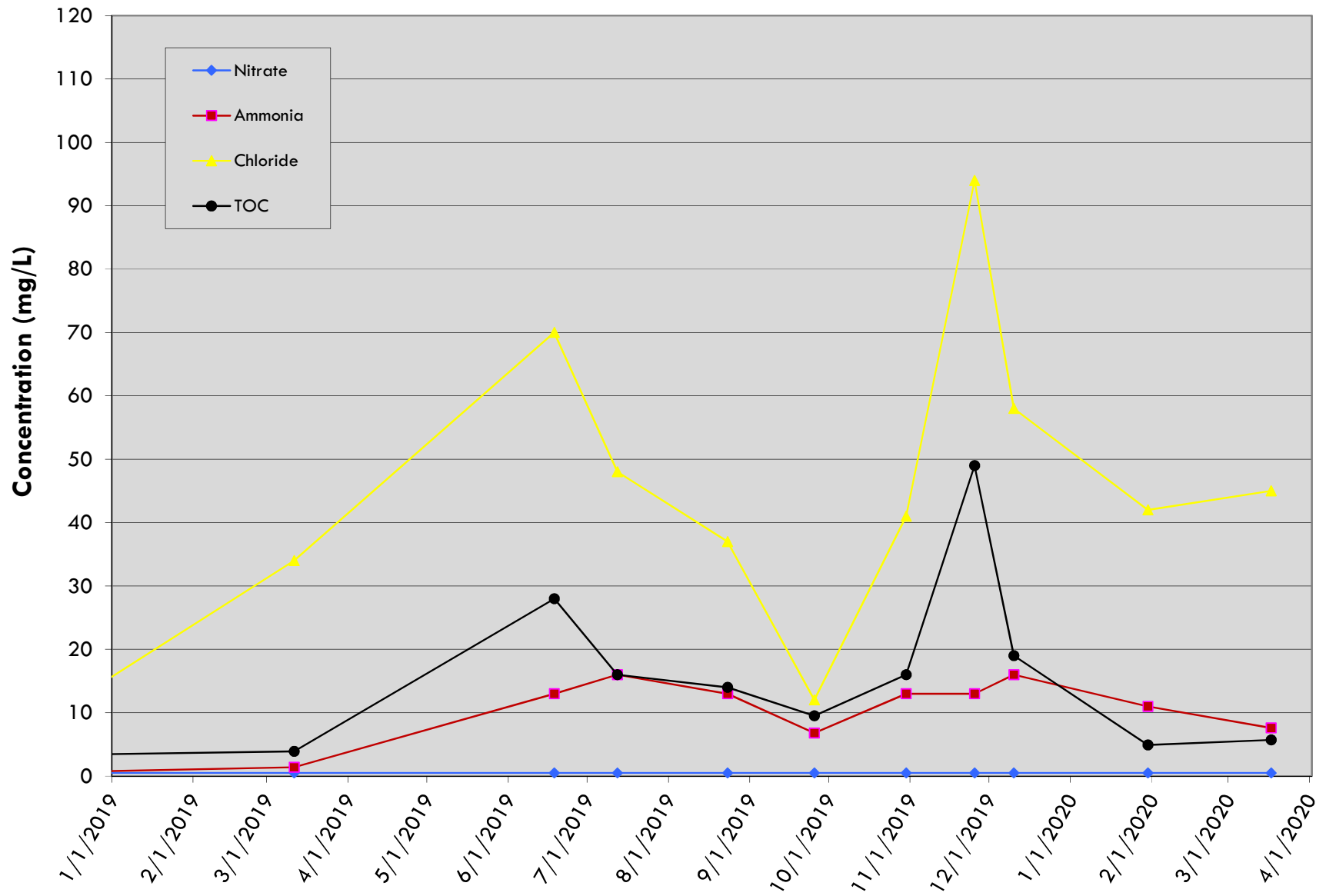
LDCS-7

LRI Landfill, Pierce County, Washington



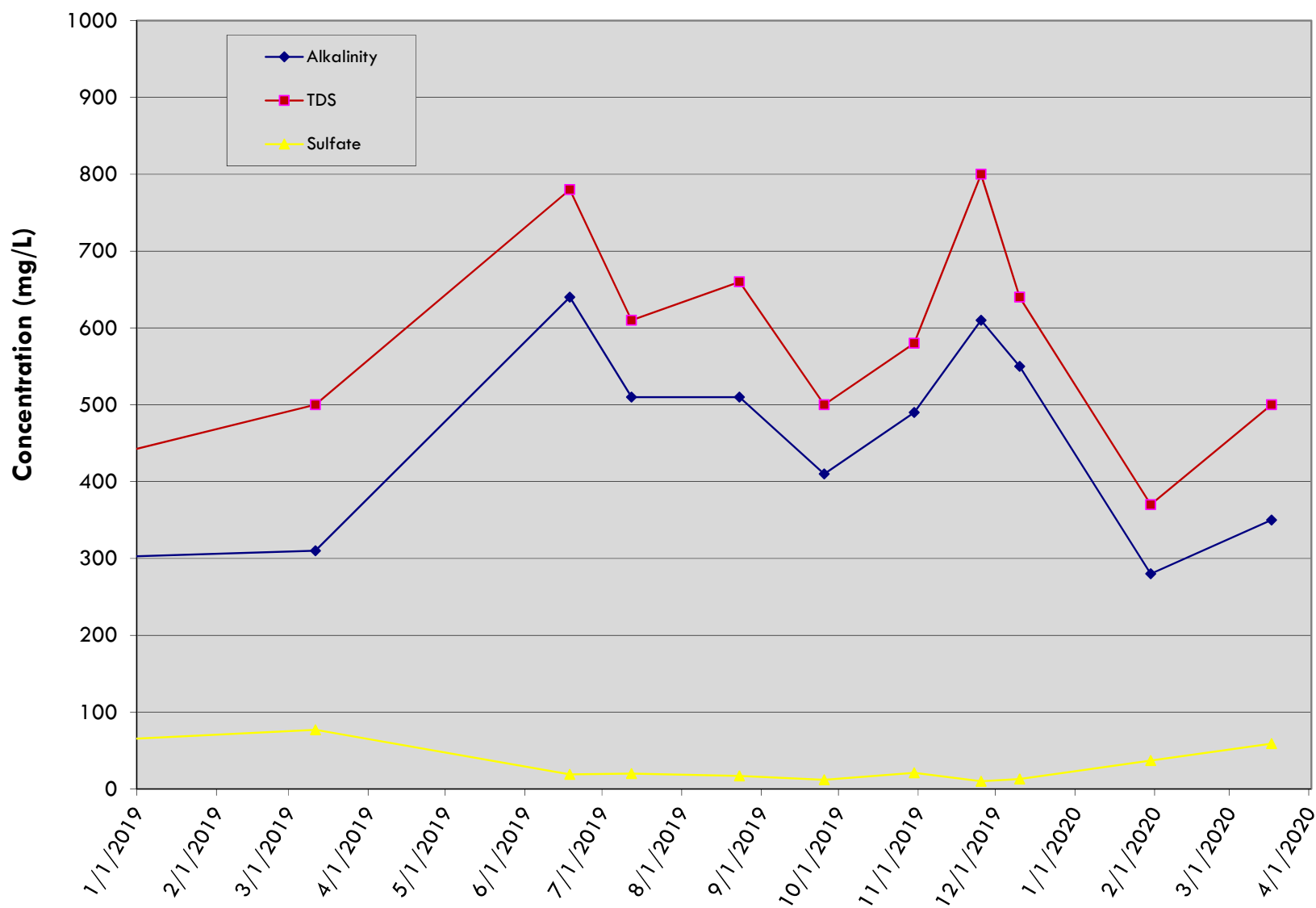
LDCS-5

LRI Landfill, Pierce County, Washington



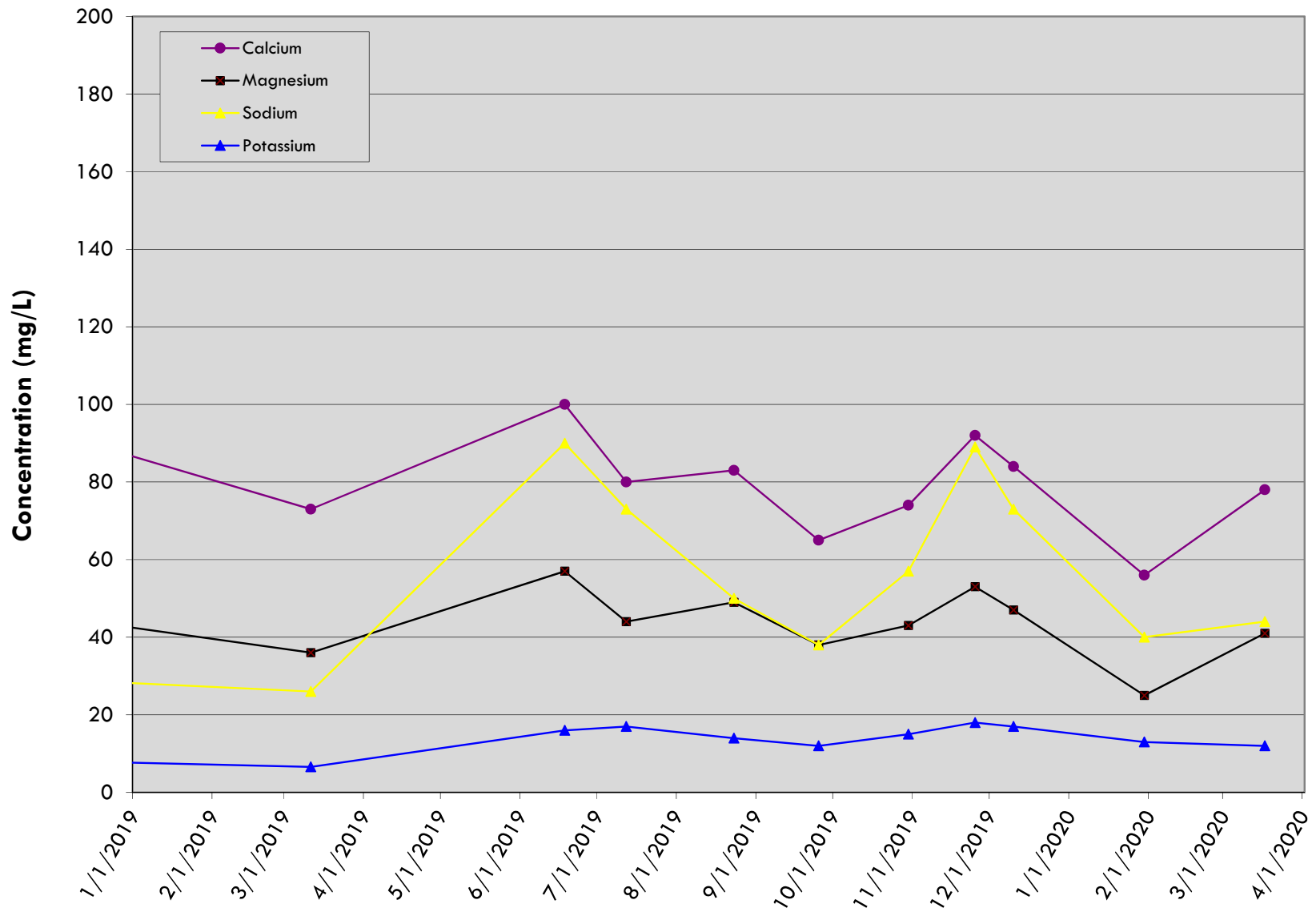
LDCS-5

LRI Landfill, Pierce County, Washington



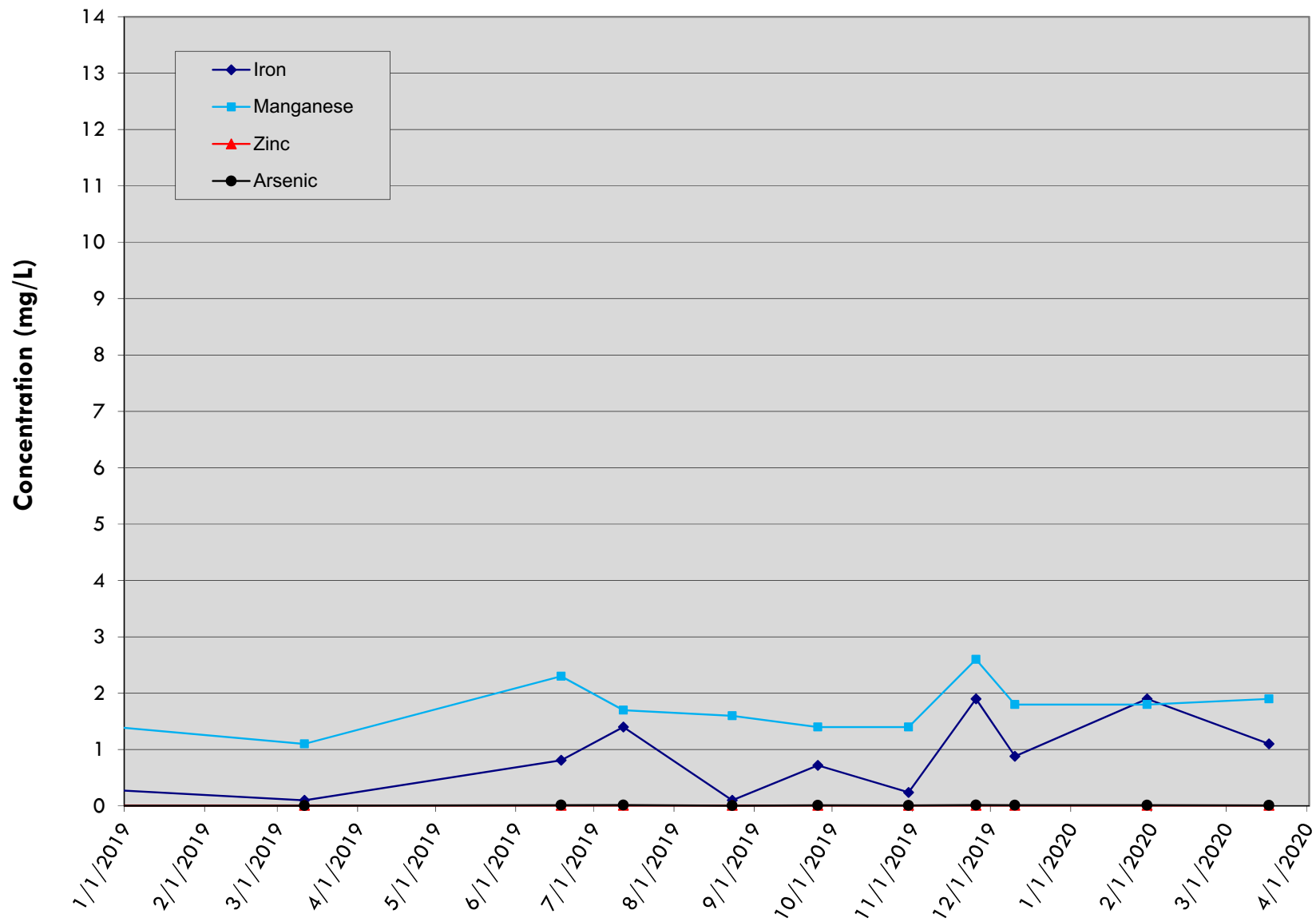
LDCS-5

LRI Landfill, Pierce County, Washington



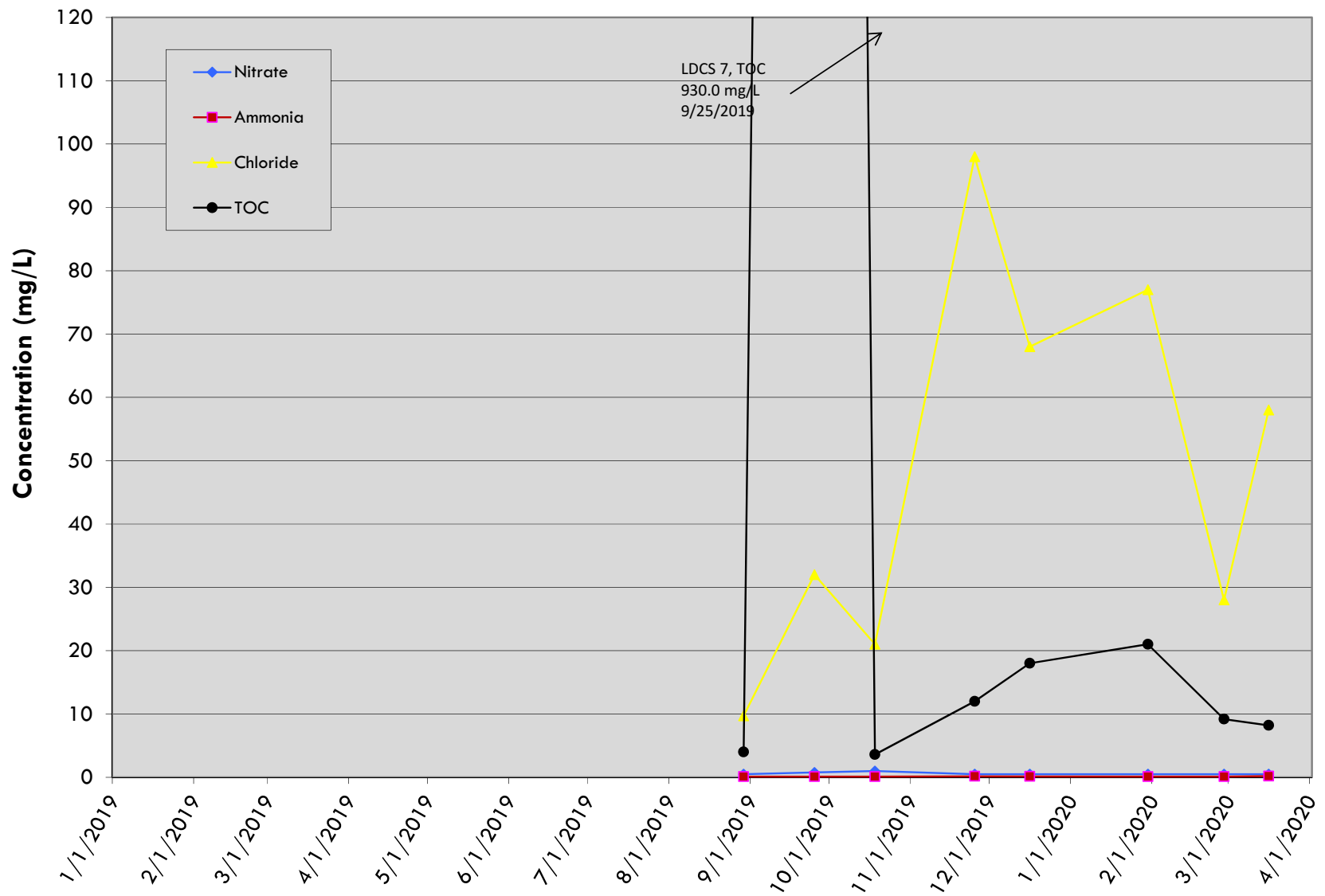
LDCS-5

LRI Landfill, Pierce County, Washington

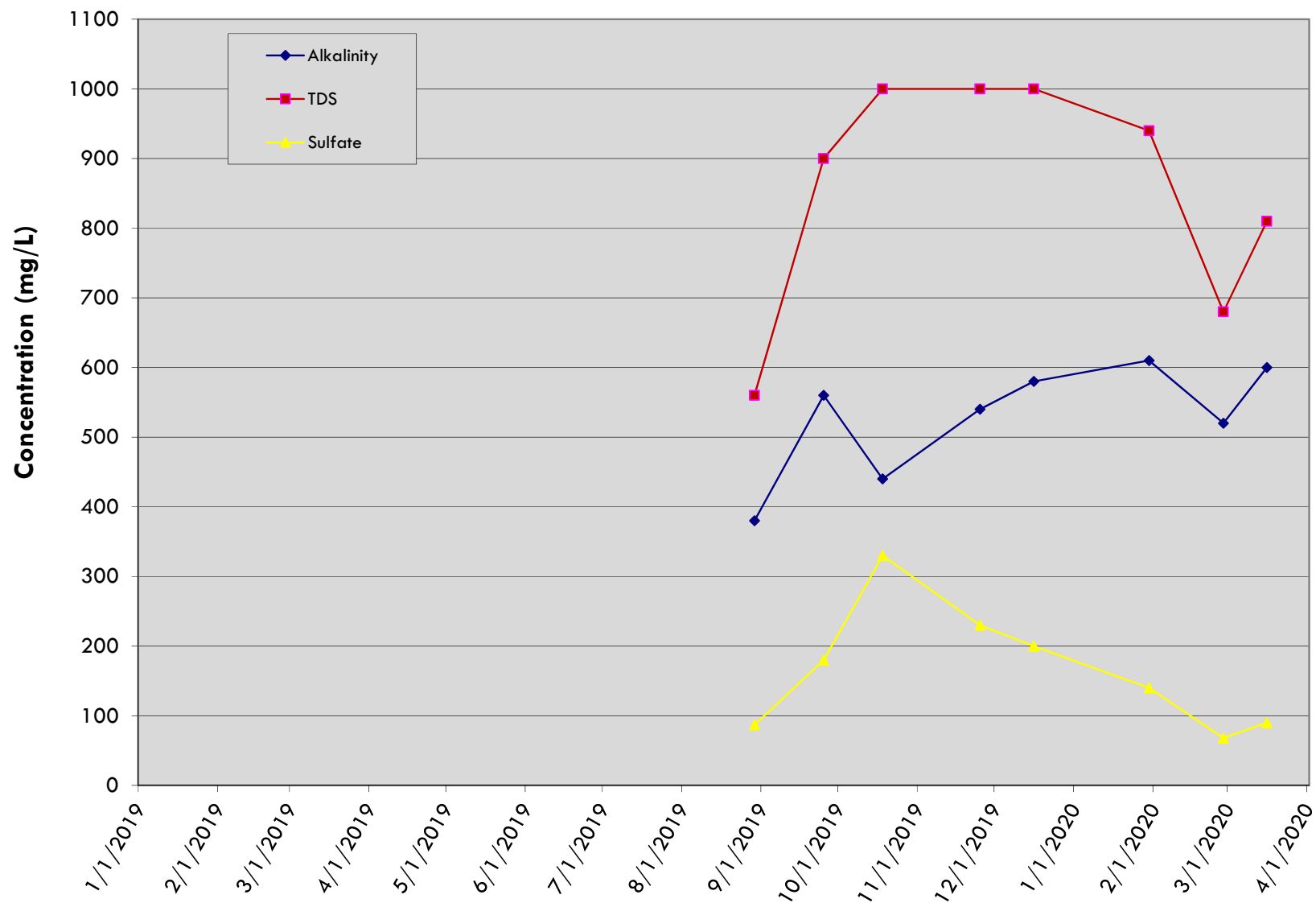


LDCS-7

LRI Landfill, Pierce County, Washington

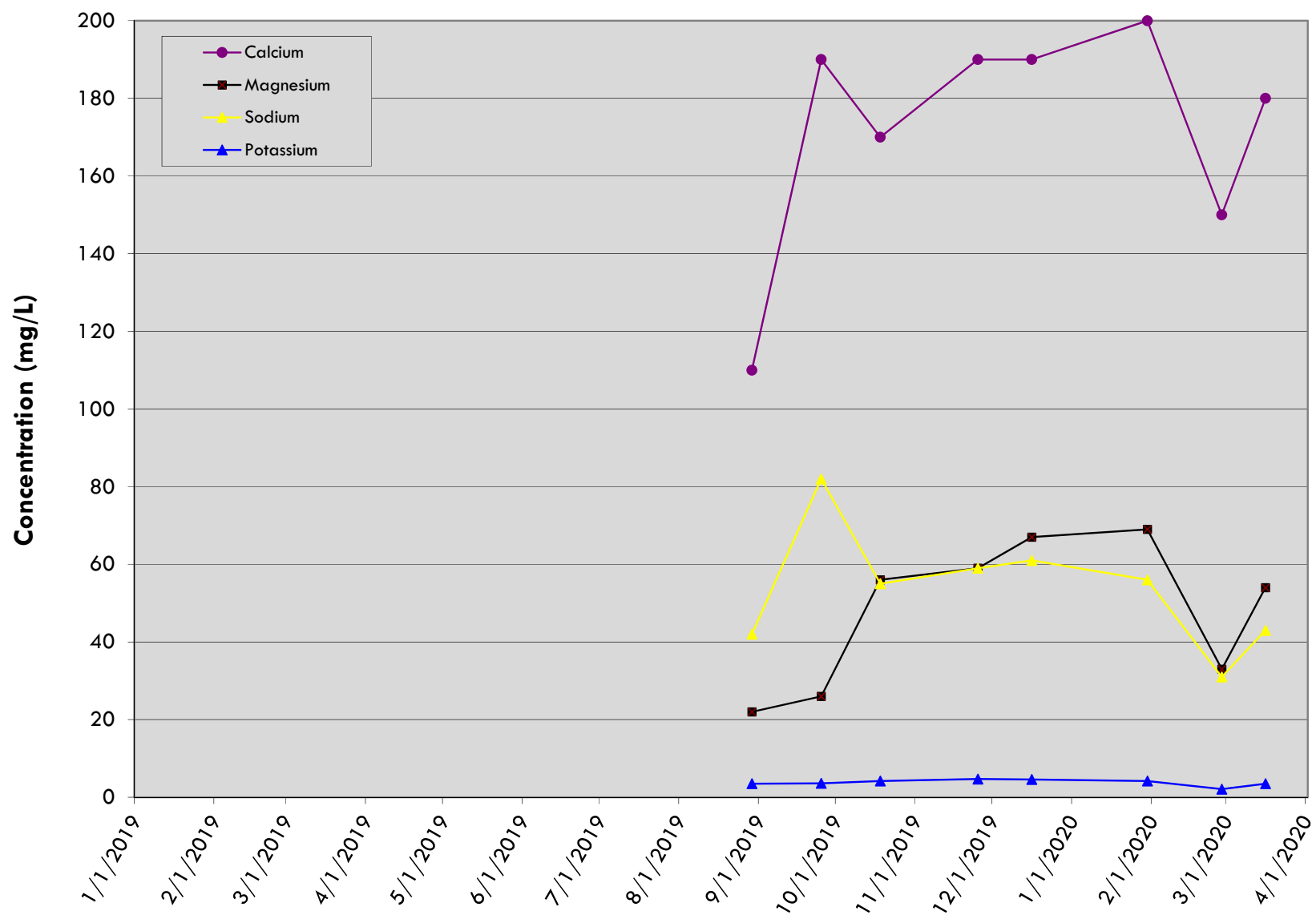


LDCS-7
LRI Landfill, Pierce County, Washington



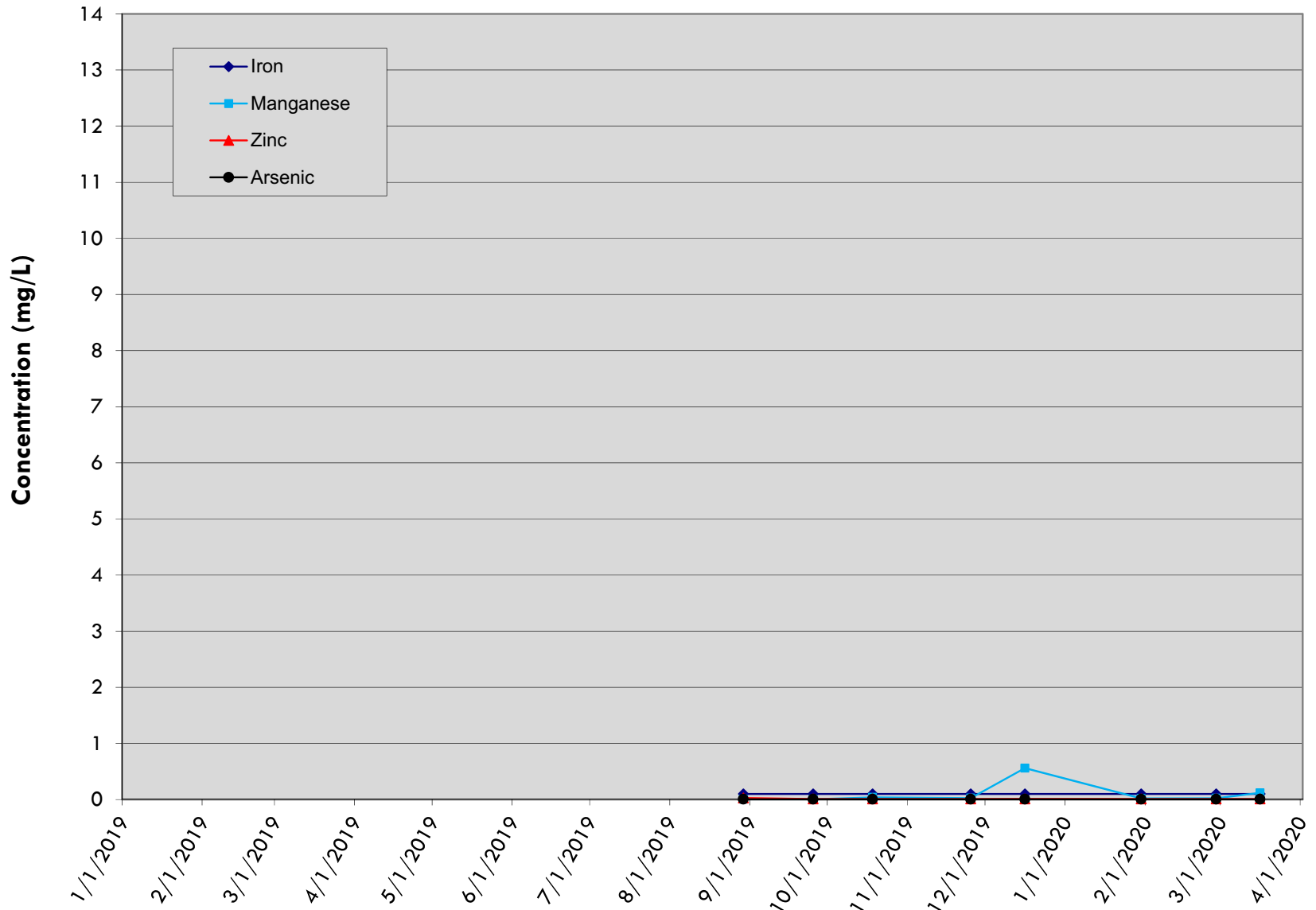
LDCS-7

LRI Landfill, Pierce County, Washington



LDCS-7

LRI Landfill, Pierce County, Washington





Attachment H

LDCS Pumping Records and Conductivity Measurements

**Summary of LDCS Volumes Pumped and Conductivity Data
First Quarter 2020
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)
1/1/2020	0.06	7,680	404	540	739	1000	731	642	848	2,810	783	5,573	972	1,241	-	4,177	958	2,358	-
1/2/2020	0.06	7,680	398	620	729	850	723	642	855	2,360	780	4,382	962	1,241	-	3,030	957	2,358	906
1/3/2020	0.46	7,470	403	620	738	1000	722	583	859	2,200	781	4,297	960	1,537	-	2,686	955	1,933	921
1/4/2020	0.28	7,470	400	540	731	850	724	583	857	3,520	793	5,563	957	1,537	-	4,399	950	1,933	921
1/5/2020	0.17	7,470	398	610	731	900	720	583	866	2,560	786	5,059	951	1,537	-	3,425	943	1,933	921
1/6/2020	1.21	8,100	403	240	738	950	722	738	868	5,430	785	7,114	948	6,889	-	7,448	935	3,466	885
1/7/2020	0.19	8,560	411	0	745	1950	729	738	866	3,990	796	7,910	939	1,325	-	7,147	912	3,051	885
1/8/2020	0.01	8,380	408	0	740	950	730	733	864	3,150	786	6,982	933	754	-	4,017	904	2,941	898
1/9/2020	0.00	7,373	400	0	727	1950	717	586	867	2,580	762	5,815	935	552	-	2,976	903	1,915	898
1/10/2020	1.20	8,668	257	160	385	550	461	783	456	2,540	0	5,521	972	2,249	-	5,438	908	2,385	960
1/11/2020	0.30	8,668	404	460	749	1000	710	783	864	3,390	746	6,964	947	2,249	-	5,438	908	2,385	960
1/12/2020	0.42	8,668	404	460	749	950	710	783	864	3,390	746	6,964	947	2,249	-	5,438	908	2,385	960
1/13/2020	0.08	8,668	390	580	712	1050	704	736	857	2,700	784	6,670	941	874	-	4,113	905	2,908	941
1/14/2020	0.11	8,668	394	650	733	1000	708	736	852	2,690	698	6,339	974	905	-	4,408	905	2,884	910
1/15/2020	0.02	8,668	402	610	746	950	696	733	852	2,320	707	6,043	980	610	-	3,226	906	2,946	907
1/16/2020	0.00	7,810	393	660	726	1000	721	586	837	2,320	800	5,246	980	513	-	2,582	928	1,918	923
1/17/2020	0.07	7,835	388	600	705	1050	691	588	844	2,010	736	4,267	988	357	-	2,181	938	1,918	943
1/18/2020	0.01	7,835	388	600	705	1050	691	588	844	2,010	736	4,267	988	357	-	2,181	938	1,918	943
1/19/2020	0.00	7,835	388	600	705	1000	691	588	844	2,010	736	4,267	988	357	-	2,181	938	1,918	943
1/20/2020	0.00	9,313	405	670	747	900	733	734	831	2,340	688	4,489	968	326	-	2,161	954	1,997	915
1/21/2020	0.00	8,643	398	680	745	950	725	737	824	2,340	695	4,021	942	487	-	2,105	976	1,788	903
1/22/2020	0.35	6,535	391	550	731	800	702	440	845	2,330	725	4,325	952	1,203	-	2,843	1,004	2,842	897
1/23/2020	1.04	8,635	404	620	750	1000	713	736	837	5,390	780	7,288	964	3,887	-	7,669	979	3,105	901
1/24/2020	0.17	8,335	398	610	742	1050	719	686	842	3,750	762	6,937	961	1,228	-	4,325	945	2,897	-
1/25/2020	0.18	8,335	398	610	742	1050	719	686	842	3,750	762	6,937	961	1,228	-	4,325	945	2,897	-
1/26/2020	0.18	8,335	398	610	742	1100	719	686	842	3,750	762	6,937	961	1,228	-	4,325	945	2,897	-
1/27/2020	0.52	8,845	390	680	720	750	707	755	856	4,400	691	7,214	990	2,196	-	4,301	918	2,485	-
1/28/2020	0.08	8,100	414	630	749	1200	726	568	840	3,770	816	7,971	1,015	1,341	-	5,423	910	1,550	-
1/29/2020	0.21	8,175	398	620	732	1000	703	741	850	3,710	782	7,460	969	1,194	-	4,305	912	1,824	-
1/30/2020	0.30	8,778	387	620	722	950	703	735	851	4,230	687	7,217	965	1,342	-	3,633	897	3,599	-
1/31/2020	0.36	8,553	410	660	744	1000	722	735	842	4,050	855	8,279	958	1,856	-	4,756	891	2,928	-
2/1/2020	0.31	8,950	414	670	740	1100	720	735	846	5,050	786	9,302	952	1,856	-	5,615	890	2,928	-
2/2/2020	0.01	8,530	402	620	729	900	712	735	850	3,080	756	7,197	930	1,856	-	3,202	886	2,928	-
2/3/2020	0.03	9,120	395	600	729	950	708	603	852	2,650	734	5,830	935	479	-	2,430	894	1,918	1,000
2/4/2020	0.29	17,790	391	610	723	1000	700	719	852	2,460	730	5,654	964	2,062	-	2,232	904	976	985
2/5/2020	0.70	9,300	408	670	738	1100	715	737	846	7,810	744	16,435	921	3,802	-	7,209	906	4,011	1,040
2/6/2020	0.90	8,770	412	670	744	900	402	886	843	6,850	763	11,483	828	5,243	-	8,055	893	5,445	1,006
2/7/2020	0.28	9,820	406	670	743	1000	532	735	845	5,230	777	12,176	703	1,400	-	7,935	870	1,918	994
2/8/2020	0.08	9,070	403	690	735	1100	603	735	847	3,780	770	10,394	722	1,400	-	5,087	856	1,918	994
2/9/2020	0.01	8,990	393	680	715	950	666	735	853	3,050	751	7,700	839	1,401	-	3,065	861	1,918	994
2/10/2020	0.01	8,680	391	640	740	1100	700	735	850	2,860	718	6,655	897	471	-	2,348	882	0	1,000
2/11/2020	0.03	9,003	390	600	748	1000	709	737	837	2,850	715	6,101	916	396	-	220	901	0	1,065
2/12/2020	0.04	8,780	396	680	731	950	715	737	837	2,690	741	5,921	945	384	-	2,078	745	2,596	1,208
2/13/2020	0.13	9,353	402	670	710	1100	718	753	831	2,840	740	6,035	954	442	-	2,232	855	4,716	1,234
2/14/2020	0.14	8,430	401	660	724	1000	715	685	829	2,790	744	5,750	961	877	-	2,913	908	2,237	1,091
2/15/2020	0.18	8,430	401	660	730	1000	710	685	831	2,790	751	5,750	966	877	-	4,462	925	2,237	1,091
2/16/2020	0.06	8,430	401	650	735	1050	715	685	830	2,800	768	5,750	968	878	-	3,986	924	2,236	1,091
2/17/2020	0.00	8,678	396	640	728	1000	708	714	833	2,400	781	4,709	969	550	-	1,783	920	0	1,100
2/18/2020	0.01	8,110	392	670	731	1100	704	585	836	2,180	793	4,514	966	429	-	2,263	918	2,196	1,091
2/19/2020	0.01	8,533	393	610	737	1000	710	729	835	2,120	770	4,207	962	373	-	2,073	922	4,389	1,085
2/20/2020	0.00	8,520	395	700	736	1050	712	603	834	2,100	751	4,056	959	336	-	1,911	931	0	1,100
2/21/2020	0.00	8,238	397	660	734	1050	710	679	835	3,340	740	4,225	958	394	-	1,813	942	2,184	1,205
2/22/2020	0.02	8,238	399	660	735	1050	711	679	835	3,340	738	4,225	958	394	-	1,813	954	2,184	1,205
2/23/2020	0.34	8,238	403	650	736	1000	713	679	834	3,340	740	4,225	959	394	-	1,882	967	2,183	1,205
2/24/2020	0.00	7,973	395	600	717	950	711	525	839	650	749	4,074	957	518	-	2,147	976	1,122	1,046
2/25/2020	0.00	7,765	394	610	727	1450	706	649	844	650	756	3,935	958	395	-	1,975	978	5,289	1,050
2/26/2020	0.03	7,958	397	570	737	1000	714	607	841	650	762	4,063	962	362	-	1,898	978	0	1,000
2/27/2020	0.01	8,823	401	700	738	1250	715	569	838	2,110	765	4,029	963	329	-	1,827	979	575	1,105
2/28/2020	0.10	8,228	407	700	745	1050	722	637	834	2,000	751	3,991	964	330	-	799	980	2,341	1,080
2/29/2020	0.01	8,228	405	700	743	1050	722	637	831	2,000	746	3,991	970	330	-	2,799	986	2,341	1,080

Summary of LDCS Volumes Pumped and Conductivity Data
First Quarter 2020
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)
3/1/2020	0.01	8,228	398	690	721	1000	712	637	835	1,990	748	3,990	970	330	-	1,930	992	2,341	1,080
3/2/2020	0.06	8,150	396	610	729	1050	709	738	840	1,950	751	3,992	969	308	-	1,906	998	5,872	1,079
3/3/2020	0.10	8,150	401	730	742	1000	718	588	838	2,110	754	4,340	970	333	-	1,867	1,004	0	1,347
3/4/2020	0.00	8,148	402	660	740	1100	720	589	836	3,000	759	4,080	971	377	-	2,186	1,004	1,639	1,360
3/5/2020	0.29	8,660	405	680	736	1050	719	738	835	1,490	754	4,711	969	25	-	2,150	1,002	5,057	1,410
3/6/2020	0.39	8,218	406	640	736	1050	718	684	834	4,440	772	7,065	965	952	-	6,794	998	0	1,376
3/7/2020	0.11	8,218	408	640	742	1050	719	684	835	4,440	788	7,065	943	952	-	4,994	963	0	-
3/8/2020	0.00	8,320	401	640	725	1000	715	684	841	3,600	780	6,454	939	953	-	3,181	933	4,548	-
3/9/2020	0.01	8,060	394	670	721	1050	710	586	846	2,970	772	5,457	949	1,740	-	2,274	306	0	1,243
3/10/2020	0.00	8,410	391	620	728	1000	707	735	849	3,160	770	5,522	952	416	-	2,070	920	393	1,285
3/11/2020	0.01	8,390	393	920	736	1100	716	1174	847	3,200	798	5,433	954	828	-	1,820	737	4,085	1,336
3/12/2020	0.00	8,470	391	1090	726	950	713	732	846	4,680	793	7,104	954	1,330	-	4,714	872	0	1,315
3/13/2020	0.43	9,530	397	1230	737	1100	718	732	843	4,570	798	6,331	952	1,330	-	4,714	936	0	1,307
3/14/2020	0.24	9,380	400	660	738	1100	722	732	840	5,350	813	7,834	944	1,331	-	4,714	936	0	-
3/15/2020	0.01	8,450	392	680	718	1100	714	878	849	4,190	822	6,981	943	470	-	2,259	936	0	-
3/16/2020	0.00	8,600	390	640	722	1050	708	737	859	3,470	818	6,254	958	441	-	2,159	906	7,373	1,283
3/17/2020	0.01	9,020	396	690	733	1100	714	736	860	3,650	796	6,456	961	409	-	1,913	917	8,200	-
3/18/2020	0.00	8,810	400	670	736	1150	720	588	857	3,440	779	5,824	960	351	-	1,831	930	0	1,215
3/19/2020	0.00	8,580	399	670	730	1000	715	735	857	3,440	777	5,561	961	350	-	1,776	767	0	1,210
3/20/2020	0.01	8,240	394	630	723	1100	708	735	858	3,430	779	5,166	960	350	-	1,645	878	6,624	1,155
3/21/2020	0.00	8,510	394	630	726	1000	707	735	857	3,460	780	4,863	959	349	-	1,553	929	0	-
3/22/2020	0.01	8,740	397	620	732	1050	713	736	853	3,450	787	5,079	957	846	-	1,537	952	0	-
3/23/2020	0.35	8,720	403	670	737	1100	719	734	849	3,980	799	5,404	957	2,212	-	3,504	962	7,006	1,139
3/24/2020	0.39	8,630	401	690	731	950	714	591	850	4,010	811	6,968	955	1,554	-	4,644	984	0	1,061
3/25/2020	0.10	8,710	399	690	727	1100	706	737	856	4,070	814	3,547	941	718	-	2,919	965	1	925
3/26/2020	0.00	8,680	394	620	727	950	702	589	861	3,610	795	1,316	939	1,147	-	2,890	938	3,918	-
3/27/2020	0.07	8,270	396	660	734	1100	708	589	864	3,940	785	14,344	962	1,147	-	2,890	933	3,846	950
3/28/2020	1.20	8,770	399	640	737	1050	712	589	866	4,760	799	8,603	949	1,147	-	2,890	933	0	-
3/29/2020	0.50	9,150	403	680	740	1050	719	589	866	6,190	813	10,388	926	1,147	-	6,585	927	5,463	-
3/30/2020	0.59	9,560	403	690	737	1100	719	736	868	5,930	820	10,867	870	3,249	-	9,003	902	1,153	1,000
3/31/2020	0.24	8,340	396	690	726	1050	709	735	875	5,010	807	10,308	792	-	-	-	833	-	1,027

- = No data collected

^ = Cell 5 conductivity meter malfunctioned during First Quarter, no data available

Summary of Leachate Volume and Depth Data
First Quarter 2020
LRI Landfill, Pierce County, Washington

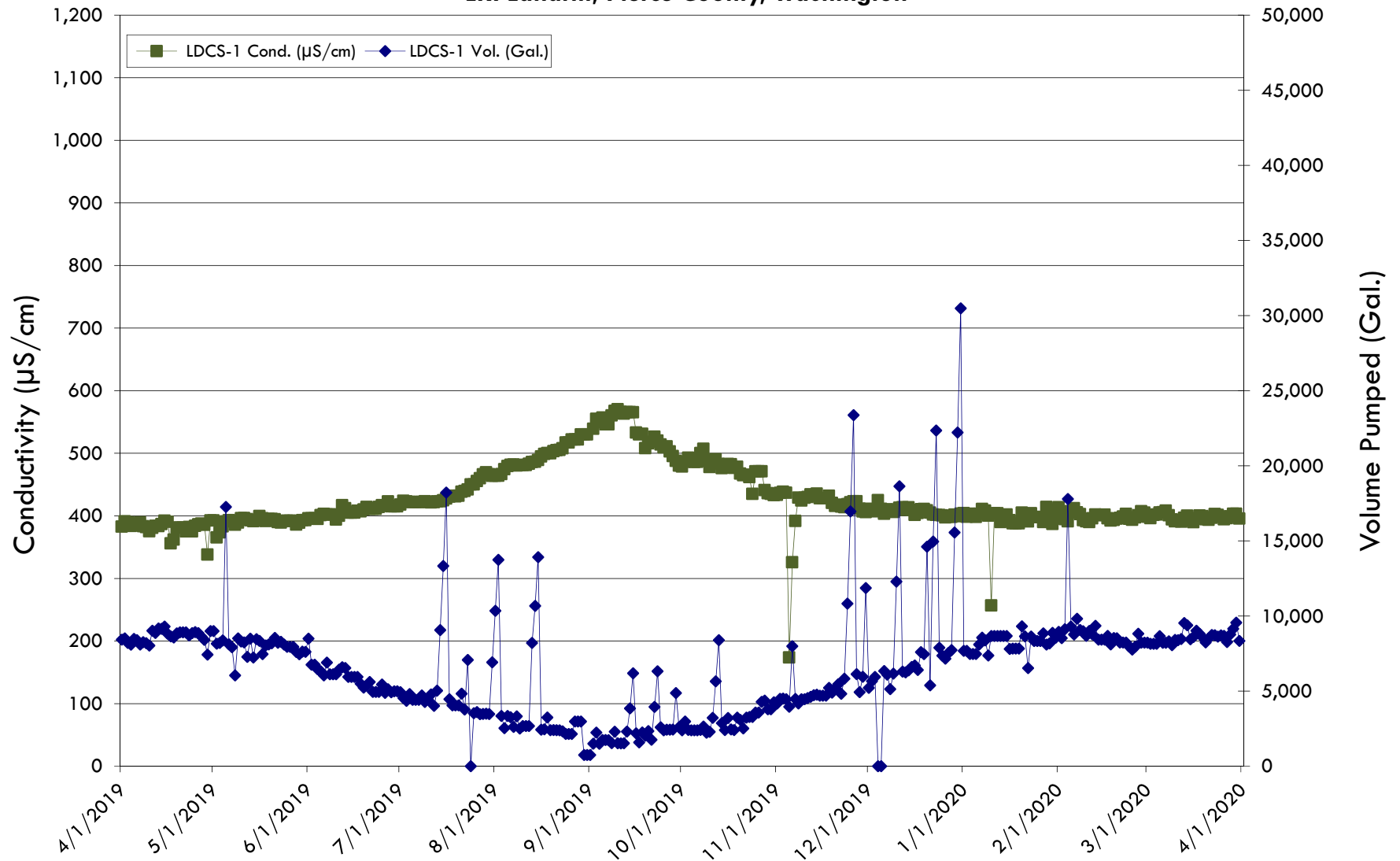
Date	Cell 1 Leachate Volume (GPD)	Cell 1 Leachate Level (in.)	Cell 2A Leachate Volume (GPD)	Cell 2A Leachate Level (in.)	Cell 2B Leachate Volume (GPD)	Cell 2B Leachate Level (in.)	Cell 3A Leachate Volume (GPD)	Cell 3A Leachate Level (in.)	Cell 4A Leachate Volume (GPD)	Cell 4A Leachate Level (in.)	Cell 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.)
1/1/2020	10,146	11.9	2,449	6.5	2,765	15.6	8,613	22.1	6,692	14.0	5,218	44.0	28,595	24.0	8,554	26.0	13,811	-
1/2/2020	13,594	10.9	2,449	8.2	4,631	11.4	16,630	19.8	11,666	16.3	8,176	42.6	28,595	24.0	13,823	28.6	13,811	-
1/3/2020	3,958	10.7	2,449	9.5	2,719	10.9	7,762	22.5	3,636	15.6	8,138	42.0	28,595	26.6	19,726	26.8	13,811	21.9
1/4/2020	6,518	10.4	2,378	10.0	3,182	9.5	8,206	28.4	1,419	20.5	11,988	42.8	25,276	26.6	24,141	30.1	25,488	21.9
1/5/2020	1,935	10.6	7,134	8.2	2,341	9.6	10,438	29.0	7,156	23.1	18,257	42.8	25,276	26.6	21,864	25.0	25,488	21.9
1/6/2020	2	11.8	0	7.7	2	16.1	11,442	31.2	3,676	20.4	15,224	43.8	25,276	23.0	28,585	33.0	25,488	31.3
1/7/2020	1	12.5	1	9.4	4	17.9	21,027	35.8	7,193	23.6	10,332	45.9	33,076	37.2	26,573	42.2	23,812	47.5
1/8/2020	2	12.5	0	10.3	11	18.0	7,542	39.4	10,631	21.4	7,614	46.0	35,972	32.3	17,112	42.2	20,803	48.8
1/9/2020	2	12.7	1	11.7	15	18.0	21,847	40.1	1,363	23.1	17,623	45.7	40,536	20.7	18,995	40.4	19,345	45.9
1/10/2020	1	13.0	0	13.2	3	19.1	18,776	40.6	0	26.8	17,725	45.2	450	28.4	44,273	35.8	36,013	43.9
1/11/2020	0	13.2	0	13.2	0	19.3	16,773	41.5	0	26.5	17,685	45.0	13,779	28.4	40,673	35.8	31,050	43.9
1/12/2020	0	13.6	0	15.5	0	20.5	16,773	40.8	0	30.1	17,685	46.0	13,779	31.9	40,673	42.5	31,050	52.1
1/13/2020	2	13.4	0	15.9	8	20.5	16,773	42.8	0	30.7	17,685	46.0	13,779	37.1	40,673	48.2	31,050	55.3
1/14/2020	2	13.6	0	17.0	18	20.5	10,008	51.5	0	31.5	18,677	46.0	10,716	38.2	38,415	31.5	48,127	52.0
1/15/2020	0	13.8	0	18.5	0	21.0	13,836	51.3	12,052	25.8	15,814	46.0	13,206	38.1	3,201	29.8	34,113	50.6
1/16/2020	0	14.1	0	20.9	10	22.5	38,966	44.9	4,552	33.3	24,477	45.0	4	41.5	48,248	37.3	35,928	48.3
1/17/2020	0	14.2	0	21.0	14	22.9	23,922	43.0	10,372	30.2	12,801	45.0	17,448	40.0	17,725	37.7	30,015	46.2
1/18/2020	0	14.2	0	21.0	0	22.9	25,221	43.0	15,281	30.2	13,311	45.0	16,147	40.0	14,923	37.7	43,633	46.2
1/19/2020	0	14.2	0	21.0	0	22.9	25,221	43.0	15,281	30.2	13,311	45.0	16,147	40.0	14,923	37.7	43,633	46.2
1/20/2020	0	14.2	0	26.0	0	26.1	25,221	36.8	15,281	29.4	13,311	44.0	16,147	37.4	14,923	31.8	43,633	35.2
1/21/2020	25	14.4	1,803	25.8	2,991	24.6	18,964	36.4	15,281	23.4	11,073	44.0	34,012	29.5	15,530	12.0	35,897	34.1
1/22/2020	1	14.2	4,851	19.5	1,290	24.8	29,548	32.5	3,020	30.8	18,581	44.0	13,224	30.1	21,382	27.1	44,978	32.0
1/23/2020	2	14.5	0	21.9	7	25.9	20,212	34.5	17,200	26.4	10,572	45.0	14,466	30.5	18,269	34.2	46,397	35.2
1/24/2020	0	14.6	0	25.3	8,376	20.3	22,154	33.5	3,940	30.2	15,714	46.0	152	31.2	31,630	46.5	47,625	45.8
1/25/2020	0	14.6	0	25.3	0	20.3	14,053	33.5	12,424	30.2	9,358	46.0	6,935	31.2	22,813	46.5	36,606	45.8
1/26/2020	0	14.6	0	25.3	0	20.3	14,053	33.5	12,424	30.2	9,358	46.0	6,935	31.2	22,813	46.5	36,606	45.8
1/27/2020	0	14.6	12,551	16.4	1	23.5	14,053	32.1	12,424	28.6	9,358	47.0	6,935	43.4	22,813	49.2	36,606	45.2
1/28/2020	0	15.0	0	18.3	197	24.4	12,938	31.3	14,304	28.5	9,383	48.0	29,208	42.5	22,432	50.6	33,115	49.6
1/29/2020	0	15.0	0	19.5	7,569	20.0	10,630	26.3	8,572	30.7	14,713	48.0	48	42.7	29,499	40.4	40,182	49.3
1/30/2020	1	15.0	0	22.0	1	21.0	2,206	26.2	25,492	16.4	15,960	48.0	112	46.2	33,244	25.1	40,673	49.3
1/31/2020	0	15.0	0	24.1	1	21.8	1,206	26.0	24,964	18.3	15,890	48.0	9,764	46.2	31,209	31.7	54,581	47.7
2/1/2020	0	15.0	0	26.6	0	23.8	2,881	24.9	16,323	16.5	12,539	48.5	10,966	46.2	26,524	36.5	38,020	47.7
2/2/2020	0	15.0	0	23.4	0	23.8	2,881	22.4	16,323	17.7	12,539	48.5	10,966	46.2	21,593	33.6	38,020	47.7
2/3/2020	0	15.0	4,317	21.9	675	20.6	2,881	19.7	16,323	20.6	12,539	48.1	10,966	50.7	32,273	26.5	38,020	47.2
2/4/2020	0	15.0	6	17.1	3,340	22.7	3,408	22.8	7,944	20.8	15,903	48.0	13,374	50.1	35,252	22.5	48,214	42.9
2/5/2020	0	15.0	16,111	13.0	12	25.2	984	20.5	5,812	24.1	20,684	49.8	7,592	54.7	29,524	32.1	54,291	43.6
2/6/2020	0	15.5	0	14.4	0	25.8	4,188	21.9	6,404	21.3	15,141	52.2	18,174	54.8	25,207	38.2	50,416	48.9
2/7/2020	0	16.0	0	15.5	357	19.0	2,008	26.2	17,504	22.0	11,601	54.1	17,508	56.7	22,827	41.8	44,088	56.1
2/8/2020	0	15.5	0	17.2	0	19.7	2,610	26.9	5,484	27.6	15,421	54.4	6,555	56.7	31,966	36.8	45,841	56.1
2/9/2020	0	15.2	0	17.5	0	19.7	2,610	29.0	5,484	27.1	15,421	54.0	6,555	56.7	27,324	32.7	45,841	56.1
2/10/2020	1	15.6	0	18.7	14,410	14.7	2,610	28.6	5,484	26.0	15,421	53.6	6,555	60.8	32,108	24.9	45,841	50.1
2/11/2020	0	16.0	0	20.5	10,578	17.0	4,538	30.2	6,984	29.0	15,157	53.0	7,414	61.6	31,596	27.8	33,330	48.0
2/12/2020	0	16.0	0	23.5	0	19.2	2,792	20.4	19,880	20.8	13,170	53.0	20,746	61.0	9,568	20.9	43,560	43.6
2/13/2020	0	16.0	0	16.1	0	20.0	5,780	20.4	19,640	21.8	14,106	53.0	18,108	60.9	14,858	20.0	51,706	42.3
2/14/2020	0	16.0	15,717	13.2	0	20.2	5,606	12.0	20,200	18.0	15,732	53.0	19,306	60.7	27,480	18.9	57,906	40.2
2/15/2020	0	16.0	0	14.8	0	17.0	2,352	21.8	15,484	16.4	12,205	53.1	10,405	60.7	25,701	15.3	35,475	38.6
2/16/2020	0	16.0	0	15.6	0	12.4	2,352	27.7	15,484	17.2	12,205	53.3	10,405	60.7	13,326	18.4	35,475	37.1
2/17/2020	0	16.0	0	16.9	20,676	16.7	2,352	24.4	15,484	22.4	12,205	53.5	10,405	62.6	2,732	29.6	35,475	36.0
2/18/2020	0	16.0	0	18.9	0	18.0	8,132	21.1	1,540	21.9	14,727	53.3	37,790	59.4	13,715	25.0	56,439	33.4
2/19/2020	0	16.0	0	19.6	0	18.9	3,644	19.7	14,628	19.1	9,800	53.1	63,678	54.0	10,272	22.9	40,467	29.5
2/20/2020	0	16.0	0	22.5	2	19.0	10,798	15.6	22,092	18.9	16,511	52.5	15,760	54.2	11,443	23.0	51,805	20.6
2/21/2020	0	14.9	0	17.5	0	18.8	7,874	18.5	10,836	20.4	19,227	52.3	66,030	48.1	15,497	17.7	51,614	11.8
2/22/2020	0	13.2	0	11.6	0	16.7	2,855	26.1	6,900	21.5	10,502	52.0	55,852	48.1	13,589	15.1	8,476	11.5
2/23/2020	0	12.4	0	7.9	0	14.6	2,855	27.1	6,900	21.3	10,502	52.6	55,852	48.1	19,209	17.2	8,476	12.0
2/24/2020	21,394	12.0	26,718	7.4	23,410	16.0	2,855	21.8	6,900	19.6	10,502	52.9	55,852	16.0	23,692	17.3	8,476	12.6
2/25/2020	9,544	11.0	0	9.6	9,592	12.7	11,734	16.2	18,796	14.8	15,377	52.4	14,094	17.2	10,192	14.7	9,448	11.5
2/26/2020	15,877	9.4	0	10.8	8,835	8.7	17,590	8.2	25,336	7.7	21,912	51.8	14,124	12.0	12,727	8.7	8,277	11.5
2/27/2020	15,004	9.7	8,202	7.2	5,885	9.7	5,204	10.1	11,920	9.6	27,460	50.6	12,604	17.3	10,308	11.9	2,814	12.2
2/28/2020	9,846	10.4	0	8.5	5,456	9.4	12,348	14.7	12,452	9.6	28,872	49.2	13,198	17.5	10,783	11.0	7,718	11.6
2/29/2020	7,284	10.1	0	9.5	4,921	8.3	12,430	8.7	11,103	7.4	28,067	48.7	13,728	17.5	16,087	8.4	6,213	12.0

Summary of Leachate Volume and Depth Data
First Quarter 2020
LRI Landfill, Pierce County, Washington

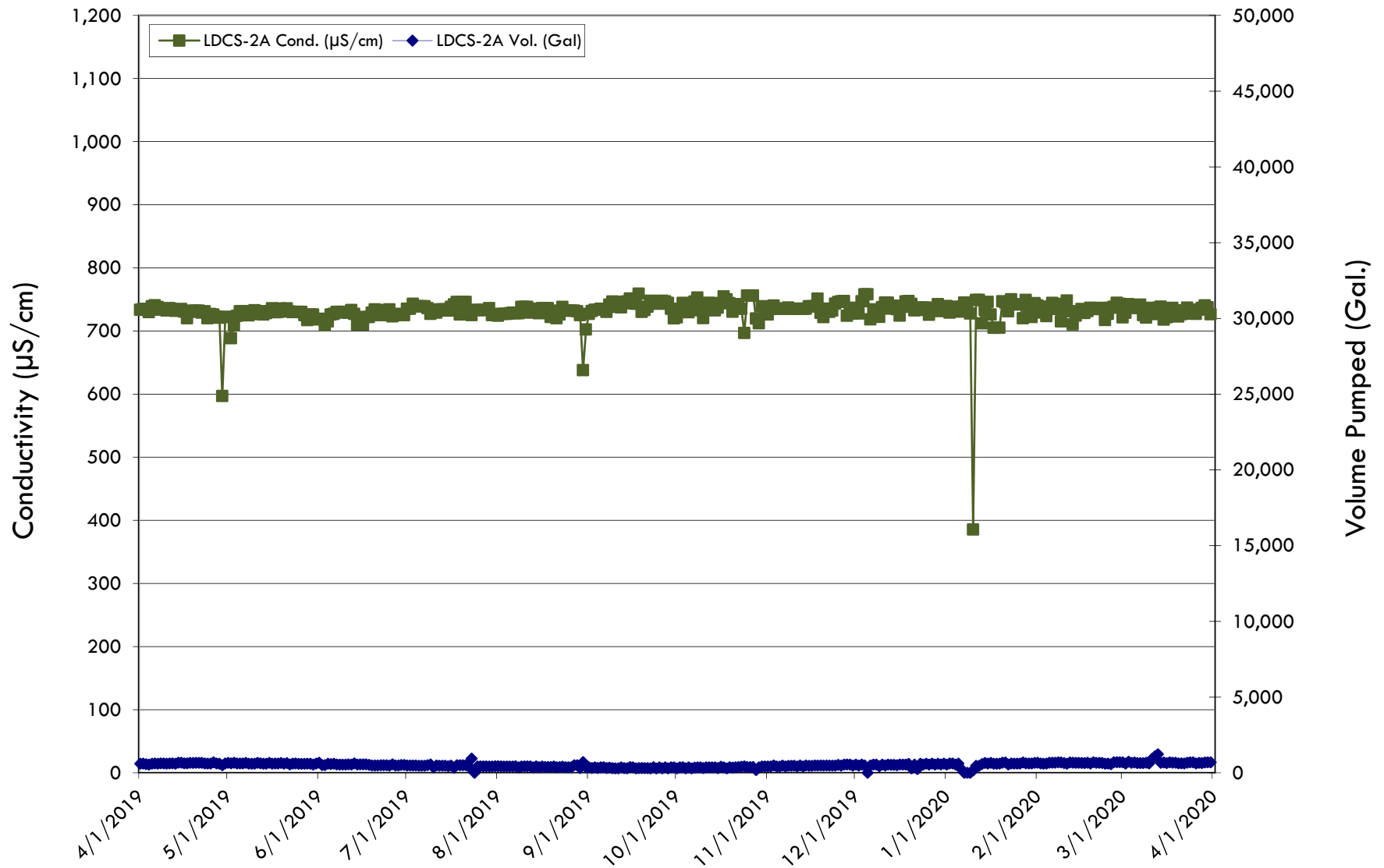
Date	Cell 1 Leachate Volume (GPD)	Cell 1 Leachate Level (in.)	Cell 2A Leachate Volume (GPD)	Cell 2A Leachate Level (in.)	Cell 2B Leachate Volume (GPD)	Cell 2B Leachate Level (in.)	Cell 3A Leachate Volume (GPD)	Cell 3A Leachate Level (in.)	Cell 4A Leachate Volume (GPD)	Cell 4A Leachate Level (in.)	Cell 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.)
3/1/2020	7,284	10.2	1,395	10.8	4,921	8.9	12,430	9.0	11,103	7.3	28,067	47.4	13,728	17.5	14,904	8.6	6,213	12.8
3/2/2020	5,222	10.5	8,238	6.9	3,846	8.8	6,844	9.4	10,368	7.5	24,606	46.3	12,844	17.0	12,774	8.7	4,401	11.4
3/3/2020	5,338	10.7	0	8.5	5,575	8.7	8,828	8.7	14,304	8.0	26,604	46.0	14,942	17.9	13,857	9.5	6,388	11.8
3/4/2020	3,471	10.7	0	9.9	3,788	8.8	9,296	9.4	9,024	7.4	21,872	45.0	12,788	17.4	12,393	8.9	5,480	11.7
3/5/2020	6,989	10.2	0	9.3	4,204	8.6	8,316	10.0	14,048	8.7	21,496	44.7	18,088	17.6	12,052	10.4	6,522	11.9
3/6/2020	3,959	11.0	7,985	7.4	3,749	9.5	8,259	11.9	7,532	8.2	9,168	46.1	15,941	13.1	29,050	16.7	10,444	12.9
3/7/2020	3,959	10.7	0	9.0	3,749	12.6	8,259	21.1	7,532	13.2	9,168	47.1	15,941	13.1	21,335	18.3	10,444	12.9
3/8/2020	4,287	10.5	0	10.8	3,813	10.5	7,402	23.7	8,549	14.1	7,064	48.0	15,941	13.1	10,090	17.6	7,040	12.0
3/9/2020	7,609	9.8	8,276	10.4	3,773	12.9	12,443	21.7	5,556	17.5	13,692	47.9	12,420	17.8	13,708	17.6	6,516	11.6
3/10/2020	3,077	10.6	0	7.3	3,306	12.0	17,183	14.9	11,776	20.3	18,928	47.4	26,338	17.9	13,681	28.0	5,297	11.9
3/11/2020	2,877	10.6	0	8.5	5,462	8.7	9,643	8.7	21,177	8.4	27,817	46.7	13,654	17.3	21,563	8.7	3,264	11.7
3/12/2020	2,211	10.8	0	10.2	3,820	8.7	11,435	8.7	12,101	7.3	19,519	45.3	17,098	16.4	20,950	8.9	2,254	11.7
3/13/2020	6,095	10.4	8,055	7.5	5,185	8.8	15,907	9.2	12,704	8.3	25,077	44.5	17,098	16.4	20,950	9.1	9,706	11.7
3/14/2020	3,594	10.3	0	7.0	2,807	9.2	10,527	10.0	9,876	7.8	22,608	45.6	17,098	16.4	20,950	9.1	8,964	12.5
3/15/2020	1,866	10.9	0	9.3	4,222	10.3	10,045	10.7	16,135	15.2	17,674	46.0	12,616	16.4	9,373	9.1	9,310	12.3
3/16/2020	2,548	11.1	0	10.1	4,753	9.4	9,277	11.9	12,152	14.7	20,723	45.8	14,250	17.7	6,864	25.1	5,687	11.7
3/17/2020	7,492	10.0	8,068	10.4	3,360	8.6	3,479	14.2	11,235	16.5	19,937	45.0	12,814	17.9	14,272	11.0	5,243	11.4
3/18/2020	2,278	10.7	0	7.2	3,897	9.9	10,180	19.7	14,341	15.3	18,741	44.8	12,342	17.5	16,967	23.0	5,155	11.5
3/19/2020	2,666	10.8	0	8.5	3,963	9.9	11,168	15.7	11,703	13.2	19,467	44.1	12,162	17.5	12,276	11.8	5,303	11.4
3/20/2020	1,289	11.0	5,037	9.9	4,181	8.6	10,658	8.6	14,036	8.3	28,119	42.9	12,162	12.6	10,761	9.6	6,724	11.1
3/21/2020	4,813	10.3	3,069	6.0	4,409	8.7	7,616	9.3	10,860	7.7	29,128	41.8	12,162	12.6	9,748	8.8	6,622	11.1
3/22/2020	2,452	10.9	0	6.8	4,447	9.0	10,445	9.0	10,634	7.6	27,735	40.6	17,216	12.6	7,101	9.0	2,560	11.2
3/23/2020	3,529	10.8	1	8.4	3,469	8.7	9,506	10.2	12,750	9.0	27,214	39.5	19,660	17.0	24,163	11.0	5,419	11.9
3/24/2020	3,199	10.7	0	9.6	3,905	9.8	8,820	12.2	11,775	7.7	26,980	39.9	14,976	16.8	15,019	9.1	15,971	13.3
3/25/2020	3,579	10.4	0	11.0	3,887	10.3	8,565	12.1	12,932	11.0	28,250	40.0	13,024	17.2	10,177	12.1	23,232	13.1
3/26/2020	2,315	10.9	8,003	7.1	3,886	9.3	8,230	11.8	14,765	8.8	22,798	39.4	14,322	17.1	12,924	6.1	10,270	11.8
3/27/2020	3,738	10.5	0	8.1	3,739	10.2	8,378	12.1	11,724	8.6	28,714	42.0	14,322	17.2	12,924	9.9	5,522	11.7
3/28/2020	2,511	10.8	0	9.6	4,613	9.6	7,520	10.7	12,778	8.4	28,748	41.0	14,322	17.2	12,924	9.9	2,567	12.3
3/29/2020	2,383	11.0	0	11.2	3,607	8.9	5,632	9.9	9,296	7.4	24,035	41.5	14,322	17.2	12,924	9.8	16,353	17.2
3/30/2020	6,530	10.0	8,149	9.8	4,599	10.7	4,074	20.1	12,070	13.2	9,247	43.4	27,846	12.7	28,124	18.1	18,723	22.1
3/31/2020	2,022	10.6	1,731	6.6	4,911	12.0	14,659	15.7	7,591	19.2	13,208	44.7	27,846	17.9	28,124	38.0	29,808	24.0

-- No data collected

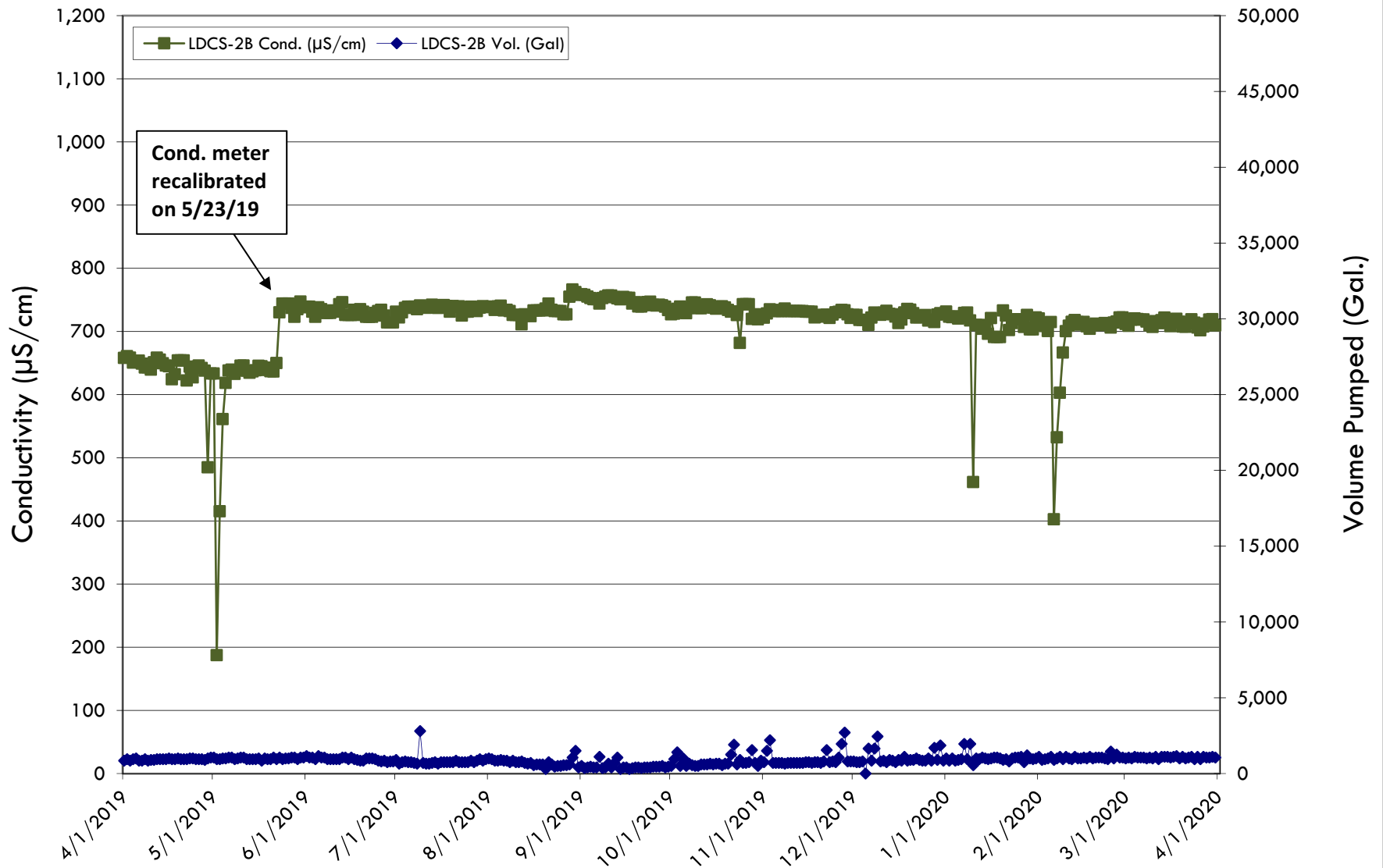
LDCS-1 (DailyTotals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



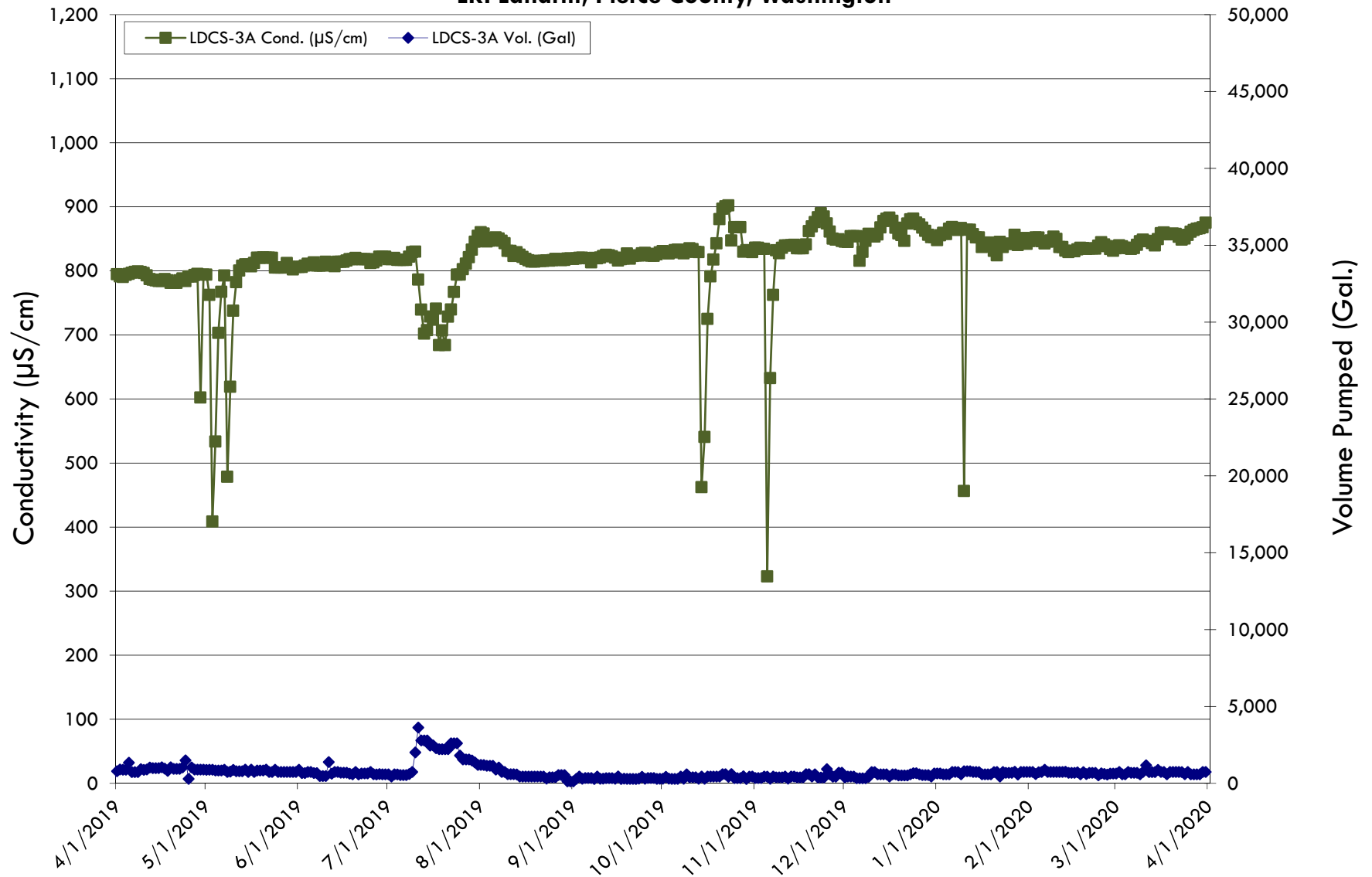
LDCS-2A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



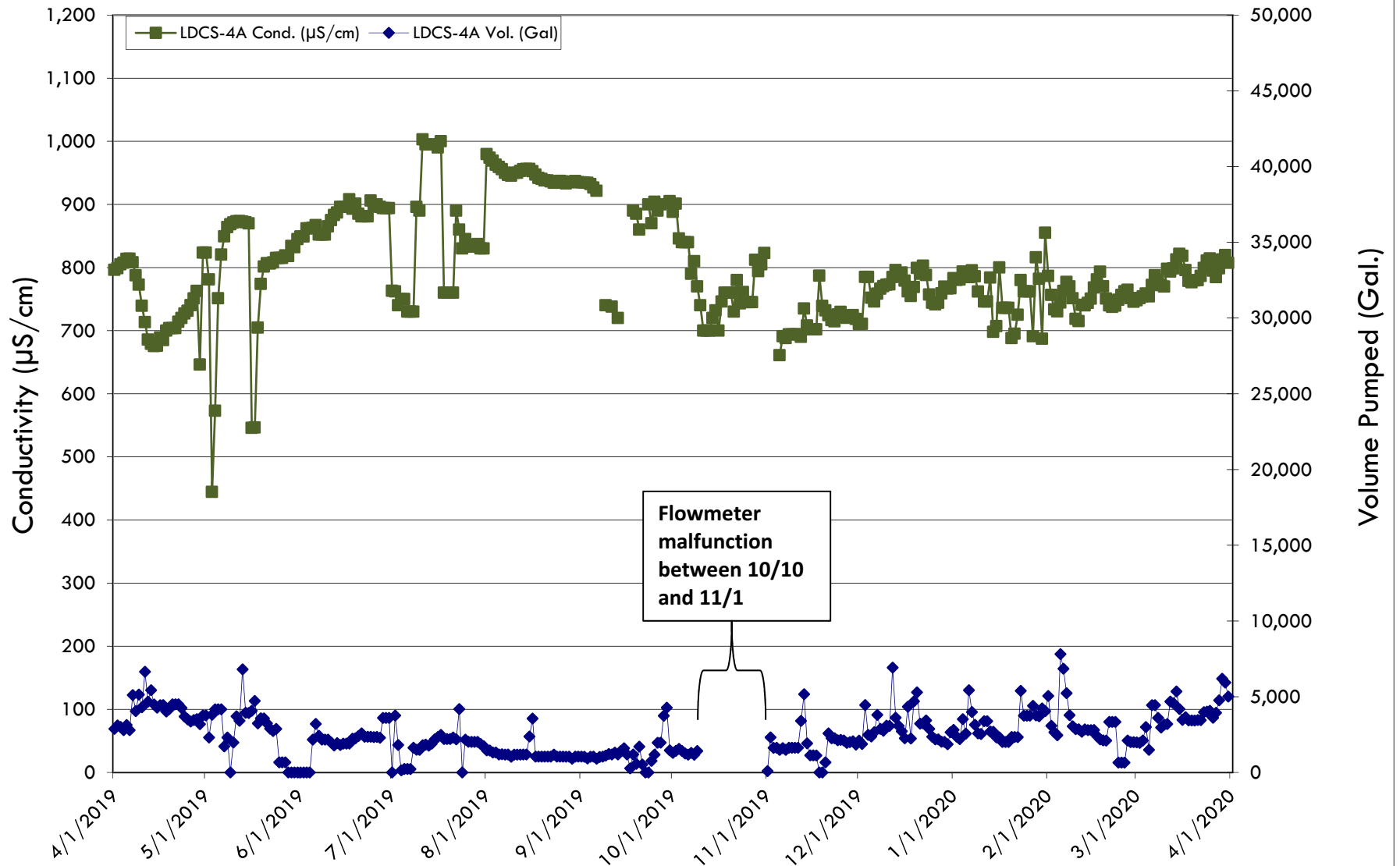
LDCS-2B (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



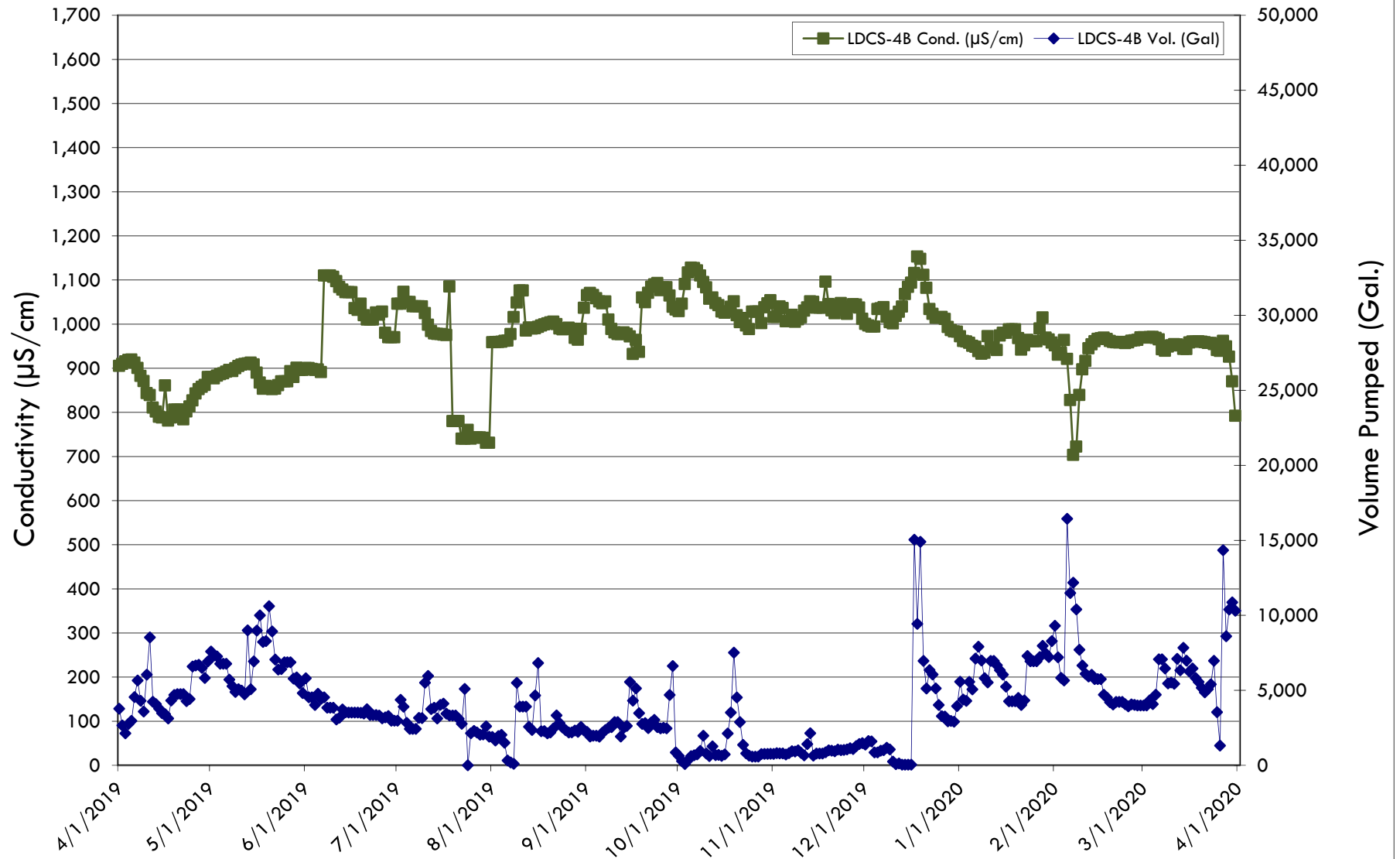
LDCS-3A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



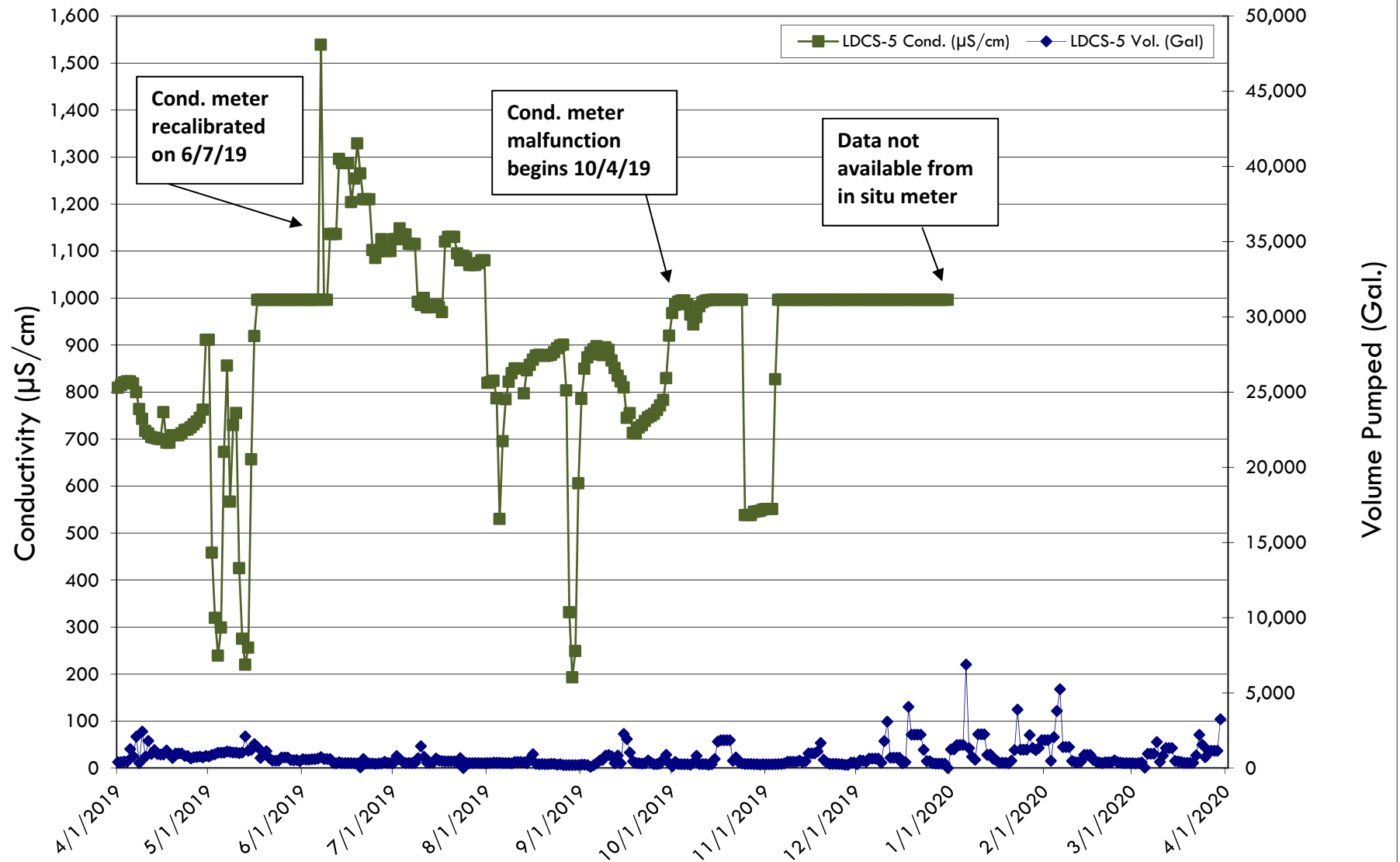
LDCS-4A (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



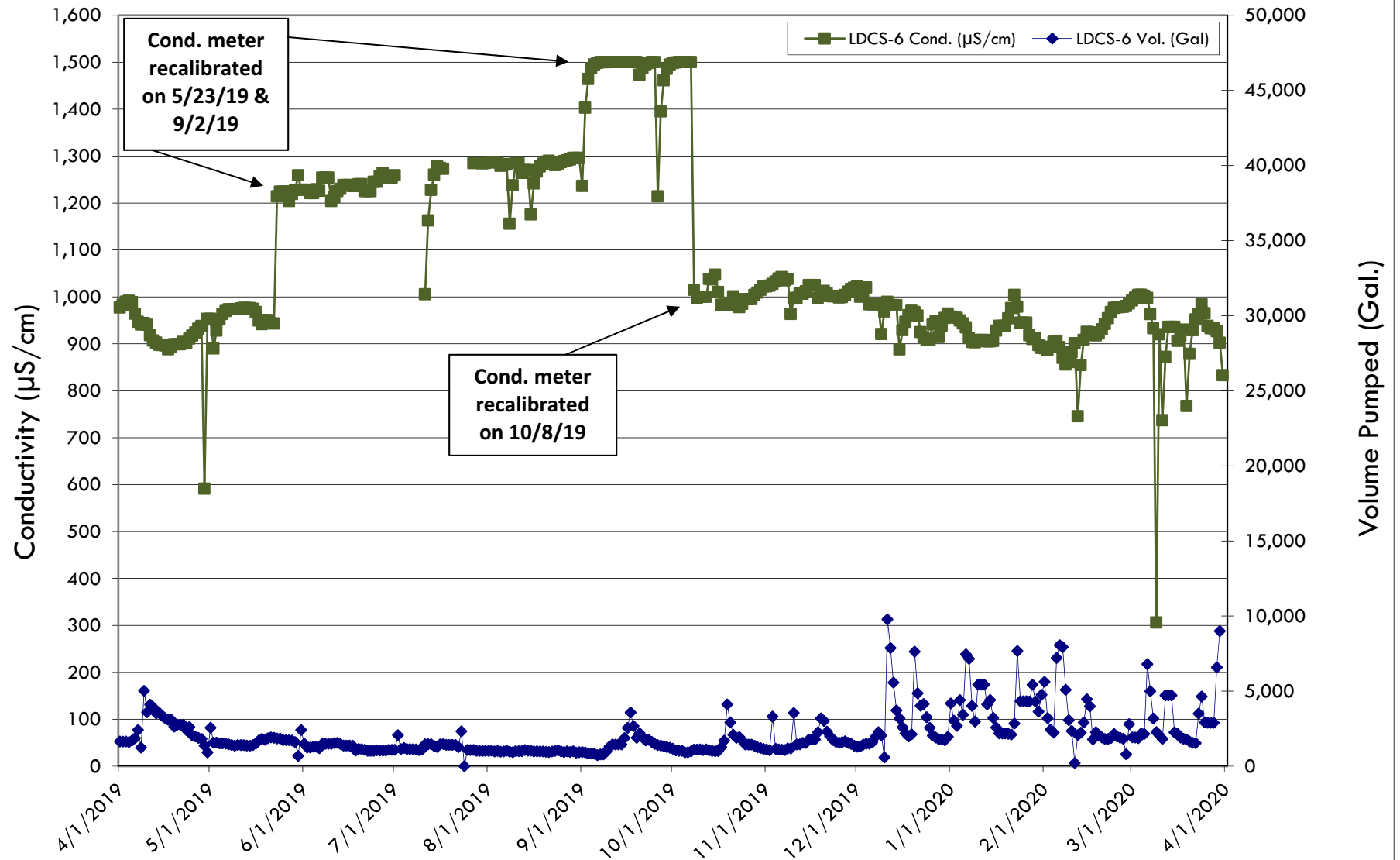
LDCS-4B (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



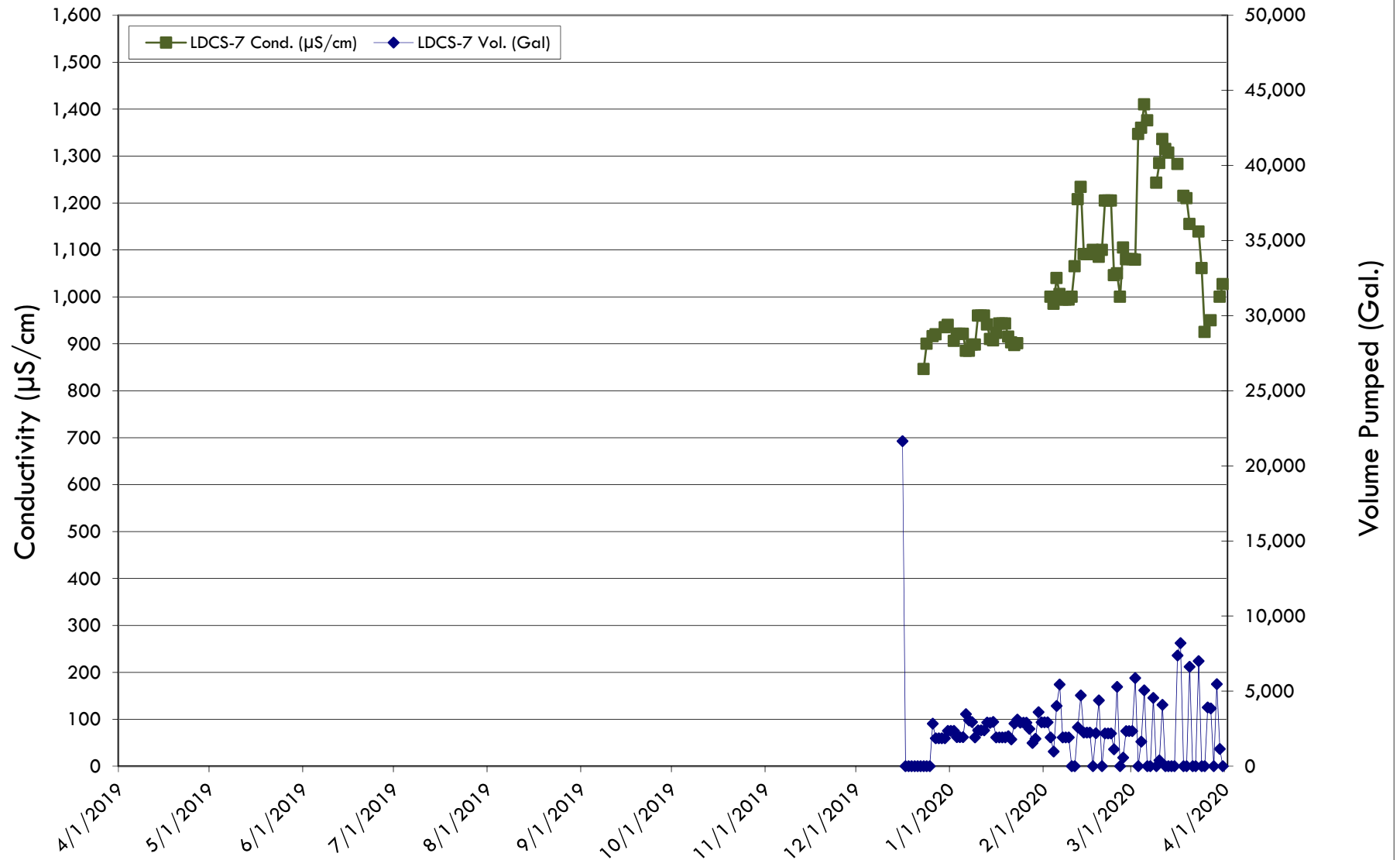
LDCS-5 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



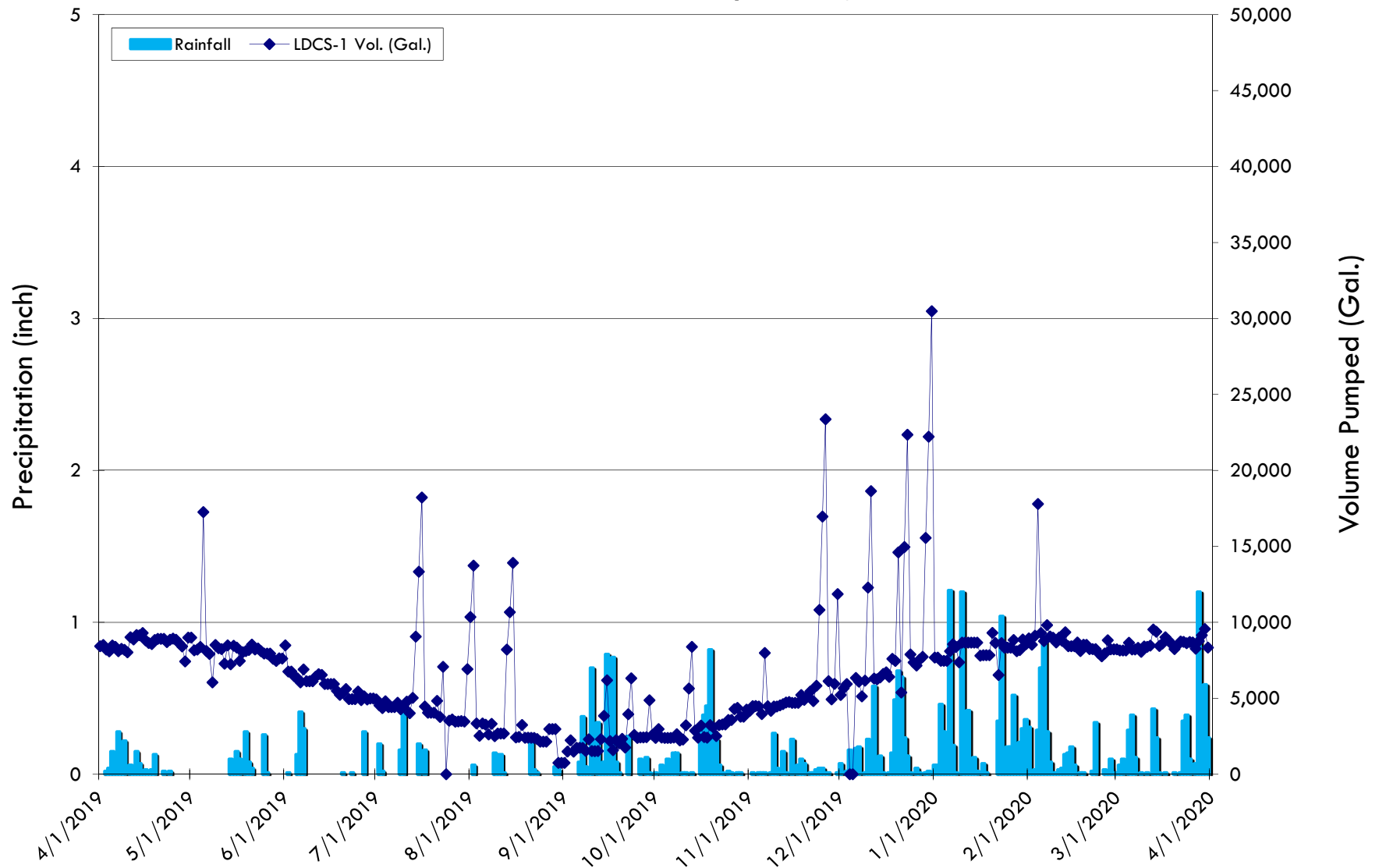
LDCS-6 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



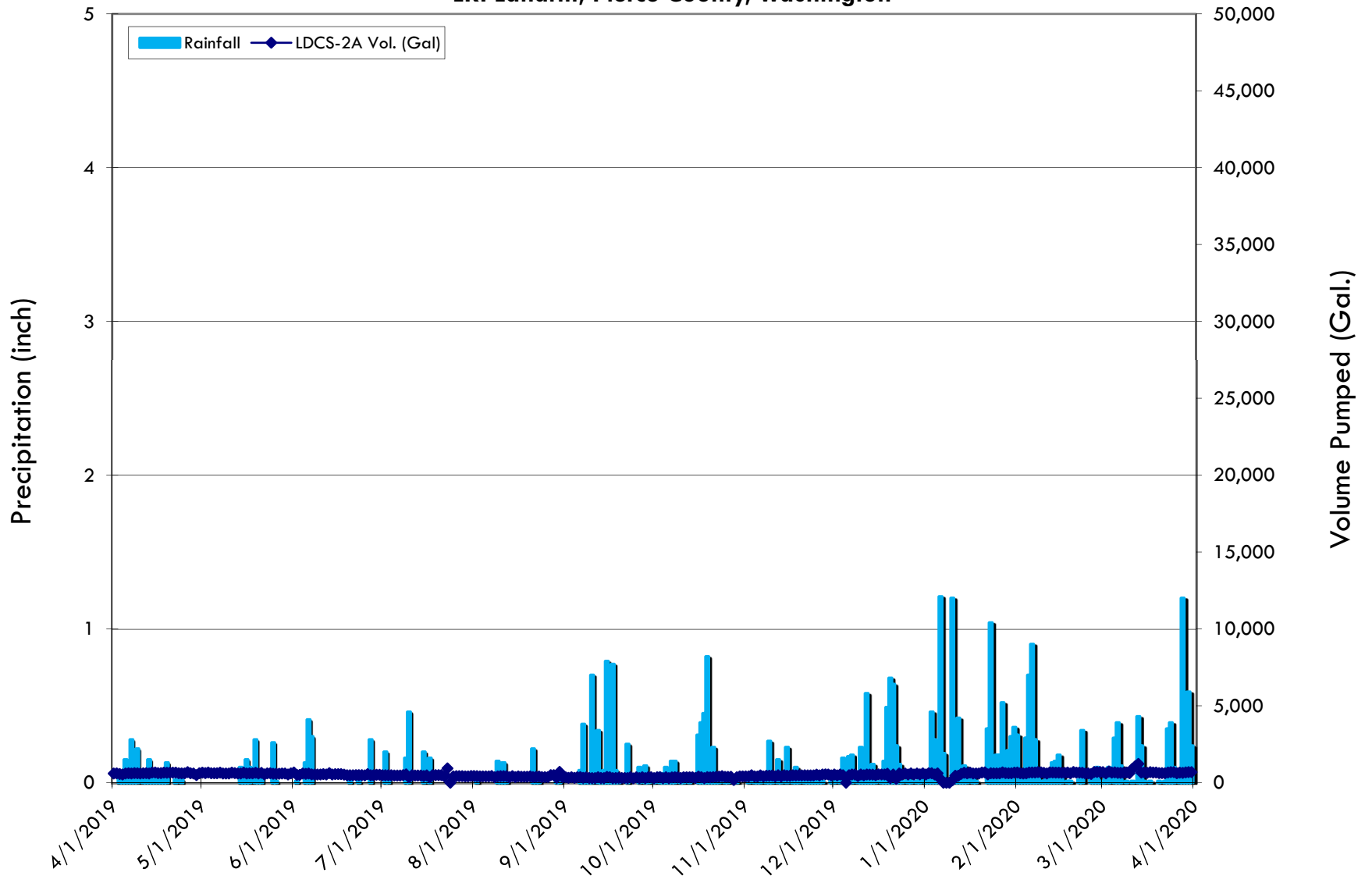
LDCS-7 (Daily Totals)
Conductivity vs Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



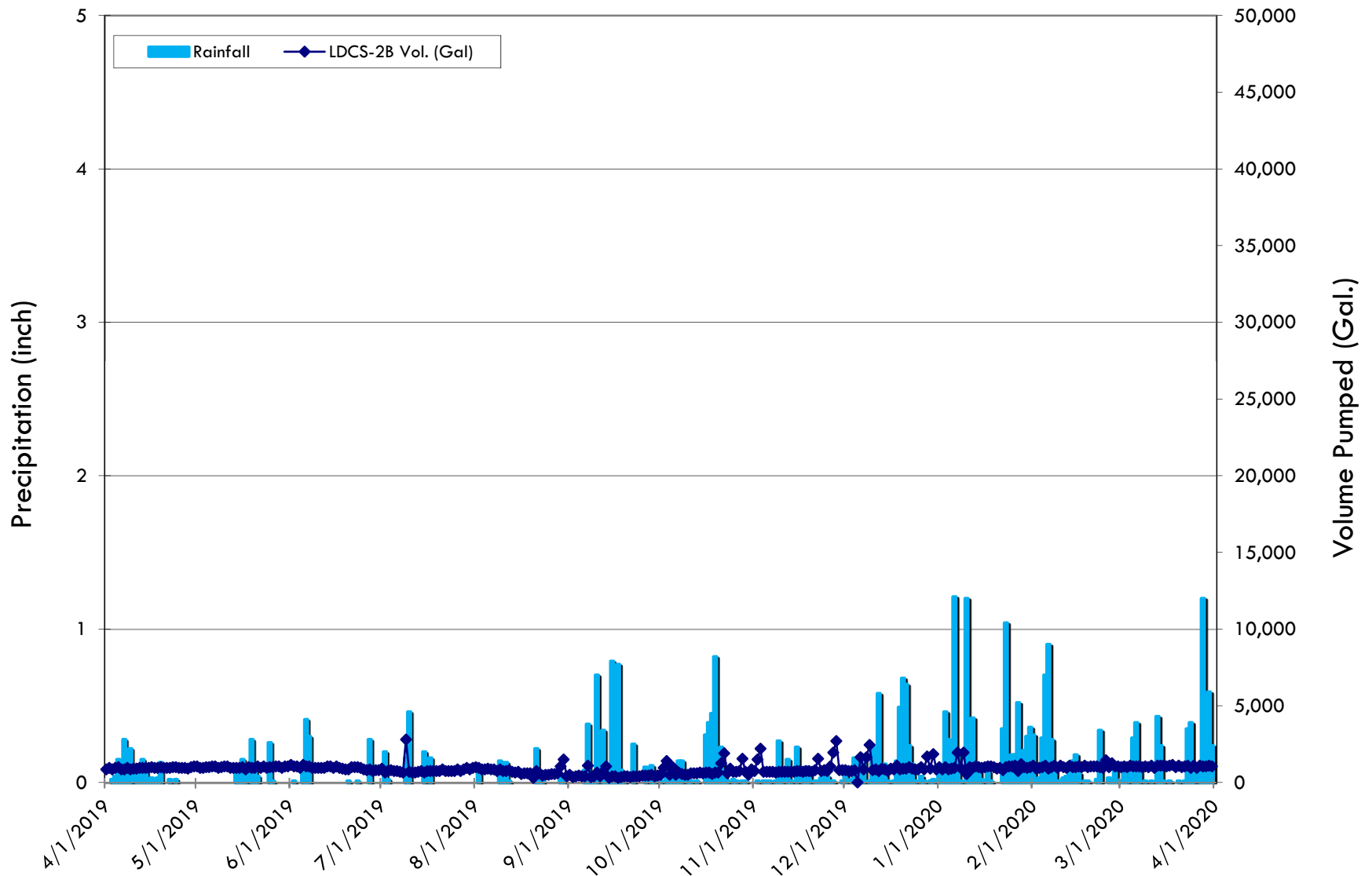
LDCS-1 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



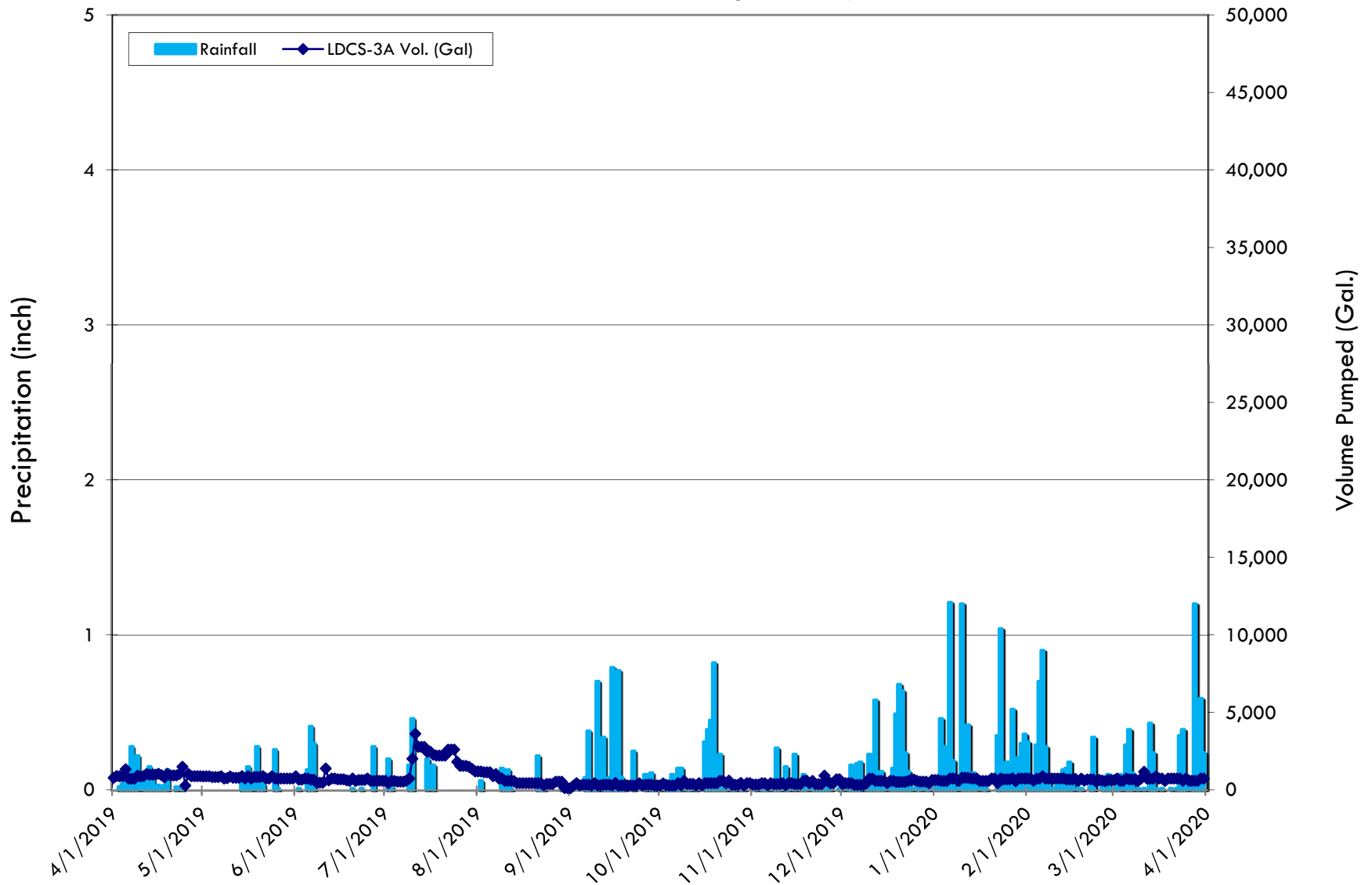
LDCS-2A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



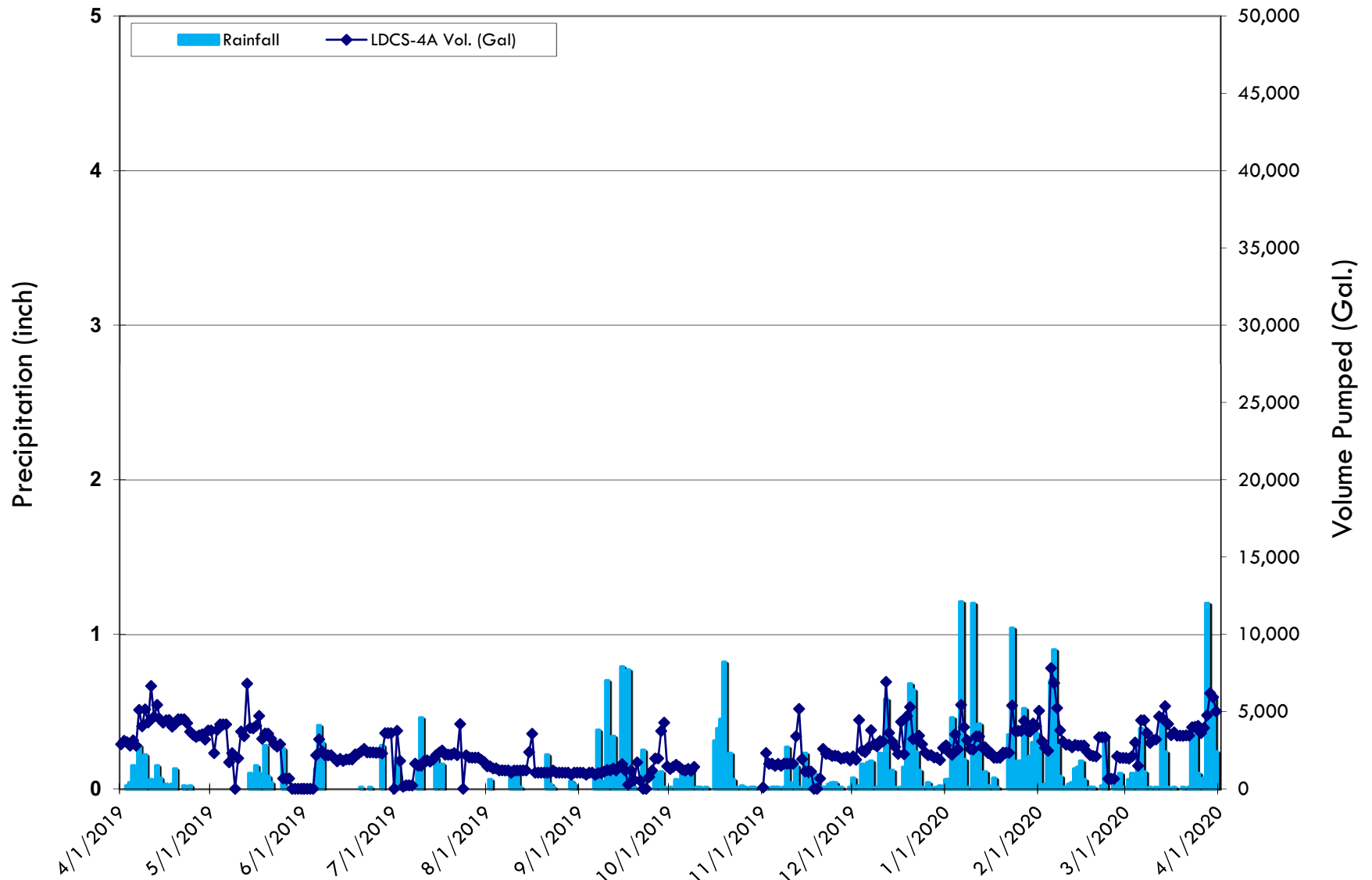
LDCS-2B (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



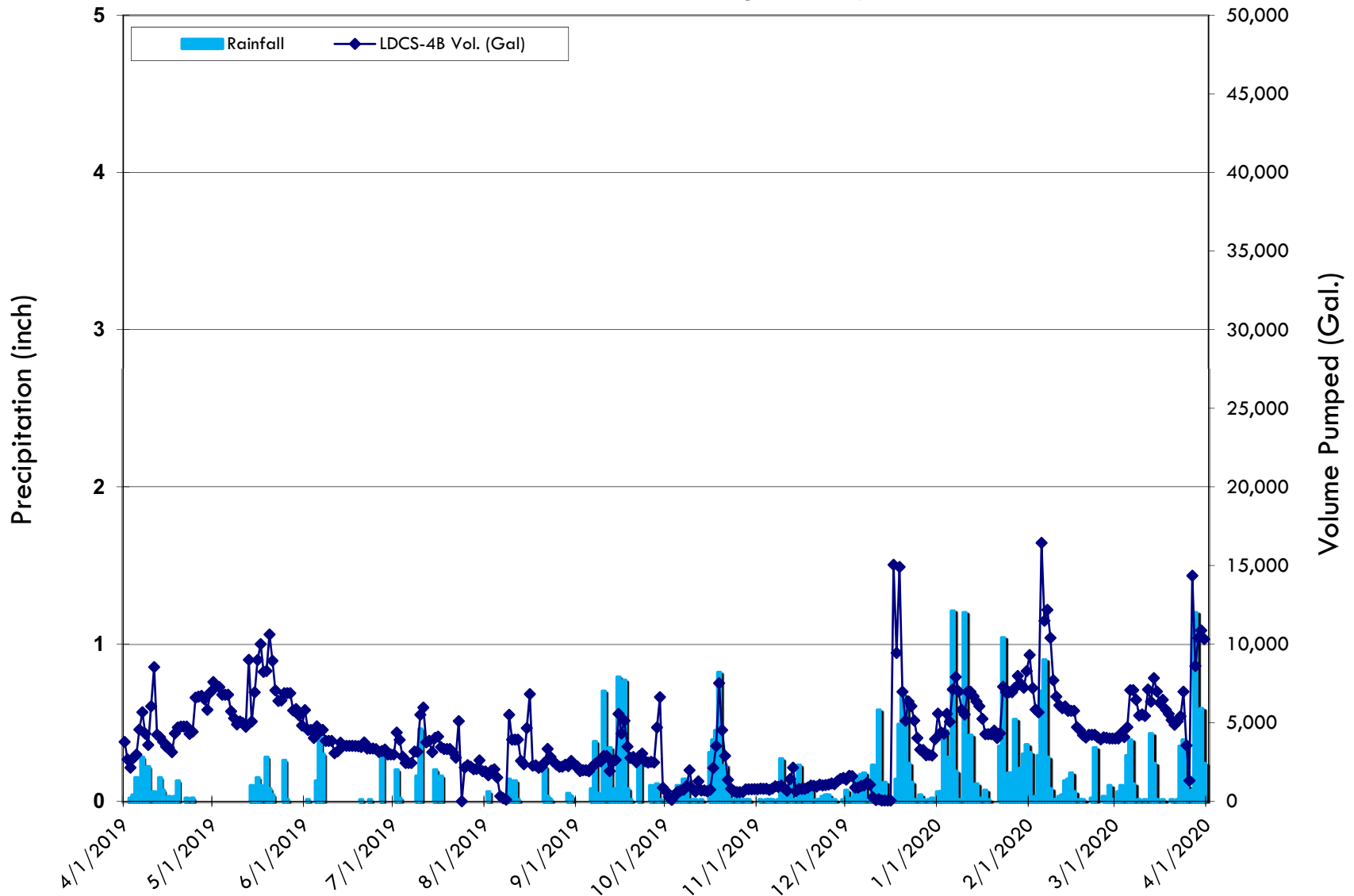
LDCS-3A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



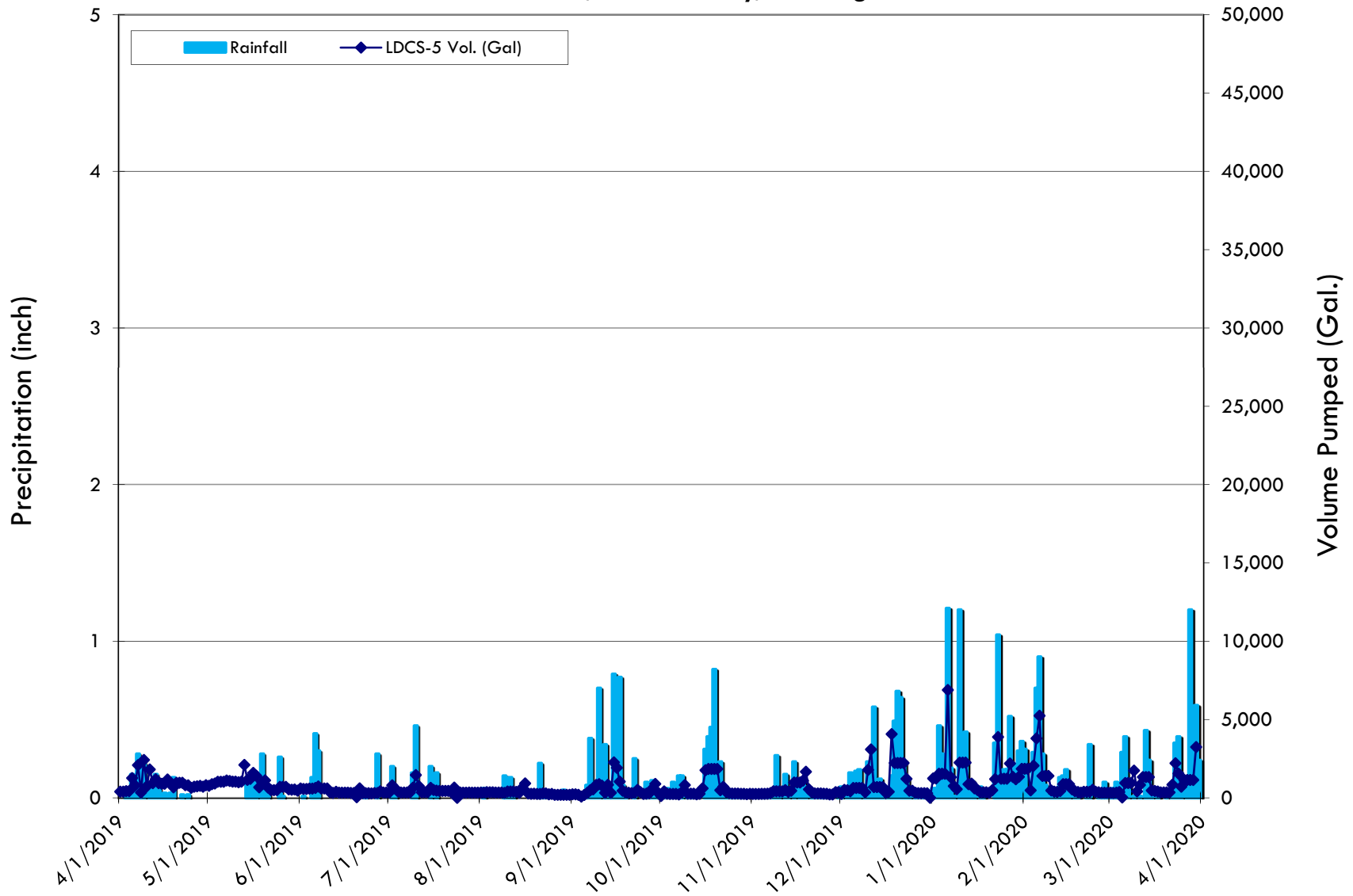
LDCS-4A (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



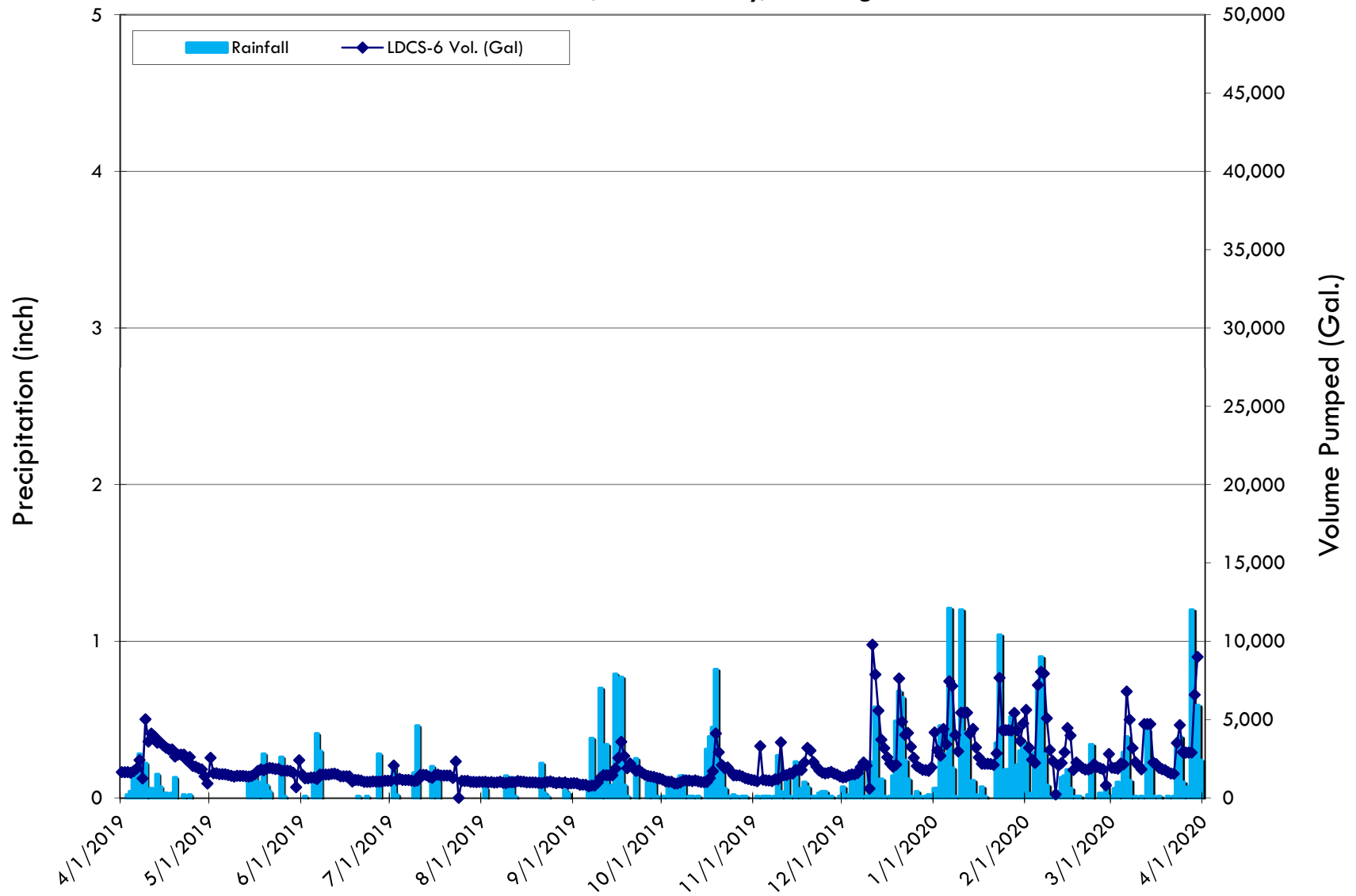
LDCS-4B (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



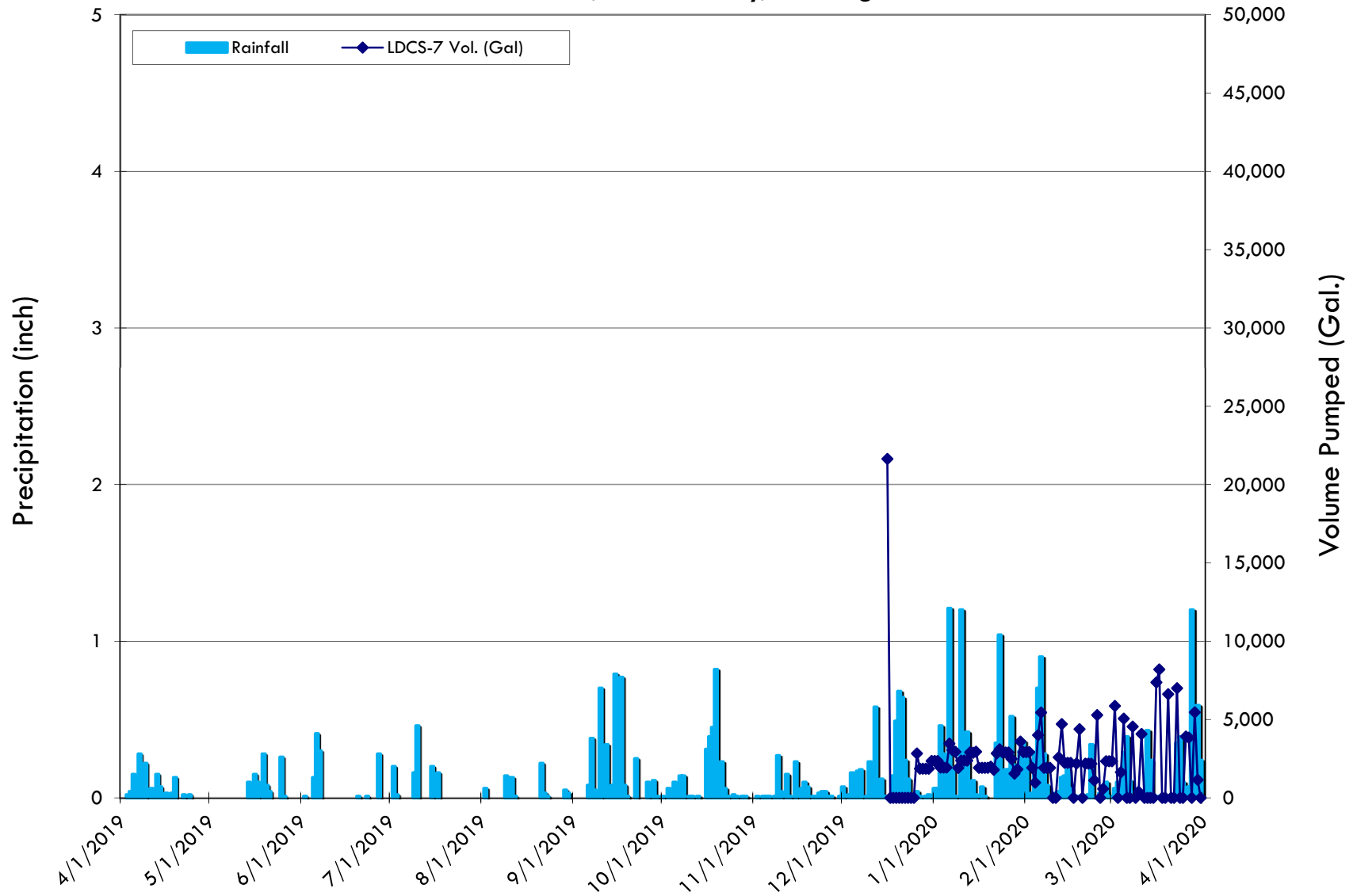
LDCS-5 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



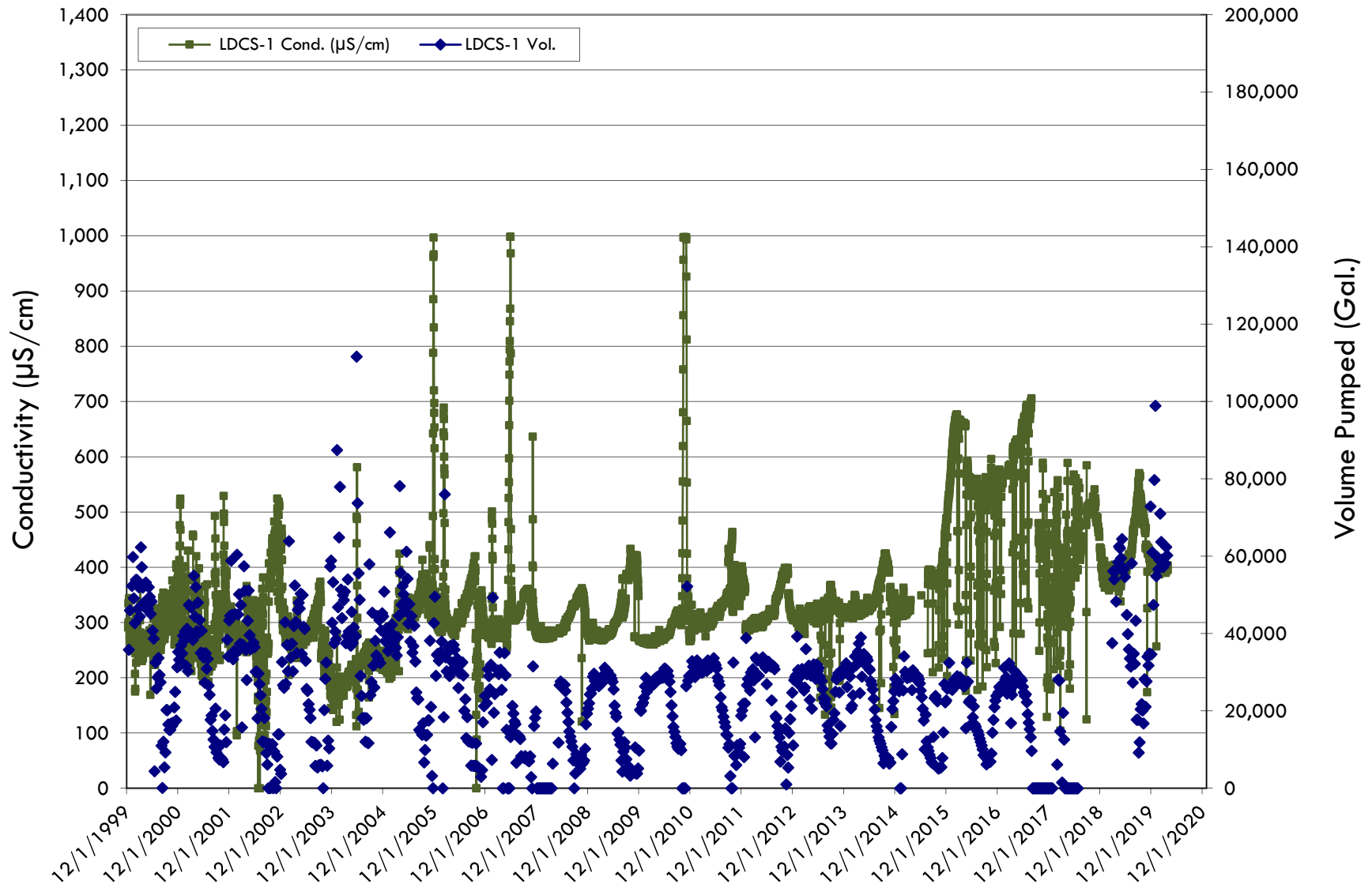
LDCS-6 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



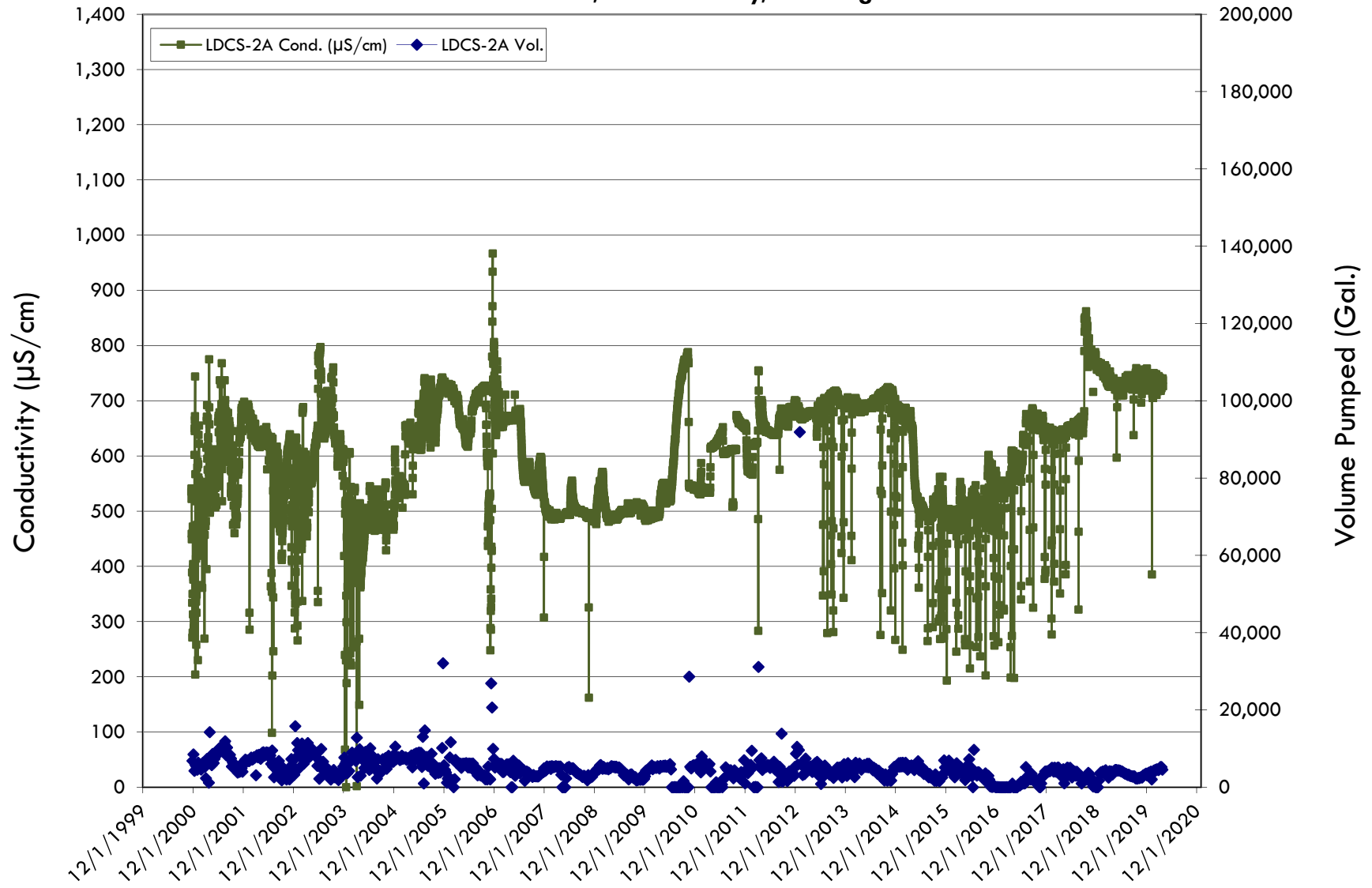
LDCS-7 (Daily Totals)
Volume Pumped vs Precipitation
First Quarter 2020
LRI Landfill, Pierce County, Washington



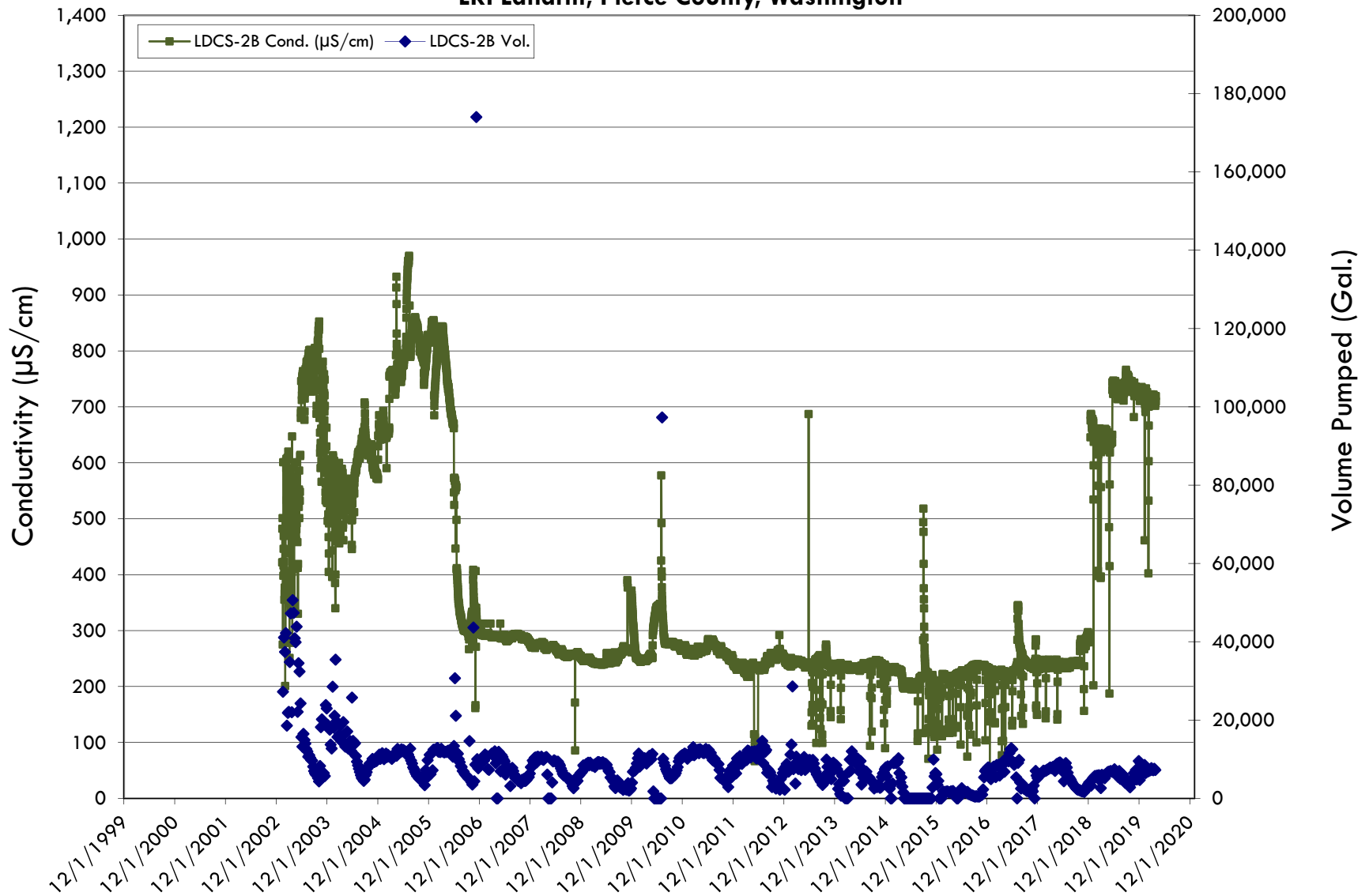
LDCS-1
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



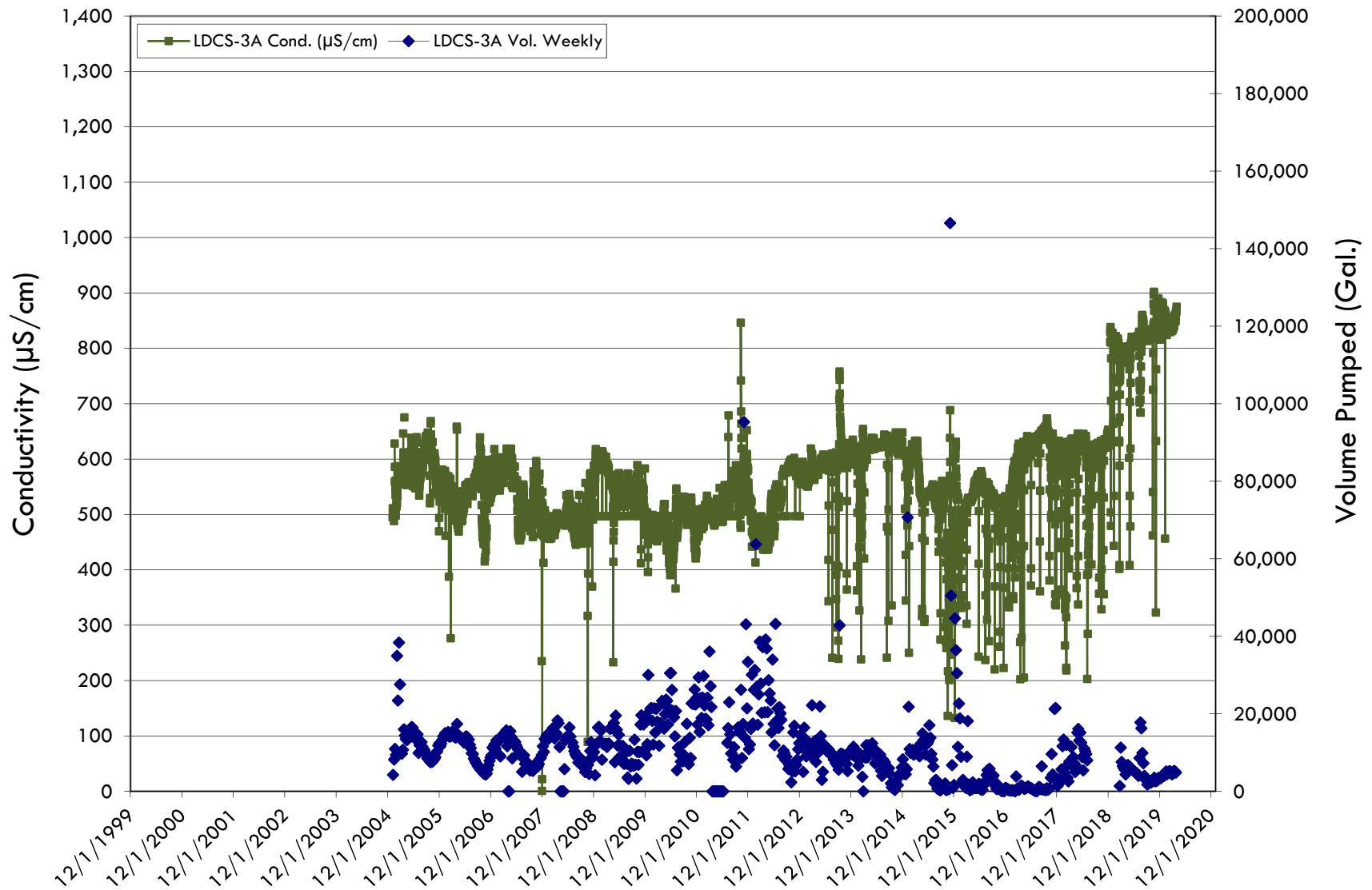
LDCS-2A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



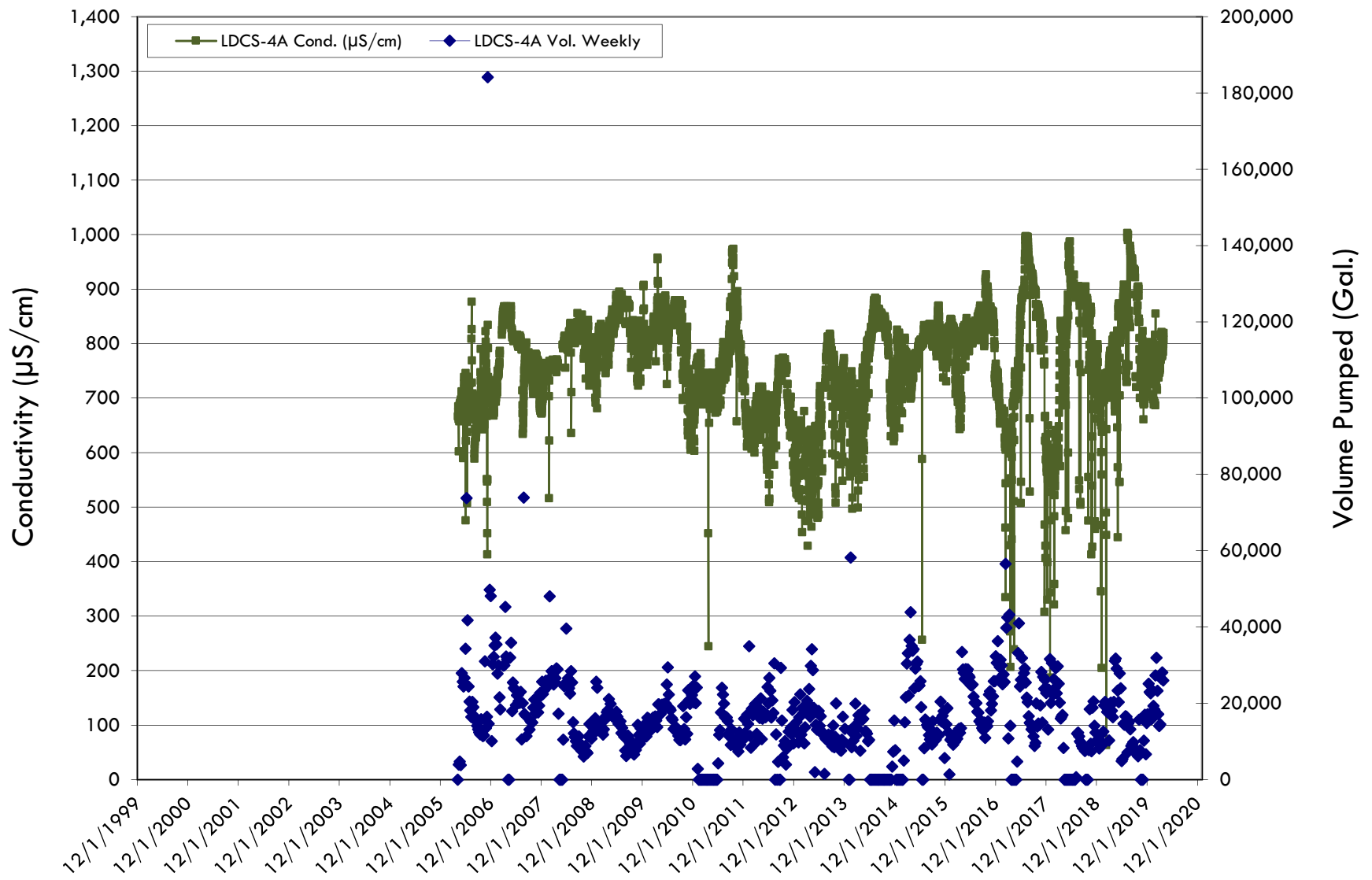
LDCS-2B
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



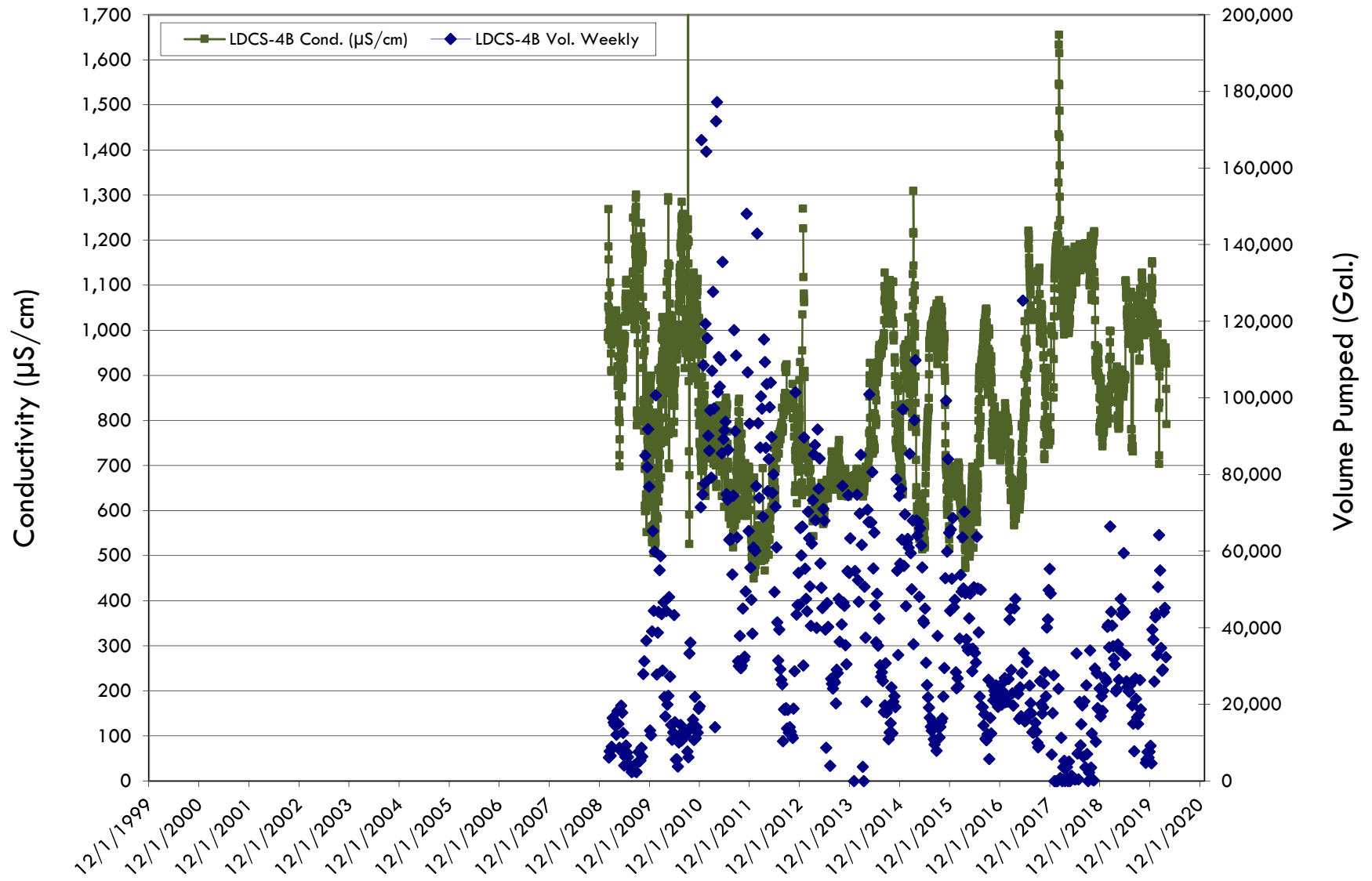
LDCS-3A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



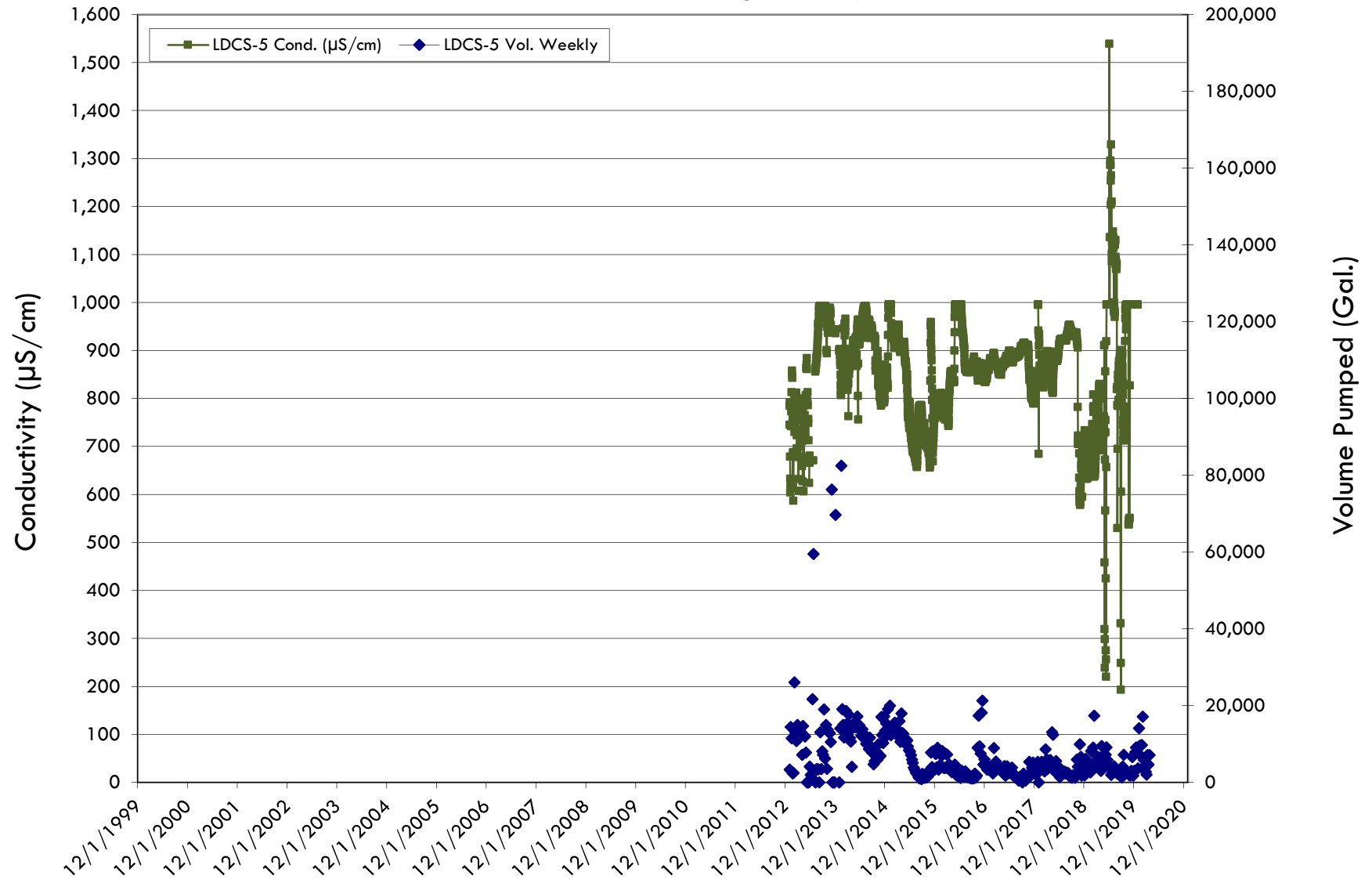
LDCS-4A
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



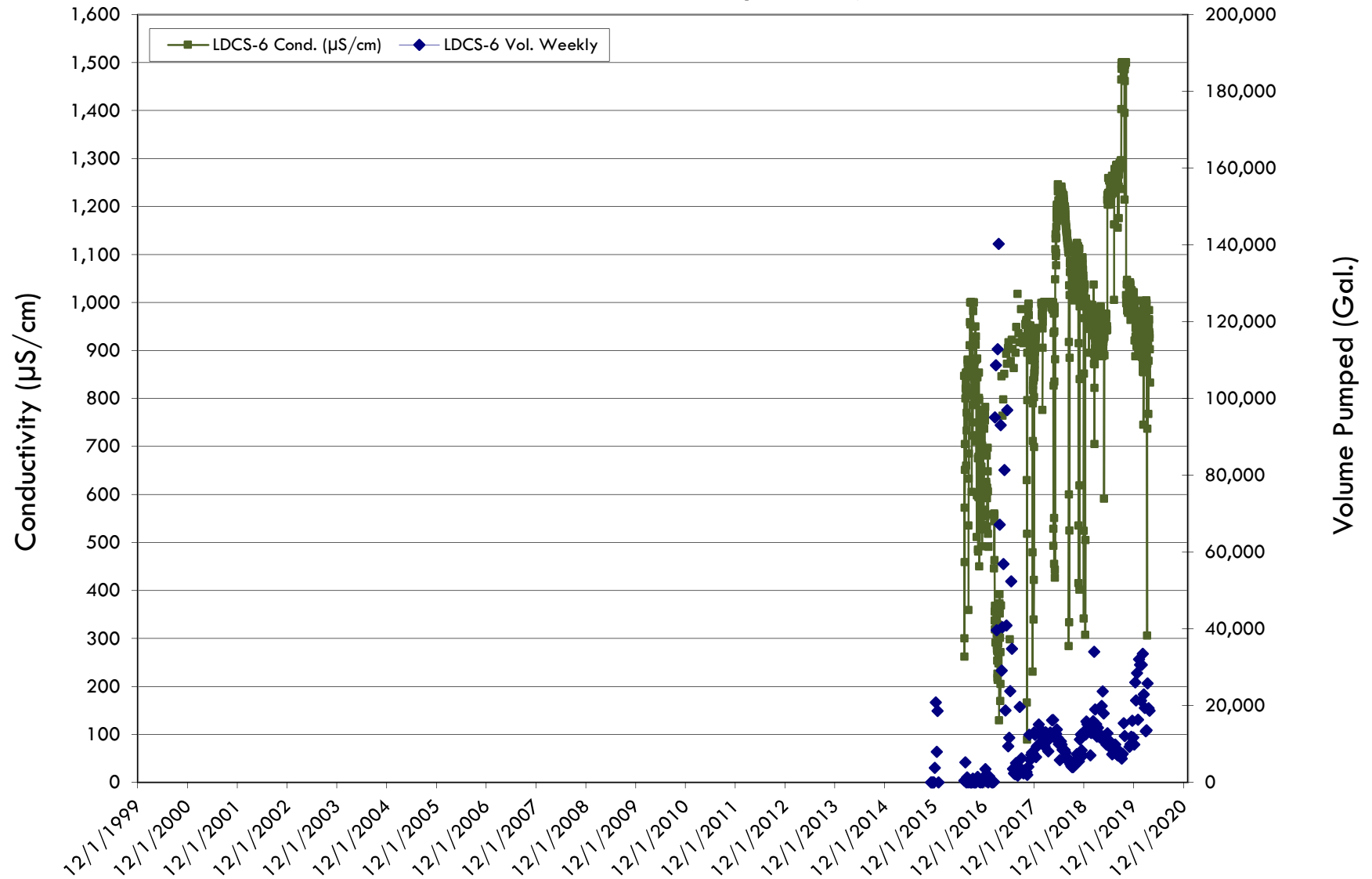
LDCS-4B
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



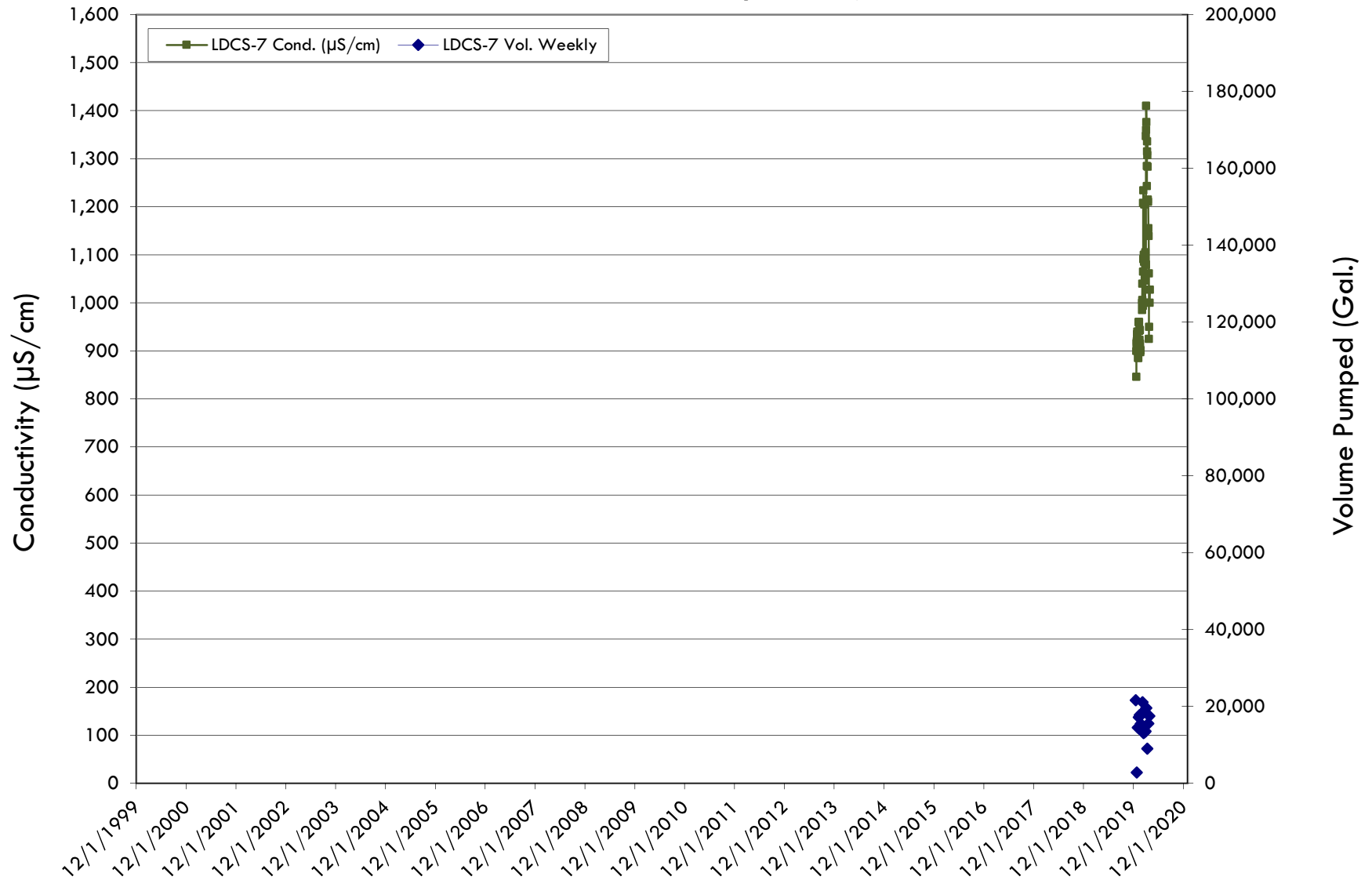
LDCS-5
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



LDCS-6
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



LDCS-7
Daily Conductivity vs Weekly Volume Pumped
First Quarter 2020
LRI Landfill, Pierce County, Washington



Attachment I

Surface Water Monitoring Data



Permit Number: WAR002603

Permittee: LRI 304th Street Landfill

Facility County: Pierce

Receiving Waterbody: South Creek

Monitoring Period: 01/01/2020 - 01/31/2020

Outfall: UNK - South Creek

Version: 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1	C7-2	C7-2	C7-3	C7-3	C7-4	C7-4
1-W	1/1/20	6.8	M						
1-Th	1/2/20	4.6	M						
1-F	1/3/20	1.0	M						
1-Sa	1/4/20	5.9	M						
2-Su	1/5/20	4.2	M						
2-M	1/6/20	5.6	M						
2-T	1/7/20	7.8	M						
2-W	1/8/20	5.1	M	C	M	C	M	15	M
2-Th	1/9/20	4.6	M						
2-F	1/10/20	3.8	M						
2-Sa	1/11/20	3.0	M						
3-Su	1/12/20	2.3	M						
3-M	1/13/20	4.5	M						
3-T	1/14/20	5.1	M						
3-W	1/15/20	4.5	M						
3-Th	1/16/20	2.1	M	C	M	C	M	6.9	M
3-F	1/17/20	2.4	M						
3-Sa	1/18/20	3.0	M						
4-Su	1/19/20	1.8	M						
4-M	1/20/20	1.3	M						
4-T	1/21/20	2.0	M						
4-W	1/22/20	7.3	M						
4-Th	1/23/20	4.9	M						
4-F	1/24/20	3.1	M	C	M	C	M	18	M
4-Sa	1/25/20	3.3	M						
5-Su	1/26/20	5.4	M						
5-M	1/27/20	4.2	M						
5-T	1/28/20	3.6	M						
5-W	1/29/20	2.0	M						
5-Th	1/30/20	3.3	M	C	M	C	M	7	M
5-F	1/31/20	6.8	M						
Minimum			M		M		M		M
			BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)
Maximum		7.8	M	C	M	C	M	18	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)

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

Outfall: UNK - South Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
C7-1	All Parameters			Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF). The averaged turbidity value is reported for each day that a discharge occurred.
C7-2	All Parameters			Anticipated construction activity within the area that drains to C7-2 did not occur during the most recent phase of construction (in 2019).

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
C7-2		Other
C7-3		Other
C7-4		Check Dams
C7-4		Other
C7-4		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

2/13/2020 6:36:32 PM

Date



Permit Number: WAR002603

Permittee: LRI 304th Street Landfill

Facility County: Pierce

Receiving Waterbody: South Creek

Monitoring Period: 02/01/2020 - 02/29/2020

Outfall: UNK - South Creek

Version: 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1	C7-2	C7-2	C7-3	C7-3	C7-4	C7-4
1-Sa	2/1/20	7.1	M						
2-Su	2/2/20	8.7	M						
2-M	2/3/20	1.7	M						
2-T	2/4/20	3.8	M						
2-W	2/5/20	3.1	M						
2-Th	2/6/20	2.5	M						
2-F	2/7/20	3.2	M	C	M	C	M	11	M
2-Sa	2/8/20	7.4	M						
3-Su	2/9/20	1.3	M						
3-M	2/10/20	1.5	M						
3-T	2/11/20	0.2	M						
3-W	2/12/20	0.8	M						
3-Th	2/13/20	0.7	M	C	M	C	M	9	M
3-F	2/14/20	0.2	M						
3-Sa	2/15/20	0.1	M						
4-Su	2/16/20	0.2	M						
4-M	2/17/20	0.4	M						
4-T	2/18/20	1.2	M						
4-W	2/19/20	0.8	M						
4-Th	2/20/20	2.9	M	C	M	C	M	6	M
4-F	2/21/20	0.4	M						
4-Sa	2/22/20	0.1	M						
5-Su	2/23/20	0.1	M						
5-M	2/24/20	0.7	M						
5-T	2/25/20	1.2	M						
5-W	2/26/20		M						
5-Th	2/27/20	3.0	M						
5-F	2/28/20	4.5	M	C	M	C	M	5	M
5-Sa	2/29/20	7.7	M						
Minimum			M		M		M		M
			BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)
Maximum		8.7	M	C	M	C	M	11	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)

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

Outfall: UNK - South Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
C7-1	All Parameters			Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF). The averaged turbidity value is reported for each day that a discharge occurred. On February 7, 2020 untreated stormwater was discharged with a turbidity of 19 NTU.
C7-2	All Parameters			Anticipated construction activity within the area that drains to C7-2 did not occur during the most recent phase of construction (in 2019).

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
C7-2		Other
C7-3		Other
C7-4		Check Dams
C7-4		Other
C7-4		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

3/13/2020 3:16:47 PM

Date

Permit Number: WAR002603

Permittee: LRI 304th Street Landfill

Facility County: Pierce

Receiving Waterbody: South Creek

Monitoring Period: 03/01/2020 - 03/31/2020

Outfall: UNK - South Creek

Version: 1

Week	Monitoring Point	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab	Turbidity (NTU) Measured NTU Weekly Grab	pH Standard Units Weekly Grab
		C7-1	C7-1	C7-2	C7-2	C7-3	C7-3	C7-4	C7-4
1-Su	3/1/20	9.1	M						
1-M	3/2/20	5.3	M						
1-T	3/3/20	14.9	M						
1-W	3/4/20	13.3	M						
1-Th	3/5/20	3.3	M						
1-F	3/6/20	6.7	M	C	M	C	M	16	M
2-Su	3/8/20	0.1	M						
2-M	3/9/20	0.1	M						
2-F	3/13/20	17	M	C	M	C	M	10	M
3-W	3/18/20	16	M	C	M	C	M	7	M
4-W	3/25/20	10	M	C	M	C	M	11	M
5-M	3/30/20	22	M	C	M	C	M	7	M
Minimum			M		M		M		M
			BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)		BM: >= 6.5 (RO)
Maximum		22	M	C	M	C	M	16	M
		BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)	BM: <= 25 (RO)	BM: <= 8.5 (RO)

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

Outfall: UNK - South Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
C7-1	All Parameters			Construction stormwater treatment using Chitosan Enhanced Sand Filtration (CESF) occurred from 3/1 through 3/9. 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
C7-2		Other
C7-3		Other
C7-4		Check Dams
C7-4		Other
C7-4		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

4/15/2020 2:01:28 PM

Signature

Date



Permit Number: WAR002557

Permittee: Pierce County Recycling - 304th Street L

Facility County: Pierce

Receiving Waterbody:

Monitoring Period: 01/01/2020 - 03/31/2020

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	SWPO	SWPO
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	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	ISGP Non-Haz Waste Landfill (40CFR part 445 subpart B)- 2020 permit
3-Th	1/16/20	6.9	7.01	No	6.9	15	B 2.0	6.8	1.2	B 4.8	B 48	B 9.8
Minimum			7.01 BM: >= 5.0 (RO)									
Average		6.9 BM: <= 25			6.9 BM: <= 14	15 BM: <= 117						
Maximum			7.01 BM: <= 9.0 (RO)									
Month 1 Average							B 2 <= 37	6.8 <= 27	1.2 <= 4.9	B 4.8 <= 16	B 48 <= 71	B 9.8 <= 14
Month 2 Average							B 2 <= 37	6.8 <= 27	1.2 <= 4.9	B 4.8 <= 16	B 48 <= 71	B 9.8 <= 14
Month 3 Average							B 2 <= 37	6.8 <= 27	1.2 <= 4.9	B 4.8 <= 16	B 48 <= 71	B 9.8 <= 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

5/12/2020 9:37:31 AM

Signature

Date



Attachment J
Landfill Gas Monitoring Data

SCS Engineers

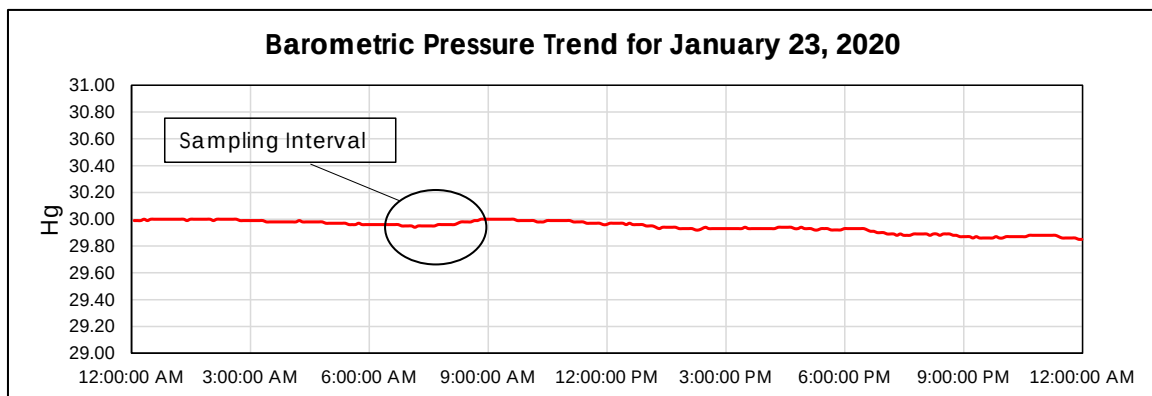
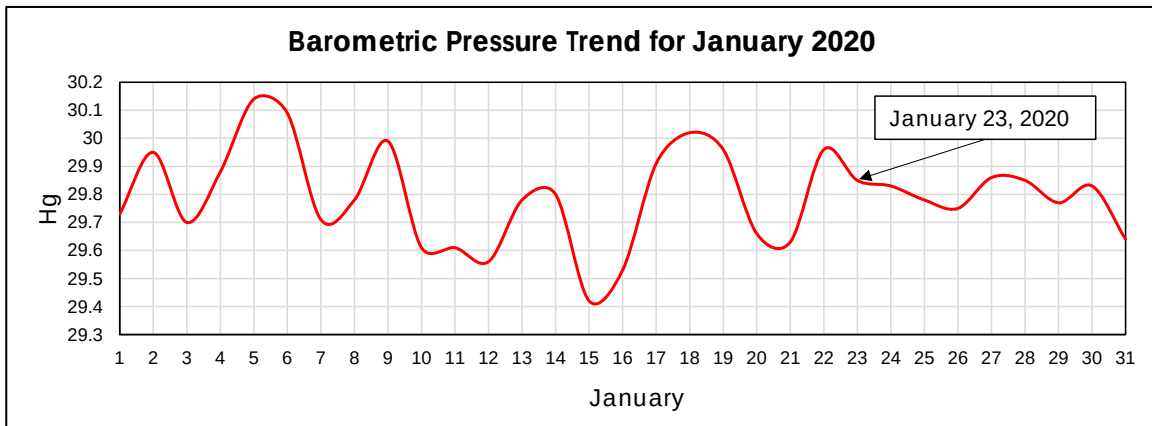
04220001.04

January-20

Headings:		Notes:	
P _(well)	Relative Pressure	1.	Measurement for spike concentrations of CH ₄ and CO ₂ are recorded as a comment if observed during sampling.
CH ₄	Methane	2.	Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
CO ₂	Carbon Dioxide		
O ₂	Oxygen	3.	Exposed Perforation = perforated pipe section not submerged by liquid.
H ₂ O	Water Vapor	4.	GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
N ₂	Nitrogen		
TOC	Top of Casing	5.	Reading based on field notes.

Barometric Pressure Trend - January 2020

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/2020-01-23/2020-01-23/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/2020-01-23/2020-01-23/daily>

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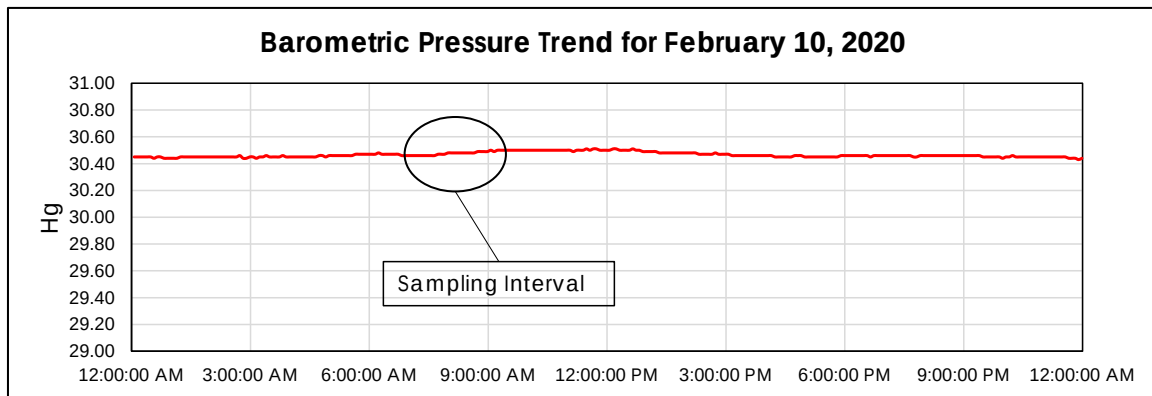
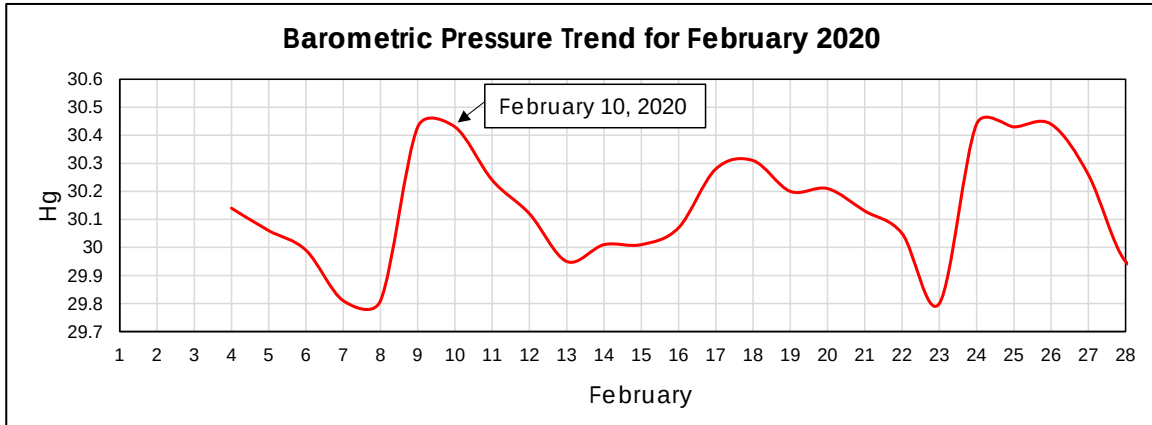
04220001.04

February-20

Headings:		Notes:
P _(well)	Relative Pressure	1. Measurement for spike concentrations of CH ₄ and CO ₂ are recorded as a comment if observed during sampling.
CH ₄	Methane	2. Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
CO ₂	Carbon Dioxide	
O ₂	Oxygen	3. Exposed Perforation = perforated pipe section not submerged by liquid.
H ₂ O	Water Vapor	4. GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
N ₂	Nitrogen	
TOC	Top of Casing	

Barometric Pressure Trend - February 2020

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/2020-02-23/2020-02-23/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/2020-02-10/2020-02-10/daily>

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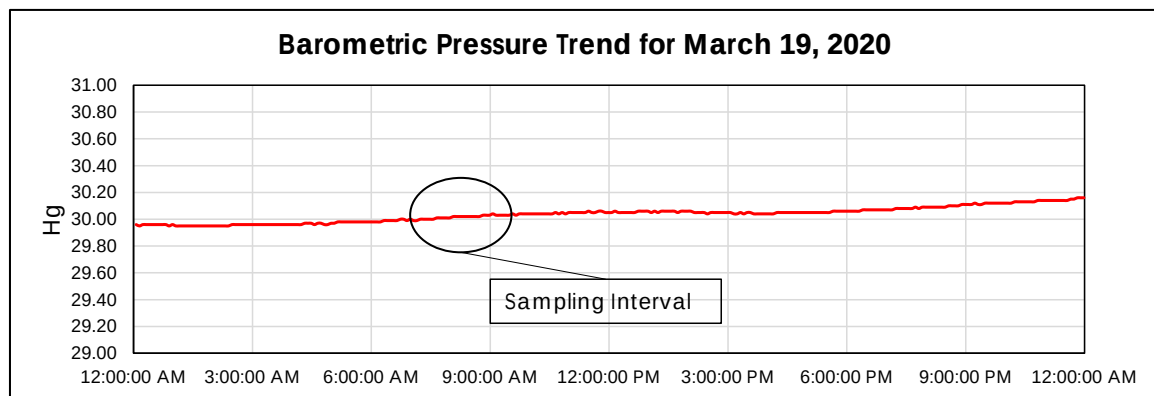
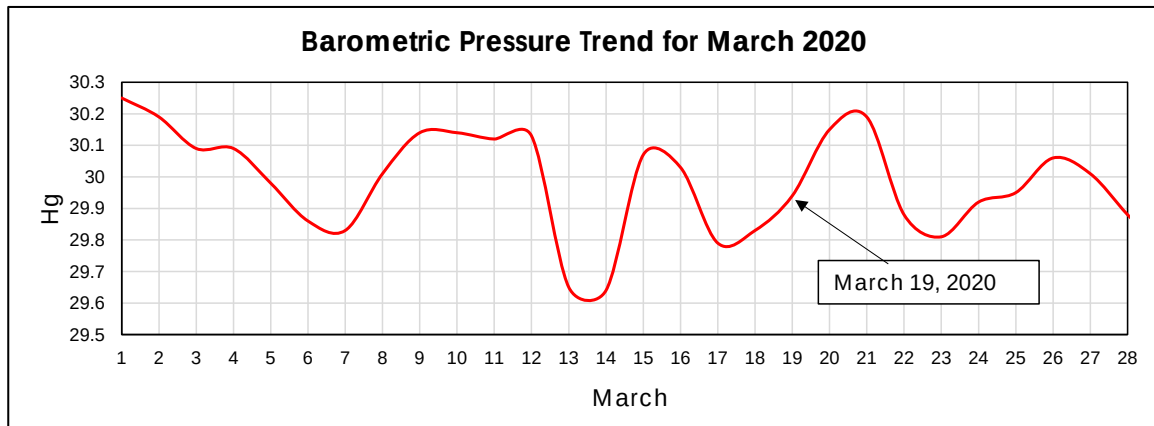
04220001.04

March-20

Headings:		Notes:	
P _(well)	Relative Pressure	1.	Measurement for spike concentrations of CH ₄ and CO ₂ are recorded as a comment if observed during sampling.
CH ₄	Methane	2.	Water level measurements made where gas probe monitoring port allows for measurement, or where there is an adjacent measurement piezometer.
CO ₂	Carbon Dioxide		
O ₂	Oxygen	3.	Exposed Perforation = perforated pipe section not submerged by liquid.
H ₂ O	Water Vapor	4.	GP-10P added in January 2018. Monitoring performed at water level piezometer installed in the same boring as GP-10.
N ₂	Nitrogen		
TOC	Top of Casing	5	Unable to retrieve water level from GP-16 due to water level meter diameter being too large

Barometric Pressure Trend - March 2020

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/2020-03-19/2020-03-19/daily>

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/2020-03-19/2020-03-19/monthly>

LRI 304th Street Landfill
Landfill Gas Monitoring of On-site Buildings

04220001.04
Project Number: 04219001-04

Date: 2/25/20

Weather Conditions: Cloudy

Instrument: MicroPID

Measured By: Travis Bernduhl

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**.

- ☒ Main Office - individual office spaces, storage areas and within open crawl-space area.
- ☒ Repair Shop - survey atmosphere conditions throughout (lower height levels).
- ☒ Pay/Scale Booth - interior of building. 1.1 ppm
- ☒ Work Shop - interior of shed adjacent to stormwater ponds.



Signature

Background

Upwind → 0.0 ppm

Downwind → 0.3 ppm