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September 29, 2021
Parametrix No. 553-1625-014

Jeff Williamson
Coal Creek Development LLC
P.O. Box 1743
Bellevue, WA 98009

Re: March 2021 Groundwater Sampling Event, Newcastle Demolition Landfill

Dear Mr. Williamson:

INTRODUCTION

This report summarizes the groundwater monitoring data collected in March 2021 at the Newcastle Demolition Landfill. Sample collection and data analyses were conducted in accordance with the Newcastle Demolition Landfill Post-Closure Plan (Parametrix 1998).

The Landfill was formerly owned and operated by Coal Creek Development Corporation and accepted demolition and inert waste until 1992. The Newcastle Coal Creek Landfill closed in 1993 and beginning in 1996 was developed as a golf course under the Model Toxics Control Act (MTCA 173-340 WAC) and Prospective Purchaser Consent Decree No. 95-2-26414-OSEA between Ecology and Newcastle Golf, L.L.C (Newcastle Golf; Ecology 1995). The Golf Club opened in 2000 (Newcastle Golf 1998).

The Landfill has undergone post-closure environmental monitoring in accordance with the Newcastle Demolition Landfill Post-Closure Plan (Parametrix 1998). MTCA (WAC 173-340-420(2)) requires that Ecology conduct a periodic review of the Landfill every 5 years. The most recent Periodic Review was conducted in 2019 (Ecology 2019). The Periodic Review determined that *"Soil and groundwater cleanup levels have not been met at the Site; however, under WAC 173-340-740(6)(f), the cleanup action was determined to comply with cleanup standards since the long-term integrity of the containment system is ensured and the requirements for containment technologies are being met."*

GEOLOGIC SETTING

The Newcastle Demolition Landfill is located in an area historically mined for coal (Parametrix 1991). The underlying geology of the site consists of a thick sequence of inclined interbedded coal, sandstone, and shale beds of the Eocene Renton Formation. The site is underlain by a complex network of coal mine workings that appear to control much of the groundwater flow beneath the site. Southwesterly regional groundwater flow is substantially intercepted by the mine workings that drain to the west and discharge directly or indirectly into the Richmond Tunnel that flows into Coal Creek. The monitoring wells are installed within bedrock between the workings, and the observed water levels are at elevations expected for groundwater influenced by the draining of the mine workings by the Richmond Tunnel.

MONITORING PROGRAM HISTORY

The downgradient monitoring wells on the golf course (MW-2, MW-3, and MW-4) were disturbed during golf course construction beginning in 1996. Some interim repairs were made during the golf course construction to allow

groundwater monitoring to continue, although final completion of the well monuments did not occur until February 2000. At that time, the wells were redeveloped and were thought to be suitable for detecting potential impacts to groundwater quality from the former Landfill. However, during the golf course construction period there may have been some impacts to groundwater quality in the monitoring wells due to surface water or soil intrusion. The history of activity associated with the wells during golf course construction was summarized in the November 1999 report (Parametrix 2000).

Damage to well MW-4 indicated by high turbidity was first noted in December 2000. Attempts to redevelop the well in February 2001 were unsuccessful. Well MW-4 was decommissioned and replaced in August 2001 with new monitoring well MW-5. MW-5 is located approximately 500 feet northwest of MW-4 (see Figures 1 and 2). The installation of well MW-5 was documented in a letter from Parametrix to Landmarc Technologies (Parametrix 2001).

From 1996 through 2000, a variable groundwater monitoring schedule was established by the Seattle-King County Department of Public Health (Coal Creek Development Corporation 1996). However, the downgradient wells, particularly well MW-3, were frequently dry during much of the year. During the September 2001 sampling event, all the wells were dry except for upgradient well MW-1. Therefore, no samples were collected, and an alternative sampling schedule was proposed to the Health Department (now known as Public Health – Seattle & King County). The proposed sampling schedule consisted of sampling in January and April when water volumes were expected to be adequate for sampling and measuring depth to groundwater during the fall when groundwater levels were expected to be at their lowest point.

The current groundwater monitoring program for the closed Newcastle Demolition Landfill consists of sampling four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-5) and two off-site surface water stations (SW-6 and SW-7). Well MW-1 is upgradient of the Landfill, and the other wells and stations are downgradient or downstream of the Landfill. Surface water station SW-6, located at the Richmond Tunnel mine discharge, is thought to be representative of groundwater intercepted by a network of mine workings beneath the site that discharges into Coal Creek. Surface water station SW-7 is located farther downstream along Coal Creek. The monitoring well locations are shown on Figures 1 and 2, and the surface water station locations are shown on Figure 3. The locations of the downgradient wells with respect to landfill and golf course features are shown on Figure 2.

In September 2006, recommendations were submitted by Landmarc Technologies, Inc. to Public Health for reducing the monitoring frequency and parameters at the Newcastle Demolition Landfill (Parametrix 2006). It was recommended that the frequency of groundwater monitoring be reduced to annual, and analyses for volatile organic compounds, semi-volatile organic compounds, and metals (except for arsenic) be discontinued. These parameters are not required by Chapter 173-304 Washington Administrative Code (WAC), and the historical data since landfill closure have not indicated any detections of these parameters associated with impacts from the Landfill. Reduction in monitoring frequency and parameters based on consistent lack of contamination from the Landfill is in accordance with the language of the Post-Closure Monitoring Plan. These recommendations were implemented beginning with the February 2007 event.

MARCH 2021 SAMPLING EVENT

Samples were collected on March 9, 2021, by Parametrix personnel. Samples were collected from wells MW-1 and MW-2 using dedicated Hydrostar pumps and from wells MW-3 and MW-5 using dedicated electrical submersible pumps. Samples were collected using low-flow purging methods. Samples to be analyzed for dissolved metals were field-filtered through 0.45-micron filters. A duplicate sample (designated MW-6) was collected at monitoring well MW-3.

Samples were delivered directly to Analytical Resources, Inc. (ARI) in Seattle, Washington, for analysis. Samples were measured for field parameters (pH, specific conductivity, and temperature), and analyzed for chloride, nitrite, nitrate, ammonia, sulfate, hardness (dissolved calcium and magnesium), dissolved arsenic, dissolved iron, dissolved manganese, dissolved zinc, chemical oxygen demand (COD), total organic carbon (TOC), and total dissolved solids (TDS). Additional field parameters measured included Dissolved oxygen (DO) and oxygen reduction potential (redox).

SAMPLING RESULTS

The analytical results for the monitoring wells and surface water stations are summarized in Table 1. The laboratory report and chain-of-custody forms are presented in Appendix A.

Data Validation

Parametrix conducted a quality assurance (QA) review of the laboratory data, including holding times, field duplicate results, and blank results. The laboratory QA internal standard data were also reviewed, including matrix spikes, matrix spike duplicates, surrogate recoveries, and laboratory control samples. As a result of the review, the MW-1 result for sulfate was qualified "J" as estimated due to a low recovery in the matrix spike/matrix spike duplicate (MS/MSD).

Data Analysis

Data analysis consisted of comparing groundwater data (from monitoring wells and surface water station SW-6) and surface water to established state groundwater quality standards (GWQSs; 173-200 WAC) and state maximum contaminant levels (MCLs) for drinking water (246-290 WAC), preparing time-series plots, and conducting Mann-Kendall trend analyses for selected analytes in monitoring wells.

Comparison of Data to Groundwater Quality Standards

The following constituents were present at concentrations above secondary GWQSs and/or MCLs (established based on aesthetic characteristics such as taste, appearance, and/or staining):

- pH in in the samples from well MW-2 and MW-5
- Specific conductivity in the samples from well MW-1 (upgradient) and surface water station SW-6
- TDS in the samples from well MW-1 (upgradient) and surface water station SW-6
- Dissolved iron in the samples from wells MW-1 (upgradient), MW-2, MW-3, MW-5, and surface water station SW-6
- Dissolved manganese in the samples from wells MW-1 (upgradient), MW-2, MW-5, and surface water station SW-6
- Dissolved arsenic concentrations in samples from wells MW-1 (upgradient well), MW-2, MW-3, MW-5, and surface water stations SW-6 and SW-7 (exceeding the carcinogenic GWQS but not the MCL).

The presence of constituents above their GWQS and/or MCL upgradient from the Landfill at MW-1 indicates that the aesthetic characteristics of groundwater in the Landfill vicinity are a natural artifact of the local geochemistry.

Time-Series Plots

Groundwater and surface water time-series plots were prepared using historical data from the post-closure monitoring period (1994 through 2021) for dissolved arsenic, ammonia, dissolved calcium, chloride, COD, hardness, dissolved iron, dissolved manganese, specific conductivity, sulfate, and TOC and are presented in Appendix B. These constituents were selected for statistical analyses to include parameters that were elevated in leachate with respect to groundwater (Pacific Groundwater Group 1994a). Dissolved arsenic was added to the data analysis because it was a constituent of interest discussed in Ecology's Periodic Review (Ecology 2013).

Based on the time-series plots, the following observations can be made:

- Sulfate and hardness (and dissolved calcium) concentrations continued to be highest in upgradient well MW-1.
- In MW-2, concentrations of dissolved iron continued to be lower than the relatively high concentrations measured between 1999 and 2000. However, since 2019, the results for COD and TOC have been higher than typically observed and specific conductivity and concentrations of chloride and hardness (and dissolved calcium) have been lower than typically observed.
- In MW-3, concentrations of most parameters have remained stable or decreased over the last few years. Specific conductivity, and concentrations of ammonia, chloride, hardness (and dissolved calcium), dissolved iron, dissolved manganese, and TOC continued to be lower compared to the relatively high values observed during 2002.
- In MW-5, stable or decreasing trends have been observed over the history of monitoring.
- At SW-6, concentrations of sulfate and dissolved manganese have decreased since over the history of monitoring.

The water quality changes observed in downgradient wells MW-2 and MW-3 during and immediately after golf course development were likely related to clearing and grading of the previously heavily wooded area and developing it as a mixture of managed greens and fairways and roughs. Water quality was not measured at MW-3 during the period between 1998 and 2001 because the well was dry; subsequent monitoring events were adjusted to coincide with the wet season so that adequate water would be available for sampling.

Mann-Kendall Tests

The Mann-Kendall test for trends (Gilbert 1987, Gibbons 1994) was used to evaluate the Newcastle Demolition Landfill groundwater data (Pacific Groundwater Group 1994a,b,c). Trends in each well were evaluated separately because the upgradient well continues to show higher concentrations of some constituents than the downgradient wells. For each well/parameter combination, the Mann-Kendall test determines whether there is an overall consistent increasing or decreasing trend in the data. As a nonparametric test, it compares each data value to every value preceding it to determine the number of positive (increasing) and negative (decreasing) pairwise comparisons. Because it does not use actual values in its calculations, the Mann-Kendall test is not influenced by the magnitudes of fluctuations in data values as shown in the time series plots. All non-detected values were given a value equal to the reporting limit (Gilbert 1987, Gibbons 1994).

As discussed in the previous section, elevated concentrations of some parameters were observed in downgradient wells MW-2 and MW-3 during golf course construction. These data suggest an apparent upward trend when combined with all historical data, as presented in previous reports. For this report, the trend analyses were calculated

using data collected after golf course development was completed (i.e., 2000 through 2021). The results of the 20-year trend analyses following completion of the golf course are summarized in Table 2. The Mann-Kendall tests indicate the following:

- MW-1: statistically significant increasing trends in dissolved calcium, COD (may reflect increasing reporting limit), hardness, and specific conductivity; statistically significant decreasing trends in dissolved arsenic, chloride, dissolved iron, and TOC, upgradient from the Landfill.
- MW-2: statistically significant increasing trends in COD and TOC; a statistically significant decreasing trend in dissolved arsenic.
- MW-3: statistically significant decreasing trends in ammonia, dissolved calcium, chloride, hardness, and dissolved iron, dissolved manganese, and specific conductivity.
- MW-5: statistically significant decreasing trends in dissolved arsenic, dissolved calcium, chloride, hardness, specific conductivity, and sulfate.

In summary, the only parameters showing significant upward trends in downgradient wells since golf course construction were COD and TOC in MW-2. The higher concentrations of COD and TOC since 2019 were accompanied by lower measured concentrations of some other landfill indicator parameters including chloride, hardness, and dissolved calcium, and the purged water was noted to have an orange color and contain some black particulate material. This well is located approximately 1,500 ft from the former Landfill in a rough area of the golf course adjacent to a green and is relatively shallow compared to the other wells (screened between 38 and 45 ft below ground surface). The observed water quality changes in this well are likely related to disturbances at the golf course or possibly damage in the well.

GROUNDWATER LEVEL MONITORING RESULTS

Groundwater levels were measured at the monitoring wells prior to sampling. Depth to water could not be measured at MW-1 due to wellhead constraints. The measurements are presented in Table 3 with calculated water elevations.

DISCUSSION AND CONCLUSIONS

Analysis of the March 2021 groundwater data from the Newcastle Demolition Landfill indicates the following:

- The differences in groundwater chemistry between monitoring wells continue to suggest that the observed water chemistry is influenced by local geochemical conditions and, therefore, do not demonstrate landfill impacts. Concentrations exceeding secondary GWQSs or MCLs (specific conductivity, TDS, dissolved iron, and dissolved manganese) occurred in the upgradient well and in downgradient wells and the surface water stations. Dissolved arsenic concentrations exceeded the carcinogenic GWQS in all wells (including the upgradient well) and surface water stations but were below the MCL.
- The historical increases in concentrations of some parameters observed during the golf course construction period between 1996 and approximately 2002 in wells MW-2 and MW-3 (including ammonia, dissolved iron, and dissolved manganese) were likely related to changed geochemical conditions associated with clearing and grading of the previously heavily forested area and construction of the golf course. More recent data have indicated lower concentrations of these parameters.
- There were no statistically significant upward concentration trends observed in downgradient wells since golf course construction except for COD and TOC in MW-2. The higher concentrations of TOC and COD observed

in well MW-2 since 2019 were also accompanied by visual changes and lower concentrations of other indicator parameters and are likely related to factors other than the Landfill. It is recommended that the conditions in the vicinity of the well be further explored and the condition of the well be investigated and the well possibly redeveloped prior to the next annual sampling event.

- The current groundwater monitoring data are consistent with previous conclusions that the Landfill is stable and is not causing impacts to human health or the environment. This conclusion is supported by the results of historical monitoring data for an expanded list of constituents of potential concern including volatile and semi-volatile organic compounds.

Please contact me at (206) 394-3667 or lgilbert@parametrix.com if you have questions regarding this report.

Sincerely,

PARAMETRIX

Lisa A. Gilbert, LHG
Project Hydrogeologist

cc: Richard Morck, P.E. – Landmarc Technologies, Inc.
Darshan S. Dhillon, Public Health – Seattle & King County
Tim O'Connor LG, LHG, Solid Waste Management Program, Washington State Department of Ecology, NWRO
Tamara Welty, LG, LHG, Periodic Reviewer & Site Manager, Toxics Cleanup Program, Washington State Department of Ecology, NWRO

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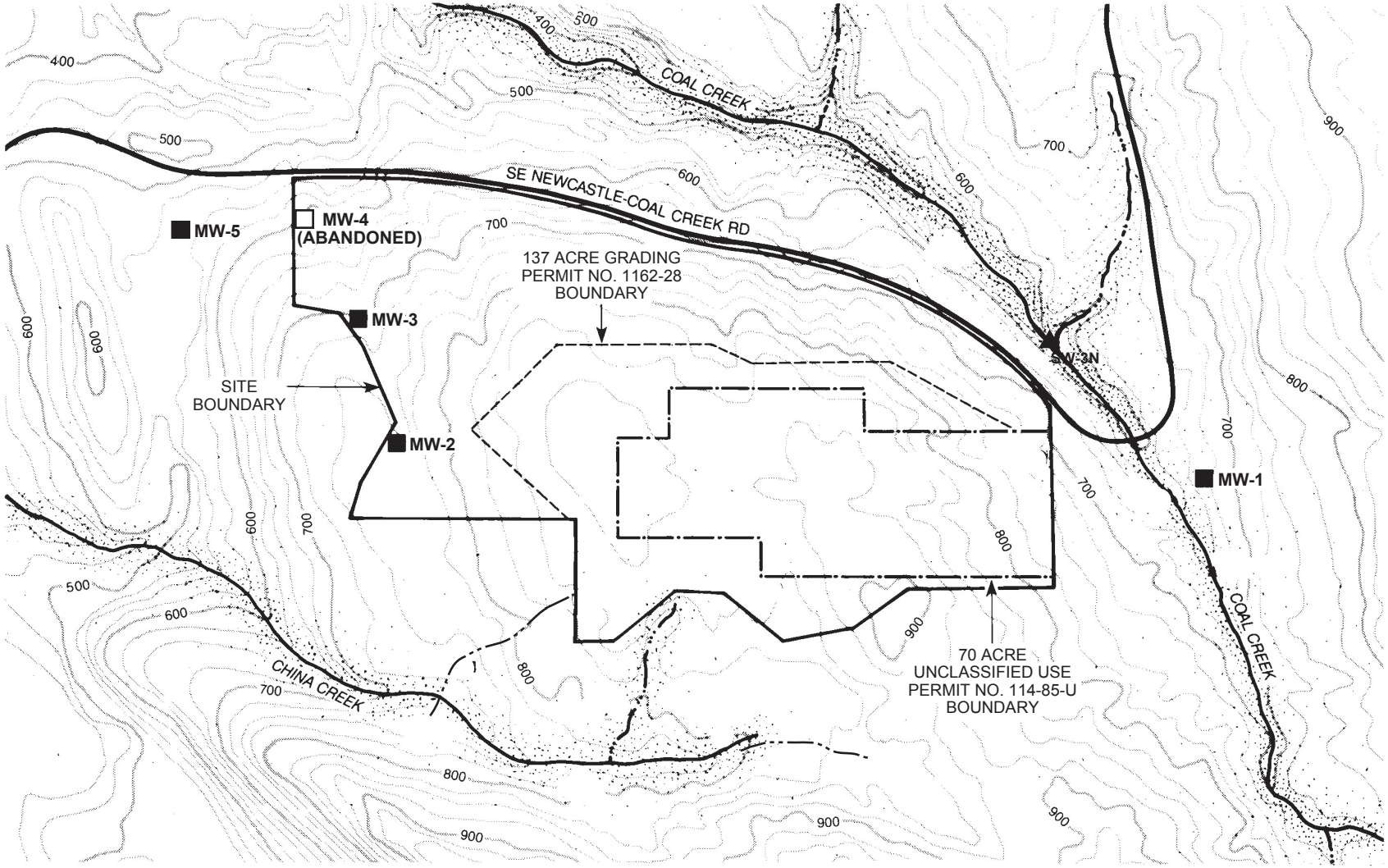
Figures



Parametrix 555-3747-001/01(01) 5/09 (B)

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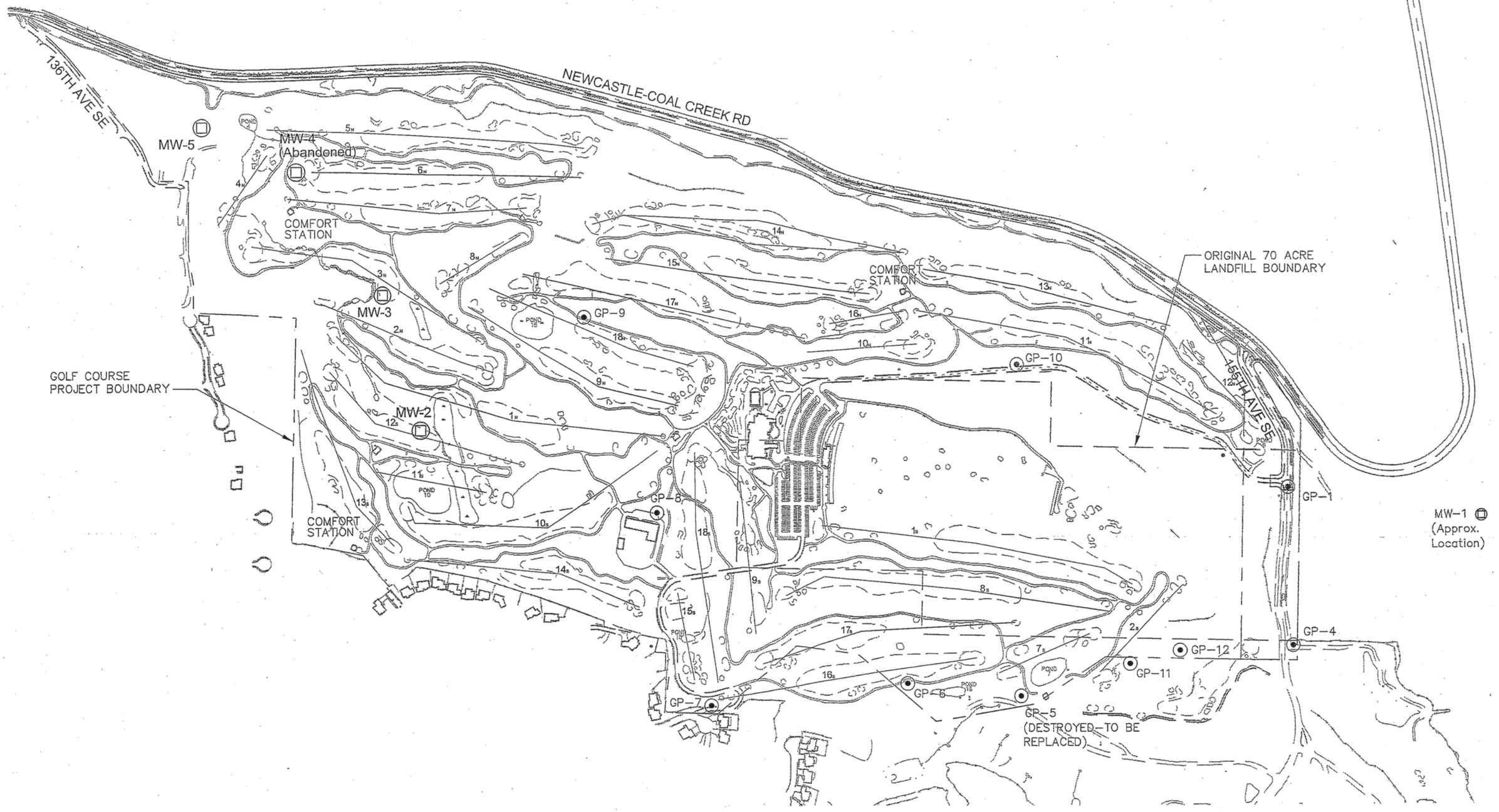
SCALE IN FEET

■ **MW-1** Groundwater Monitoring Well

Figure 1
Groundwater Monitoring Locations in Site Vicinity
Newcastle Demolition Landfill



FILE: K3747001P01T01-F02
DATE: 04/10/03

0 250 500
SCALE IN FEET

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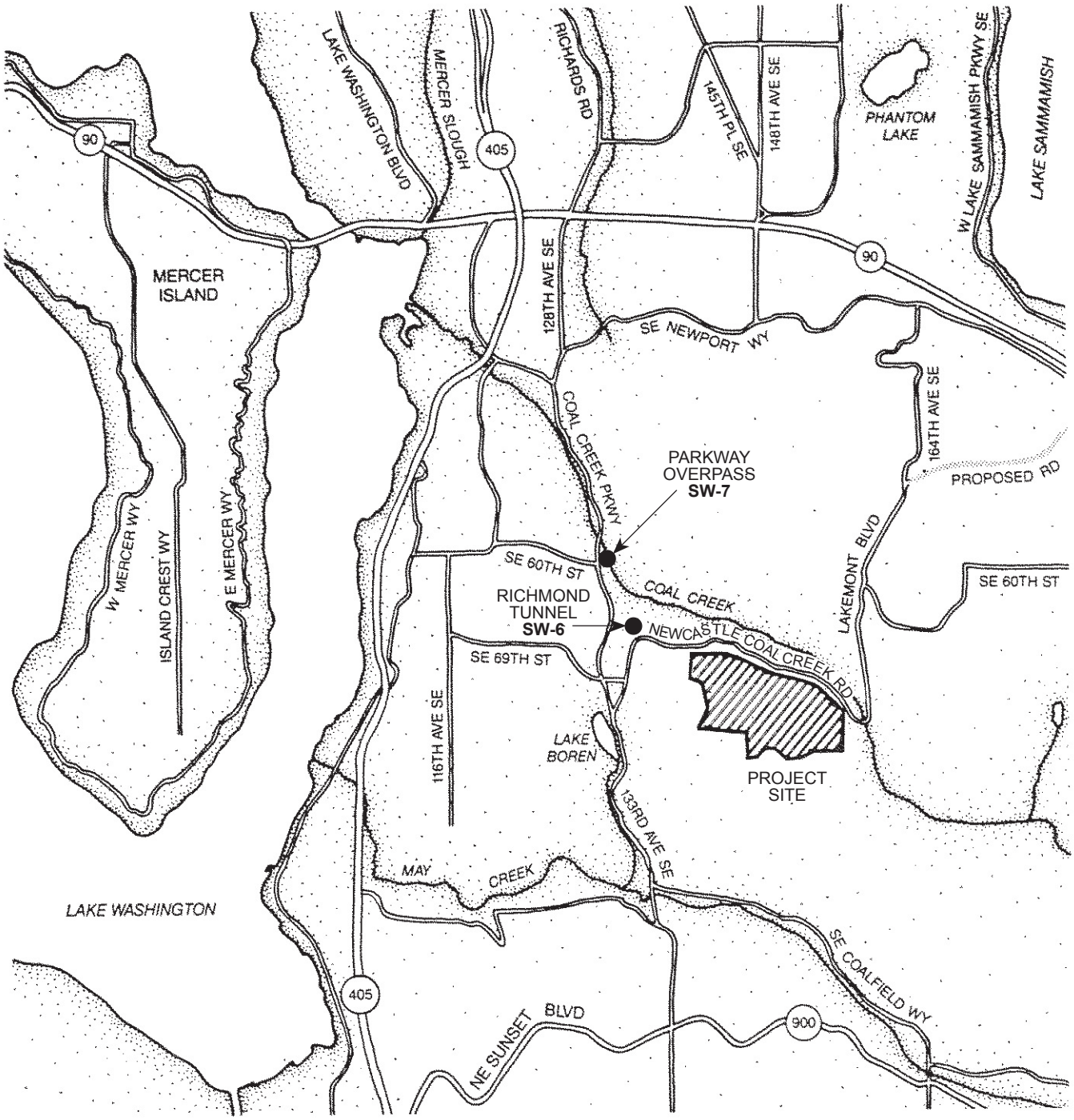
LEGEND

- MW-2 — Groundwater Monitoring Well (Field Located 10/22/01)
- GP-1 — Gas Probe Location (Field Located 10/22/01)
- COMFORT STATION — Comfort Station (Restroom)
- Pond and "Creek" System
- Storm Drainage Control Facility
- Golf Cart Path
- 14s — Golf Course Fairway Alignment and Number

Figure 2
Groundwater Monitoring Well Locations and Golf Course Features, Newcastle Demolition Landfill Area



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SCALE IN MILES

● Surface Water Monitoring Site

Figure 3
Off-site Monitoring Locations
Newcastle Demolition Landfill

Tables

Table 1. Newcastle Groundwater and Surface Water Data

				Groundwater					Surface Water	
Parameter	**Units**	**GWQS**	**MCL**	**MW-1 3/9/2021**	**MW-2 3/9/2021**	**MW-3 3/9/2021**	**MW-6 (MW-3 Dup) 3/9/2021**	**MW-5 3/9/2021**	**SW-6 3/9/2021**	**SW-7 3/9/2021**
Field Data										
Temperature	°C			9.6	10.8	15.6	- -	11.3	12.0	8.1
pH	standard	6.5-8.5 **		6.96	**5.87**	7.44	- -	**6.38**	7.05	8.06
Specific Conductivity	uS/cm		700 **	**1014**	179.8	646	- -	570.7	**864**	365.1
DO	mg/L			0.00	1.19	0.33	- -	0.00	11.95	13.00
Redox	mV			45.1	111.7	-59.2	- -	28.4	39.3	11.6
Conventionals										
Total Dissolved Solids	mg/L	500 **	500 **	**776**	132	423	392	311	**533**	453
Chloride	mg/L	250 **	250 **	2.41	0.248	6.09	6.11	2.71	4.68	8.93
Ammonia	mg-N/L			0.134	0.079	0.348	0.352	0.051	0.188	0.040 U
Nitrate	mg-N/L	10 *	10 *	0.0200 U	0.206	0.129	0.129	0.0200 U	0.0315	0.722
Nitrate + Nitrite	mg-N/L			0.010 U	0.217	0.129	0.129	0.010 U	0.032	0.722
Nitrite	mg-N/L		1 *	0.010 U	0.012	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Sulfate	mg/L	250 **	250 **	207 J	1.88	17.7	17.7	44.2	99.8	37.5
Chemical Oxygen Demand	mg/L			10.0 U	68.9	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Organic Carbon	mg/L			0.66	23.04	3.19	3.02	1.49	1.26	2.00
Dissolved Hardness	mg/L			557	83.5	63.3	67.0	253	314	131
Dissolved Metals										
Arsenic	mg/L	0.00005 ***	0.01 *	**0.000613**	**0.000657**	**0.00325**	**0.00314**	**0.00616**	**0.00453**	**0.000866**
Calcium	mg/L			150	23.0	12.7	13.7	61.1	63.9	27.7
Iron	mg/L	0.3 **	0.3 **	**1.19**	**1.35**	**0.405**	**0.412**	**4.38**	**2.42**	0.0755 J
Magnesium	mg/L			44.0	6.36	7.66	8.00	24.4	37.5	15.0
Manganese	mg/L	0.05 **	0.05 **	**0.101**	**0.0760**	0.0180 J	0.0211	**0.519**	**0.210**	0.0382
Zinc	mg/L	5 **	5 **	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U

Notes:

GWQS = Water Quality Standards for Ground Waters of the State of Washington (173-200 WAC)
MCL = Maximum Contaminant Level, Washington State Drinking Water Regulations (Chapter 246-290 WAC)
* = Primary contaminant criteria
** = Secondary contaminant criteria
*** = Carcinogenic contaminant criteria
= Exceeds GWQS or MCL
U = Compound undetected at the specified reporting limit
J = Estimated concentration below reporting limit, or QC requirements not met

Table 2. Results of Mann-Kendall Tests for Trend, Newcastle Demolition Landfill, 2000 to 2021

Well ID	Analyte	n	S	Variance	Z	Trend
MW-1	Ammonia-N	27	**-66**	2298.0	-1.36	No Trend
	Arsenic	**19**	**-90**	**800.0**	**-3.15**	**Negative**
	Calcium, Dissolved	**27**	**152**	**2288.7**	**3.16**	**Positive**
	Chloride	**27**	**-116**	**2278.0**	**-2.41**	**Negative**
	COD	**27**	**131**	**1646.3**	**3.20**	**Positive**
	Hardness	**27**	**150**	**2263.3**	**3.13**	**Positive**
	Iron, Dissolved	**27**	**-148**	**2288.7**	**-3.07**	**Negative**
	Manganese, Dissolved	27	-79	2295.0	-1.63	No Trend
	Specific Conductivity	**27**	**107**	**2301.0**	**2.21**	**Positive**
	Sulfate	27	10	2298.0	0.19	No Trend
	TOC	**27**	**-103**	**1711.7**	**-2.47**	**Negative**
MW-2	Ammonia-N	27	-79	2301.0	-1.63	No Trend
	Arsenic	**19**	**-57**	**769.7**	**-2.02**	**Negative**
	Calcium, Dissolved	27	52	2300.0	1.06	No Trend
	Chloride[1]	27	86	2298.0	1.77	Positive
	COD	**27**	**105**	**2293.7**	**2.17**	**Positive**
	Hardness	27	62	2285.3	1.28	No Trend
	Iron, Dissolved	27	50	2300.0	1.02	No Trend
	Manganese, Dissolved[1]	27	-87	2296.3	-1.79	Negative
	Specific Conductivity	25	46	1833.3	1.05	No Trend
	Sulfate	27	-70	2298.0	-1.44	No Trend
	TOC	**27**	**156**	**2297.3**	**3.23**	**Positive**
MW-3	**Ammonia-N**	**25**	**-167**	**1832.3**	**-3.88**	**Negative**
	Arsenic	19	-31	812.3	-1.05	No Trend
	Calcium, Dissolved	**25**	**-283**	**1832.3**	**-6.59**	**Negative**
	Chloride	**25**	**-178**	**1824.7**	**-4.14**	**Negative**
	COD	25	-29	1825.0	-0.66	No Trend
	Hardness	**25**	**-272**	**1829.3**	**-6.34**	**Negative**
	Iron, Dissolved	**25**	**-224**	**1831.3**	**-5.21**	**Negative**
	Manganese, Dissolved	**25**	**-168**	**1831.3**	**-3.90**	**Negative**
	Specific Conductivity	**25**	**-152**	**1833.3**	**-3.53**	**Negative**
	Sulfate	25	11	1832.3	0.23	No Trend
	TOC	25	-31	1830.3	-0.70	No Trend

n = Sample size

S = Mann-Kendall test statistic. Positive number implies an increasing trend; negative number implies a decreasing trend.

Z = Approximate normal test statistic; calculated based on S and the estimated variance when the sample size is greater than 10.

The comparison level (critical value of Z) at 1.0 - (α/2) = (0.05/2) = 97.5% confidence level = 1.97737 for a two-tailed Mann-Kendall test.

If the absolute value of the calculated Z statistic (|Z|) > 1.97737, a significant trend is present in the data. There is no trend in the data when |Z| < 1.97737.

[1] When run as a one-tailed test, there is a trend (i.e., |Z| > 1.65463). The comparison level (critical value of Z) at 1.0 - (α) = (0.05) = 95% confidence level = 1.65463.

Trends significant at a confidence level of 97.5% are shown in **BOLD BLACK FONT.**

Table 2. Results of Mann-Kendall Tests for Trend, Newcastle Demolition Landfill, 2000 to 2021 (continued)

Well ID	Analyte	n	S	Variance	Z	Trend
MW-5	Ammonia-N	23	-49	1429.7	-1.27	No Trend
	Arsenic	**17**	**-80**	**589.3**	**-3.25**	**Negative**
	Calcium, Dissolved	**23**	**-181**	**1433.7**	**-4.75**	**Negative**
	Chloride	**23**	**-127**	**1431.7**	**-3.33**	**Negative**
	COD	23	9	1351.7	0.22	No Trend
	Hardness	**23**	**-185**	**1421.7**	**-4.88**	**Negative**
	Iron, Dissolved	23	21	1431.7	0.53	No Trend
	Manganese, Dissolved	23	29	1431.7	0.74	No Trend
	Specific Conductivity	**23**	**-110**	**1432.7**	**-2.88**	**Negative**
	Sulfate	**23**	**-188**	**1432.7**	**-4.94**	**Negative**
	TOC	23	-45	1431.7	-1.16	No Trend

n = Sample size

S = Mann-Kendall test statistic. Positive number implies an increasing trend; negative number implies a decreasing trend.

Z = Approximate normal test statistic; calculated based on S and the estimated variance when the sample size is greater than 10.

The comparison level (critical value of Z) at 1.0 - (α/2) = (0.05/2) = 97.5% confidence level = 1.97737 for a two-tailed Mann-Kendall test.

If the absolute value of the calculated Z statistic (|Z|) > 1.97737, a significant trend is present in the data. There is no trend in the data when |Z| < 1.97737.

[1] When run as a one-tailed test, there is a trend (i.e., |Z| > 1.65463). The comparison level (critical value of Z) at 1.0 - (α) = (0.05) = 95% confidence level = 1.65463.

Trends significant at a confidence level of 97.5% are shown in **BOLD BLACK FONT.**

Table 3. Groundwater Elevations for Newcastle Landfill, March 2021

Well	Date	Reference Elevation[1]	Depth to Groundwater[2]	Groundwater Elevation[1]
MW-1	3/9/2021	649	NM	NM
MW-2	3/9/2021	753	32.42	721
MW-3	3/9/2021	716	150.24	565
MW-5	3/9/2021	542	62.50	480

Notes:

[1] Reference Elevation and Groundwater Elevation approximate

[2] Depth to groundwater in ft measured from well seal

NM = Not Measured

Appendix A

Laboratory Report and Chain-of-Custody Forms

Analytical Resources, Incorporated
Analytical Chemists and Consultants

06 April 2021

Lisa Gilbert
Parametrix, Inc.
719 2nd Avenue, Suite 200
Seattle, WA 98104

RE: Newcastle Landfill

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21C0143	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21C0143	Turn-around Requested: 2 weeks	Date: 3/9/21	
ARI Client Company: Parametrix	Phone: (206) 394.3667	Page: 1 of 1	
Client Contact: Lisa Gilbert		No. of Coolers: 1	Cooler Temps: 1.6
Client Project Name: Newcastle Landfill			
Client Project #: 553-1625-014	Samplers: T. Parry		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Cl, SO4, NO2/NO3	Ammonia, COD, TOC	D Fe,Mn,Zn, Hardness	TDS					Notes/Comments
	Analysis Requested												
MW-1	3/9	11:20	water	4	✓	✓	✓	✓					Dissolved metals samples field-filtered
MW-2	3/9	13:00	water	4	✓	✓	✓	✓					
MW-3	3/9.	14:40	water	4	✓	✓	✓	✓					
MW-5	3/9	17:15	water	4	✓	✓	✓	✓					
MW-6	3/9	14:40	water	4	✓	✓	✓	✓					
SW-6	3/9	18:10	water	4	✓	✓	✓	✓					
SW-7	3/9	18:40	water	4	✓	✓	✓	✓					

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Tony Parry	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 3/10/21 9:45	Date & Time: 3/10/21 0945	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	21C0143-01	Water	09-Mar-2021 11:20	10-Mar-2021 09:45
MW-2	21C0143-02	Water	09-Mar-2021 13:00	10-Mar-2021 09:45
MW-3	21C0143-03	Water	09-Mar-2021 14:40	10-Mar-2021 09:45
MW-5	21C0143-04	Water	09-Mar-2021 17:15	10-Mar-2021 09:45
MW-6	21C0143-05	Water	09-Mar-2021 14:40	10-Mar-2021 09:45
SW-6	21C0143-06	Water	09-Mar-2021 18:10	10-Mar-2021 09:45
SW-7	21C0143-07	Water	09-Mar-2021 18:40	10-Mar-2021 09:45

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Work Order Case Narrative

Client: Parametrix, Inc.
Project: Newcastle Landfill
Work Order: 21C0143

Revised Report

This report was revised to include Dissolved Arsenic. The request for analysis was not on the COC provided with the samples.

Sample receipt

Samples as listed on the preceding page were received 10-Mar-2021 09:45 under ARI work order 21C0143. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Dissolved Metals - EPA Method 6010D

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21C0143-07 in batch BJC0493. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21C0143-01 in Nitrite batch BJC0263, Total Dissolved Solids batch BJC0283, Nitrate+NItrite batch BJC0287, Chloride and Sulfate batch BJC0327, Total Organic Carbon batchBJC0415. Chemical Oxygen Demand batch BJC0494 and Ammonia batch BJC0496. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits except MS and MSD Sulfate percent recovery. Deviations are flagged

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

within the QC section of this report.

Dissolved Arsenic - EPA Method 200.8

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21C0143-07 in batch BJD0052. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries relative percent difference (RPD) were within advisory control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Parametrix | Project Name: Newcastle Landfill

COC No(s): _____ (NA) | Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21C0143 | Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 0945 | 1.6

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: DOO S206

Cooler Accepted by: KD | Date: 3/10/21 | Time: 0945

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		YES	(NO)
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SL | Date: 3/10/21 | Time: 1123 | Labels checked by: SL

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
—	MW-1	—	—
—	MW-2	—	—
—	MW-5	—	—
—		—	—

Additional Notes, Discrepancies, & Resolutions:

Labels smeared for samples MW-1, MW-2 and MW-5. Used process of elimination to determine where bottles belong.

By: KD | Date: 3/10/21

WORK ORDER

21C0143

Client: Parametrix, Inc. **Project Manager:** Shelly Fishel

Project: Newcastle Landfill **Project Number:** 553-1625-014

Preservation Confirmation

Container ID	Container Type	pH	
21C0143-01 A	Large OJ, 1000 mL		
21C0143-01 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-01 C	Small OJ, 500 mL		
21C0143-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-02 A	Large OJ, 1000 mL		
21C0143-02 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-02 C	Small OJ, 500 mL		
21C0143-02 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-03 A	Large OJ, 1000 mL		
21C0143-03 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-03 C	Small OJ, 500 mL		
21C0143-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-04 A	Large OJ, 1000 mL		
21C0143-04 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-04 C	Small OJ, 500 mL		
21C0143-04 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-05 A	Large OJ, 1000 mL		
21C0143-05 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-05 C	Small OJ, 500 mL		
21C0143-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-06 A	Large OJ, 1000 mL		
21C0143-06 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-06 C	Small OJ, 500 mL		
21C0143-06 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0143-07 A	Large OJ, 1000 mL		
21C0143-07 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0143-07 C	Small OJ, 500 mL		
21C0143-07 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass

SC
Preservation Confirmed By

3/10/21
Date

Reviewed By

Date

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 11:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-01 B 02
Preparation Batch: BJD0052 — Sample Size: 25 mL
Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.613	ug/L	

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 11:20

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 16:46

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-01 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	150	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	1.19	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	44.0	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.101	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 11:20
Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01
Preparation Batch: BJC0283 — Sample Size: 100 mL
Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	776	mg/L	

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 11:20

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 13:47

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	2.41	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 11:20

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:20

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.134	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 11:20
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 11:52

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 15:49

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0263; Prepared: 03/10/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-01 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 11:52

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-01 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 11:20

Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01 D

Preparation Batch: BJC0494 — Sample Size: 2 mL

Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 11:20

Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 14:50

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01 D

Preparation Batch: BJC0415 — Sample Size: 20 mL

Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.66	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 11:20
Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 16:46

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	557	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-1

21C0143-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 11:20

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 17:47

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-01RE1 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	45	4.50	4.50	207	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-02 B 02
Preparation Batch: BJD0052 — Sample Size: 25 mL
Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.657	ug/L	

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 13:00
Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 16:50

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-02 B 01
Preparation Batch: BJC0493 — Sample Size: 25 mL
Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	23.0	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	1.35	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	6.36	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.0760	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 13:00
Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02
Preparation Batch: BJC0283 — Sample Size: 200 mL
Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	132	mg/L	

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 13:00

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 15:07

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	0.248	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	1.88	mg/L	

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 13:00

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:25

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.079	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 13:00
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 11:57
Sample Preparation: Preparation Method: [CALC] — Extract ID: 21C0143-02
Preparation Batch: [CALC]
Prepared: 03/11/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.206	mg/L	

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 15:54
Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 C
Preparation Batch: BJC0263 Sample Size: 10 mL
Prepared: 03/10/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	0.012	mg/L	

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 11:57
Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 C
Preparation Batch: BJC0287 Sample Size: 10 mL
Prepared: 03/11/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.217	mg/L	

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 13:00

Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:16

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 D

Preparation Batch: BJC0494 — Sample Size: 2 mL

Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	68.9	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 13:00
Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 16:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-02 D
Preparation Batch: BJC0415 — Sample Size: 20 mL
Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	23.04	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 13:00
Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 16:50

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	83.5	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 13:00

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 19:09

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-02RE1 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Magnesium, Dissolved	7439-95-4	10	0.209	0.500	5.36	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-2

21C0143-02RE1 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 13:00

Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 19:09

Sample Preparation: Preparation Method: [CALC] — Extract ID: 21C0143-02RE1

Preparation Batch: [CALC]

Prepared: 03/18/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		10	2.06	22.1	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 14:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-03 B 02
Preparation Batch: BJD0052 — Sample Size: 25 mL
Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.25	ug/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 14:40

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 16:54

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-03 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	12.7	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	0.405	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	7.66	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.0180	mg/L	J, D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
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MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 14:40
Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03
Preparation Batch: BJC0283 — Sample Size: 100 mL
Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	423	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 14:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 15:27

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	6.09	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 14:40

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:26

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.348	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 14:40
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 11:58

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.129	mg/L	

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 11:58

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-03 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.129	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 14:40
Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:16

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03 D
Preparation Batch: BJC0494 — Sample Size: 2 mL
Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 14:40
Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 16:31

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03 D
Preparation Batch: BJC0415 — Sample Size: 20 mL
Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.19	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 14:40
Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 16:54

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	63.3	mg/L CaCO3	

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Parametrix, Inc.	Project: Newcastle Landfill	
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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 14:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 19:07

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03RE1 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	4	0.400	0.400	17.7	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-3

21C0143-03RE1 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 14:40

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 16:06

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-03RE1 C

Preparation Batch: BJC0263 — Sample Size: 10 mL

Prepared: 03/10/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 17:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-04 B 02
Preparation Batch: BJD0052 — Sample Size: 25 mL
Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	6.16	ug/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 17:15
Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 16:58

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-04 B 01
Preparation Batch: BJC0493 — Sample Size: 25 mL
Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	61.1	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	4.38	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	24.4	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.519	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 17:15
Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04
Preparation Batch: BJC0283 — Sample Size: 100 mL
Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	311	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 17:15
Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 15:47

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04 C
Preparation Batch: BJC0327 — Sample Size: 10 mL
Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	2.71	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 17:15
Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:27

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04 D
Preparation Batch: BJC0496 — Sample Size: 10 mL
Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.051	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 17:15
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 12:05

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 15:56

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0263; Prepared: 03/10/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-04 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 12:05

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-04 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 17:15
Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:16

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04 D
Preparation Batch: BJC0494 — Sample Size: 2 mL
Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 17:15
Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 17:36

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04 D
Preparation Batch: BJC0415 — Sample Size: 20 mL
Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.49	mg/L	

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 17:15
Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 16:58

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	253	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-5

21C0143-04RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 17:15
Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 19:26

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-04RE1 C
Preparation Batch: BJC0327 — Sample Size: 10 mL
Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	44.2	mg/L	D

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 14:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-05 B 02
Preparation Batch: BJD0052 — Sample Size: 25 mL
Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.14	ug/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 14:40

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 17:56

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-05 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	13.7	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	0.412	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	8.00	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.0211	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 14:40
Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05
Preparation Batch: BJC0283 — Sample Size: 100 mL
Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	392	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 14:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 16:47

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	6.11	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 14:40

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:37

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.352	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 14:40
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 12:06

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.129	mg/L	

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 16:02

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0263; Prepared: 03/10/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-05 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 12:06

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-05 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.129	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 14:40

Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:16

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05 D

Preparation Batch: BJC0494 — Sample Size: 2 mL

Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 14:40

Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 17:55

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05 D

Preparation Batch: BJC0415 — Sample Size: 20 mL

Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.02	mg/L	

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 14:40
Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 17:56

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	67.0	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

MW-6

21C0143-05RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 14:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 19:46

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-05RE1 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	4	0.400	0.400	17.7	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 18:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 20:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-06 B 02

Preparation Batch: BJD0052 — Sample Size: 25 mL

Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	4.53	ug/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 18:10

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 18:00

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-06 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	63.9	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	2.42	mg/L	D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	37.5	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.210	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 18:10

Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06

Preparation Batch: BJC0283 — Sample Size: 100 mL

Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	533	mg/L	

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SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 18:10

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 17:07

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	4.68	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 18:10

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.188	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 18:10
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 12:07

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0315	mg/L	

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 16:03

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0263; Prepared: 03/10/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-06 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 12:07

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-06 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.032	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 18:10

Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06 D

Preparation Batch: BJC0494 — Sample Size: 2 mL

Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

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SW-6

21C0143-06 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 18:10

Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 18:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06 D

Preparation Batch: BJC0415 — Sample Size: 20 mL

Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.26	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 18:10

Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 18:00

Sample Preparation: Preparation Method: [CALC] — Extract ID: 21C0143-06

Preparation Batch: [CALC]

Prepared: 03/18/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	314	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-6

21C0143-06RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 18:10

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 21:06

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-06RE1 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	21	2.10	2.10	99.8	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 03/09/2021 18:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/05/2021 22:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0143-07 B 02

Preparation Batch: BJD0052 — Sample Size: 25 mL

Prepared: 04/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.866	ug/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D — Sampled: 03/09/2021 18:40

Instrument: ICP2 Analyst: SKD — Analyzed: 03/23/2021 18:08

Sample Preparation: Preparation Method: WMN (No Prep) — Extract ID: 21C0143-07 B 01

Preparation Batch: BJC0493 — Sample Size: 25 mL

Prepared: 03/18/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium, Dissolved	7440-70-2	5	0.110	0.250	27.7	mg/L	D
Iron, Dissolved	7439-89-6	5	0.0535	0.250	0.0755	mg/L	J, D
Magnesium, Dissolved	7439-95-4	5	0.105	0.250	15.0	mg/L	D
Manganese, Dissolved	7439-96-5	5	0.0080	0.0200	0.0382	mg/L	D
Zinc, Dissolved	7440-66-6	5	0.0400	0.100	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 160.1 — Sampled: 03/09/2021 18:40

Instrument: BAL2 Analyst: KLE — Analyzed: 03/10/2021 21:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07

Preparation Batch: BJC0283 — Sample Size: 100 mL

Prepared: 03/10/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	453	mg/L	

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SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 18:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 17:27

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	8.93	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 350.1 M — Sampled: 03/09/2021 18:40

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/19/2021 12:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07 D

Preparation Batch: BJC0496 — Sample Size: 10 mL

Prepared: 03/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 353.2 — Sampled: 03/09/2021 18:40
Instrument: [CALC] Analyst: LRB — Analyzed: 03/11/2021 12:09

Sample Preparation: Preparation Method: [CALC]; Preparation Batch: [CALC]; Prepared: 03/11/2021; Final Volume: 1 — Extract ID: 21C0143-07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.722	mg/L	

Instrument: LACHAT1 Analyst: LRB — Analyzed: 03/10/2021 16:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0263; Prepared: 03/10/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-07 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Instrument: LACHAT2 Analyst: KOTT — Analyzed: 03/11/2021 12:09

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BJC0287; Prepared: 03/11/2021; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 21C0143-07 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.722	mg/L	

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SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 410.4 — Sampled: 03/09/2021 18:40

Instrument: UV1800-1 Analyst: WCW — Analyzed: 03/18/2021 15:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07 D

Preparation Batch: BJC0494 — Sample Size: 2 mL

Prepared: 03/18/2021 — Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U

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Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Wet Chemistry

Method: EPA 9060A — Sampled: 03/09/2021 18:40

Instrument: TOC-LCSH Analyst: WCW — Analyzed: 03/16/2021 18:40

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07 D

Preparation Batch: BJC0415 — Sample Size: 20 mL

Prepared: 03/16/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.00	mg/L	

Parametrix, Inc.	Project: Newcastle Landfill	
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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

SW-7

21C0143-07 (Water)

Calculation

Method: SM 2340 B-97 — Sampled: 03/09/2021 18:40

Instrument: [CALC] Analyst: SKD — Analyzed: 03/23/2021 18:08

Sample Preparation: Preparation Method: [CALC]
Preparation Batch: [CALC]
Prepared: 03/18/2021 Final Volume: 1 — Extract ID: 21C0143-07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness, Dissolved		5	1.65	131	mg/L CaCO3	

Parametrix, Inc.	Project: Newcastle Landfill	
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SW-7

21C0143-07RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 03/09/2021 18:40

Instrument: IC930 Analyst: WCW — Analyzed: 03/12/2021 21:26

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0143-07RE1 C

Preparation Batch: BJC0327 — Sample Size: 10 mL

Prepared: 03/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	8	0.800	0.800	37.5	mg/L	D

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0493 - WMN (No Prep)

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0493-BLK1)					Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 14:06						
Iron, Dissolved	ND	0.0107	0.0500	mg/L							U
Manganese, Dissolved	ND	0.0016	0.0040	mg/L							U
LCS (BJC0493-BS1)					Prepared: 18-Mar-2021 Analyzed: 23-Mar-2021 17:02						
Calcium, Dissolved	9.69	0.0220	0.0500	mg/L	10.0		96.9	80-120			
Iron, Dissolved	1.81	0.0107	0.0500	mg/L	2.00		90.6	80-120			
Magnesium, Dissolved	10.1	0.0209	0.0500	mg/L	10.0		101	80-120			
Manganese, Dissolved	0.487	0.0016	0.0040	mg/L	0.500		97.3	80-120			
Zinc, Dissolved	0.481	0.0080	0.0200	mg/L	0.500		96.2	80-120			
Duplicate (BJC0493-DUP1)		**Source: 21C0143-07**			Prepared: 18-Mar-2021 Analyzed: 23-Mar-2021 18:04						
Calcium, Dissolved	27.6	0.110	0.250	mg/L		27.7			0.41	20	D
Iron, Dissolved	0.0630	0.0535	0.250	mg/L		0.0755			18.00	20	D, J
Magnesium, Dissolved	14.9	0.105	0.250	mg/L		15.0			0.57	20	D
Manganese, Dissolved	0.0356	0.0080	0.0200	mg/L		0.0382			6.87	20	D
Zinc, Dissolved	ND	0.0400	0.100	mg/L		ND					U
Matrix Spike (BJC0493-MS1)		**Source: 21C0143-07**			Prepared: 18-Mar-2021 Analyzed: 23-Mar-2021 18:12						
Calcium, Dissolved	79.2	0.111	0.253	mg/L	50.0	27.7	103	75-125			D
Iron, Dissolved	9.41	0.0540	0.253	mg/L	10.0	0.0755	93.3	75-125			D
Magnesium, Dissolved	66.8	0.106	0.253	mg/L	50.0	15.0	104	75-125			D
Manganese, Dissolved	2.53	0.0081	0.0202	mg/L	2.50	0.0382	99.7	75-125			D
Zinc, Dissolved	2.43	0.0404	0.101	mg/L	2.50	ND	97.3	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0493-MSD1)		**Source: 21C0143-07**			Prepared: 18-Mar-2021 Analyzed: 23-Mar-2021 18:16						
Calcium, Dissolved	79.3	0.111	0.253	mg/L	50.0	27.7	103	75-125	0.04	20	D
Iron, Dissolved	9.48	0.0540	0.253	mg/L	10.0	0.0755	94.1	75-125	0.81	20	D
Magnesium, Dissolved	67.2	0.106	0.253	mg/L	50.0	15.0	104	75-125	0.62	20	D
Manganese, Dissolved	2.56	0.0081	0.0202	mg/L	2.50	0.0382	101	75-125	1.22	20	D
Zinc, Dissolved	2.48	0.0404	0.101	mg/L	2.50	ND	99.2	75-125	1.84	20	D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJD0052 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJD0052-BLK1)						Prepared: 02-Apr-2021 Analyzed: 05-Apr-2021 18:40						
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
LCS (BJD0052-BS1)						Prepared: 02-Apr-2021 Analyzed: 05-Apr-2021 18:44						
Arsenic, Dissolved	75a	24.8	0.0373	0.200	ug/L	25.0		99.1	80-120			
Duplicate (BJD0052-DUP1)			**Source: 21C0143-07**			Prepared: 02-Apr-2021 Analyzed: 05-Apr-2021 22:43						
Arsenic, Dissolved	75a	0.828	0.0373	0.200	ug/L		0.866			4.49	20	
Matrix Spike (BJD0052-MS1)			**Source: 21C0143-07**			Prepared: 02-Apr-2021 Analyzed: 05-Apr-2021 22:48						
Arsenic, Dissolved	75a	25.6	0.0373	0.200	ug/L	25.0	0.866	99.0	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJD0052-MSD1)			**Source: 21C0143-07**			Prepared: 02-Apr-2021 Analyzed: 05-Apr-2021 22:54						
Arsenic, Dissolved	75a	25.6	0.0373	0.200	ug/L	25.0	0.866	98.8	75-125	0.19	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Wet Chemistry - Quality Control

Batch BJC0263 - No Prep Wet Chem

Instrument: LACHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0263-BLK1)				Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 15:47							
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BJC0263-BS1)				Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 15:48							
Nitrite-N	0.489	0.010	0.010	mg/L	0.500		97.8	90-110			
Duplicate (BJC0263-DUP1)		**Source: 21C0143-01**		Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 15:50							
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJC0263-MS1)		**Source: 21C0143-01**		Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 15:52							
Nitrite-N	0.508	0.010	0.010	mg/L	0.500	ND	102	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0263-MSD1)		**Source: 21C0143-01**		Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 15:53							
Nitrite-N	0.509	0.010	0.010	mg/L	0.500	ND	102	75-125	0.20	200	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Parametrix, Inc.	Project: Newcastle Landfill	
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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Wet Chemistry - Quality Control

Batch BJC0283 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0283-BLK1)				Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:38							
Dissolved Solids	ND	5	5	mg/L							U
LCS (BJC0283-BS1)				Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:38							
Dissolved Solids	491	10	10	mg/L	500		98.2	90-110			
Duplicate (BJC0283-DUP1)		**Source: 21C0143-01**		Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:38							
Dissolved Solids	721	10	10	mg/L		776			7.35	20	

Parametrix, Inc.	Project: Newcastle Landfill	
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Wet Chemistry - Quality Control

Batch BJC0287 - No Prep Wet Chem

Instrument: LACHAT2 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0287-BLK1)				Prepared: 11-Mar-2021 Analyzed: 11-Mar-2021 11:50							
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
LCS (BJC0287-BS1)				Prepared: 11-Mar-2021 Analyzed: 11-Mar-2021 11:51							
Nitrate + Nitrite as N	0.520	0.010	0.010	mg/L	0.500		104	90-110			
Duplicate (BJC0287-DUP1)		**Source: 21C0143-01**		Prepared: 11-Mar-2021 Analyzed: 11-Mar-2021 11:54							
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJC0287-MS1)		**Source: 21C0143-01**		Prepared: 11-Mar-2021 Analyzed: 11-Mar-2021 11:55							
Nitrate + Nitrite as N	0.509	0.010	0.010	mg/L	0.500	ND	102	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0287-MSD1)		**Source: 21C0143-01**		Prepared: 11-Mar-2021 Analyzed: 11-Mar-2021 11:56							
Nitrate + Nitrite as N	0.509	0.010	0.010	mg/L	0.500	ND	102	75-125	0.00		

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Parametrix, Inc.	Project: Newcastle Landfill	
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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Wet Chemistry - Quality Control

Batch BJC0327 - No Prep Wet Chem

Instrument: IC930 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0327-BLK1)				Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 13:07							
Chloride	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BJC0327-BS1)				Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 13:27							
Chloride	4.81	0.100	0.100	mg/L	5.00		96.2	90-110			
Sulfate	4.66	0.100	0.100	mg/L	5.00		93.1	90-110			
Duplicate (BJC0327-DUP1)		**Source: 21C0143-01**		Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 14:07							
Chloride	2.44	0.100	0.100	mg/L		2.41			1.44	20	
Duplicate (BJC0327-DUP2)		**Source: 21C0143-01RE1**		Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 18:07							
Sulfate	206	4.50	4.50	mg/L		207			0.45	20	D
Matrix Spike (BJC0327-MS1)		**Source: 21C0143-01**		Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 14:27							
Chloride	4.33	0.100	0.100	mg/L	2.00	2.41	96.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BJC0327-MS3)		**Source: 21C0143-01RE1**		Prepared: 12-Mar-2021 Analyzed: 15-Mar-2021 17:13							
Sulfate	338	5.00	5.00	mg/L	200	207	65.3	75-125			*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0327-MSD1)		**Source: 21C0143-01**		Prepared: 12-Mar-2021 Analyzed: 12-Mar-2021 14:47							
Chloride	4.36	0.100	0.100	mg/L	2.00	2.41	97.7	75-125	0.78	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0327-MSD3)		**Source: 21C0143-01RE1**		Prepared: 12-Mar-2021 Analyzed: 15-Mar-2021 17:33							
Sulfate	346	5.00	5.00	mg/L	200	207	69.1	75-125	2.28	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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Wet Chemistry - Quality Control

Batch BJC0415 - No Prep Wet Chem

Instrument: TOC-LCSH Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0415-BLK1)				Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 13:58							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BJC0415-BS1)				Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 14:24							
Total Organic Carbon	19.08	0.50	0.50	mg/L	20.00		95.4	90-110			
Duplicate (BJC0415-DUP1)		**Source: 21C0143-01**		Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 15:12							
Total Organic Carbon	0.64	0.50	0.50	mg/L		0.66			3.61	20	
Matrix Spike (BJC0415-MS1)		**Source: 21C0143-01**		Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 15:31							
Total Organic Carbon	18.24	0.50	0.50	mg/L	20.00	0.66	87.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0415-MSD1)		**Source: 21C0143-01**		Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 15:50							
Total Organic Carbon	18.46	0.50	0.50	mg/L	20.00	0.66	89.0	75-125	1.20	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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Wet Chemistry - Quality Control

Batch BJC0494 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0494-BLK1)				Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 15:12							
COD	ND	10.0	10.0	mg/L							U
LCS (BJC0494-BS1)				Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 15:13							
COD	98.1	10.0	10.0	mg/L	100		98.1	90-110			
Duplicate (BJC0494-DUP1)		**Source: 21C0143-01**		Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 15:14							
COD	ND	10.0	10.0	mg/L		ND					U
Matrix Spike (BJC0494-MS1)		**Source: 21C0143-01**		Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 15:15							
COD	102	10.0	20.0	mg/L	100	ND	102	90-110			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0494-MSD1)		**Source: 21C0143-01**		Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 15:16							
COD	101	10.0	20.0	mg/L	100	ND	101	90-110	1.12	10	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Wet Chemistry - Quality Control

Batch BJC0496 - No Prep Wet Chem

Instrument: LACHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0496-BLK1)					Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 12:18						
Ammonia-N	ND	0.040	0.040	mg/L							U
LCS (BJC0496-BS1)					Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 12:19						
Ammonia-N	0.509	0.040	0.040	mg/L	0.500		102	90-110			
Duplicate (BJC0496-DUP1)		**Source: 21C0143-01**			Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 12:21						
Ammonia-N	0.150	0.040	0.040	mg/L		0.134			11.30	20	
Matrix Spike (BJC0496-MS1)		**Source: 21C0143-01**			Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 12:22						
Ammonia-N	0.633	0.040	0.040	mg/L	0.500	0.134	99.8	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0496-MSD1)		**Source: 21C0143-01**			Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 12:24						
Ammonia-N	0.634	0.040	0.040	mg/L	0.500	0.134	100	75-125	0.16	200	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
EPA 300.0 in Water	
Chloride	DoD-ELAP,WADOE,NELAP
Chloride	DoD-ELAP,WA-DW,NELAP
Chloride	DoD-ELAP,WADOE,WA-DW
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,NELAP
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP,DoD-ELAP
Nitrate + Nitrite as N	DoD-ELAP,WADOE
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
Nitrite-N	WADOE,DoD-ELAP
Nitrite-N	NELAP,DoD-ELAP
Nitrite-N	WADOE,NELAP,DoD-ELAP
EPA 410.4 in Water	
COD	DoD-ELAP,WADOE
COD	DoD-ELAP,NELAP
COD	DoD-ELAP,NELAP,WADOE
COD	DoD-ELAP,NELAP,WADOE
EPA 6010D in Water	
Calcium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,DoD-ELAP
Calcium	NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Iron	WADOE,DoD-ELAP

Parametrix, Inc.	Project: Newcastle Landfill	
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Iron	NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,DoD-ELAP
Magnesium	NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,DoD-ELAP
Manganese	NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Zinc	WADOE,NELAP,DoD-ELAP
Zinc	WADOE,DoD-ELAP
Zinc	NELAP,DoD-ELAP
Zinc	WADOE,NELAP,DoD-ELAP

EPA 9060A in Water

Total Organic Carbon	DoD-ELAP,WADOE,NELAP
Total Organic Carbon	DoD-ELAP,WADOE,NELAP
Total Organic Carbon	DoD-ELAP,NELAP
Total Organic Carbon	DoD-ELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022

Parametrix, Inc.	Project: Newcastle Landfill	
719 2nd Avenue, Suite 200	Project Number: 553-1625-014	**Reported:**
Seattle WA, 98104	Project Manager: Lisa Gilbert	06-Apr-2021 18:40

Notes and Definitions

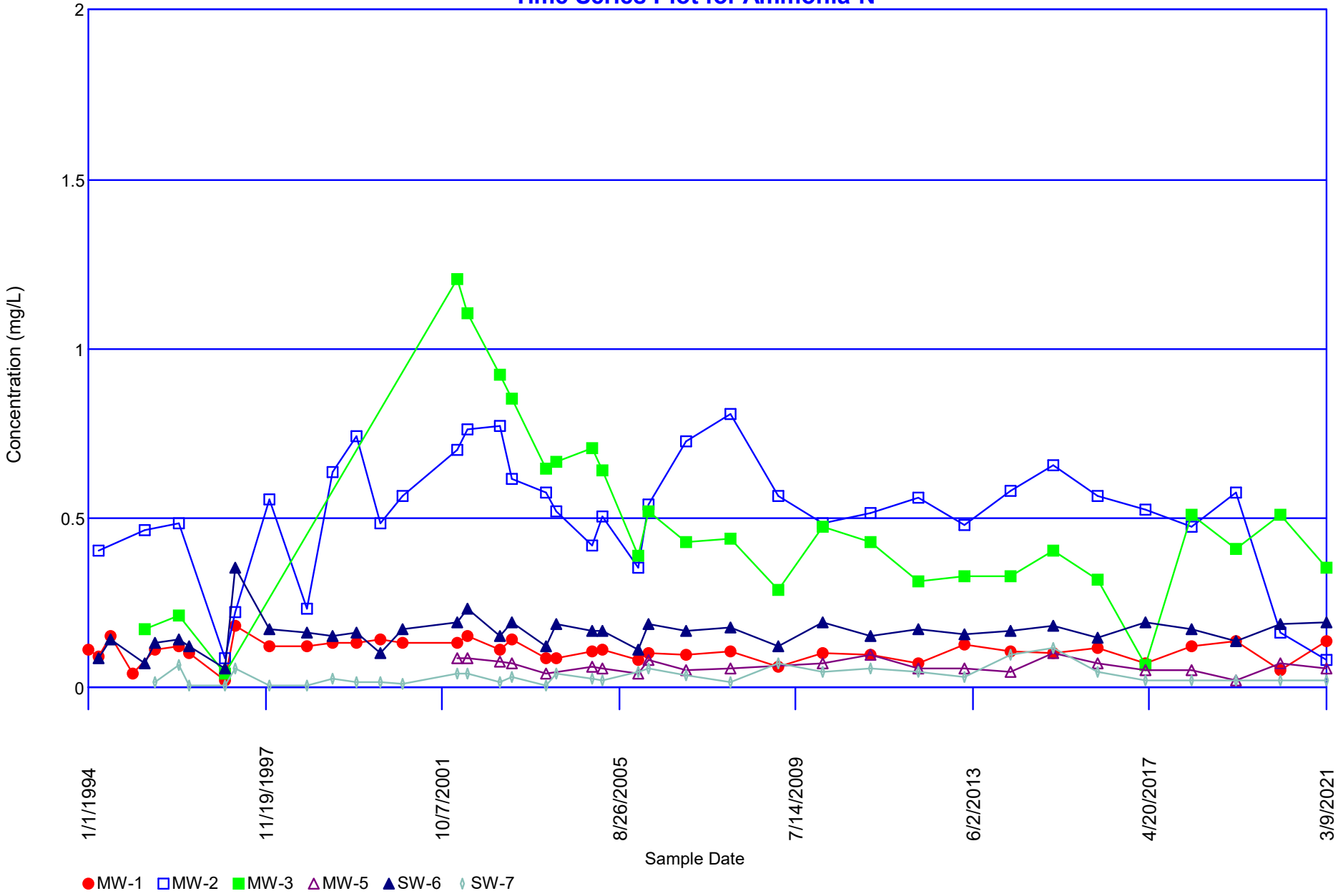
*	Flagged value is not within established control limits.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Appendix B

Time-Series Plots

Newcastle Landfill

Time Series Plot for Ammonia-N

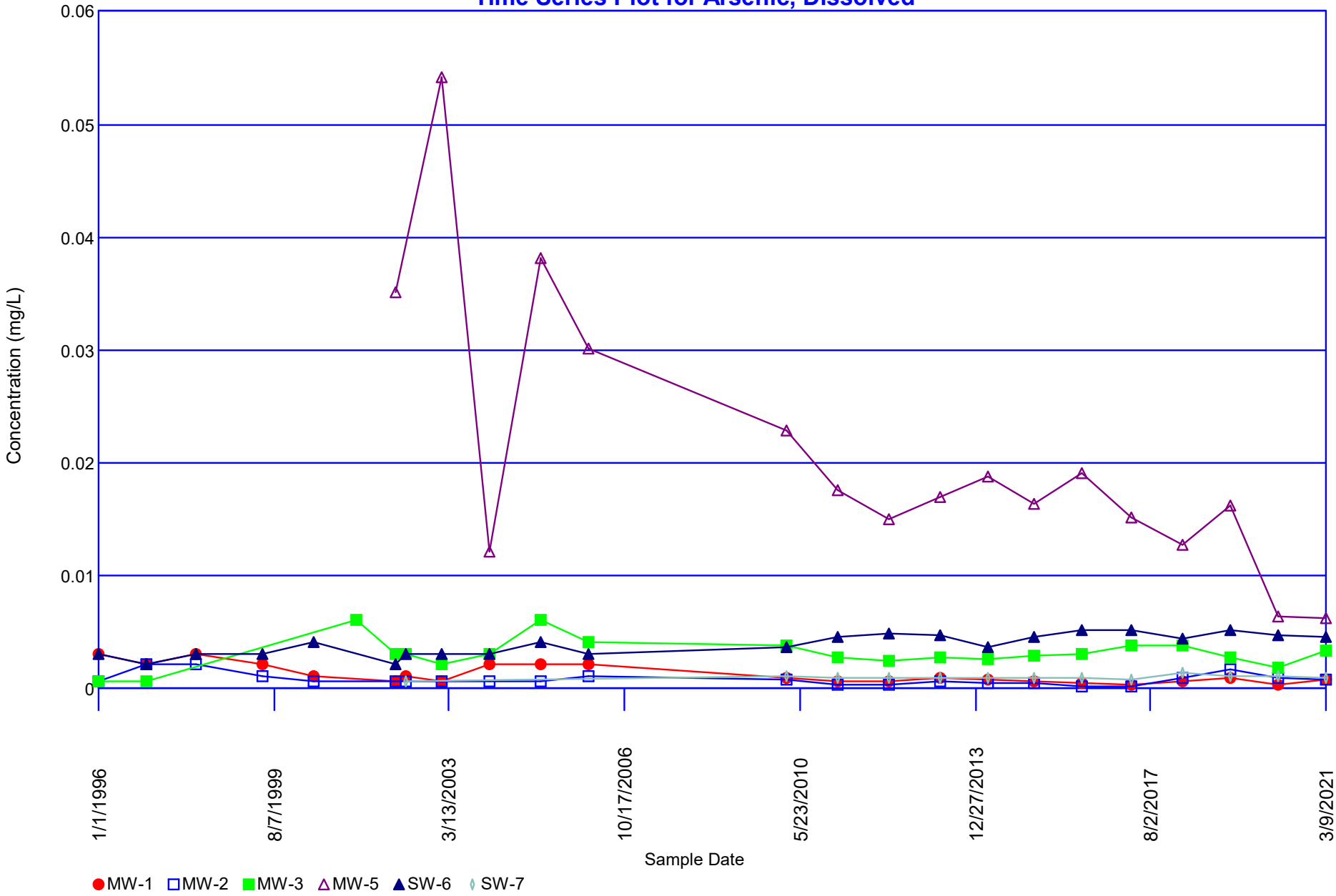


Ammonia-N

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Arsenic, Dissolved

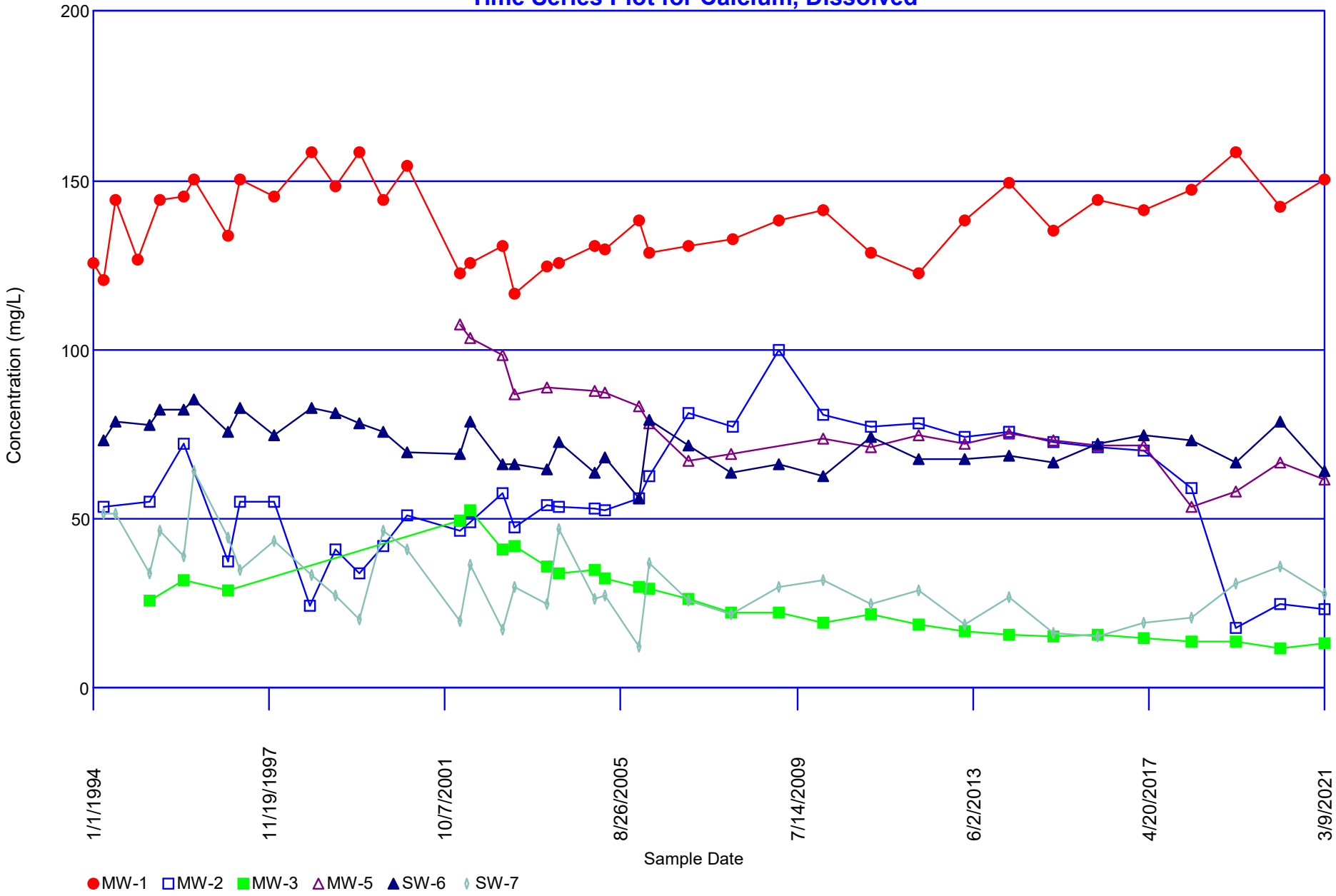


Arsenic, Dissolved

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Calcium, Dissolved

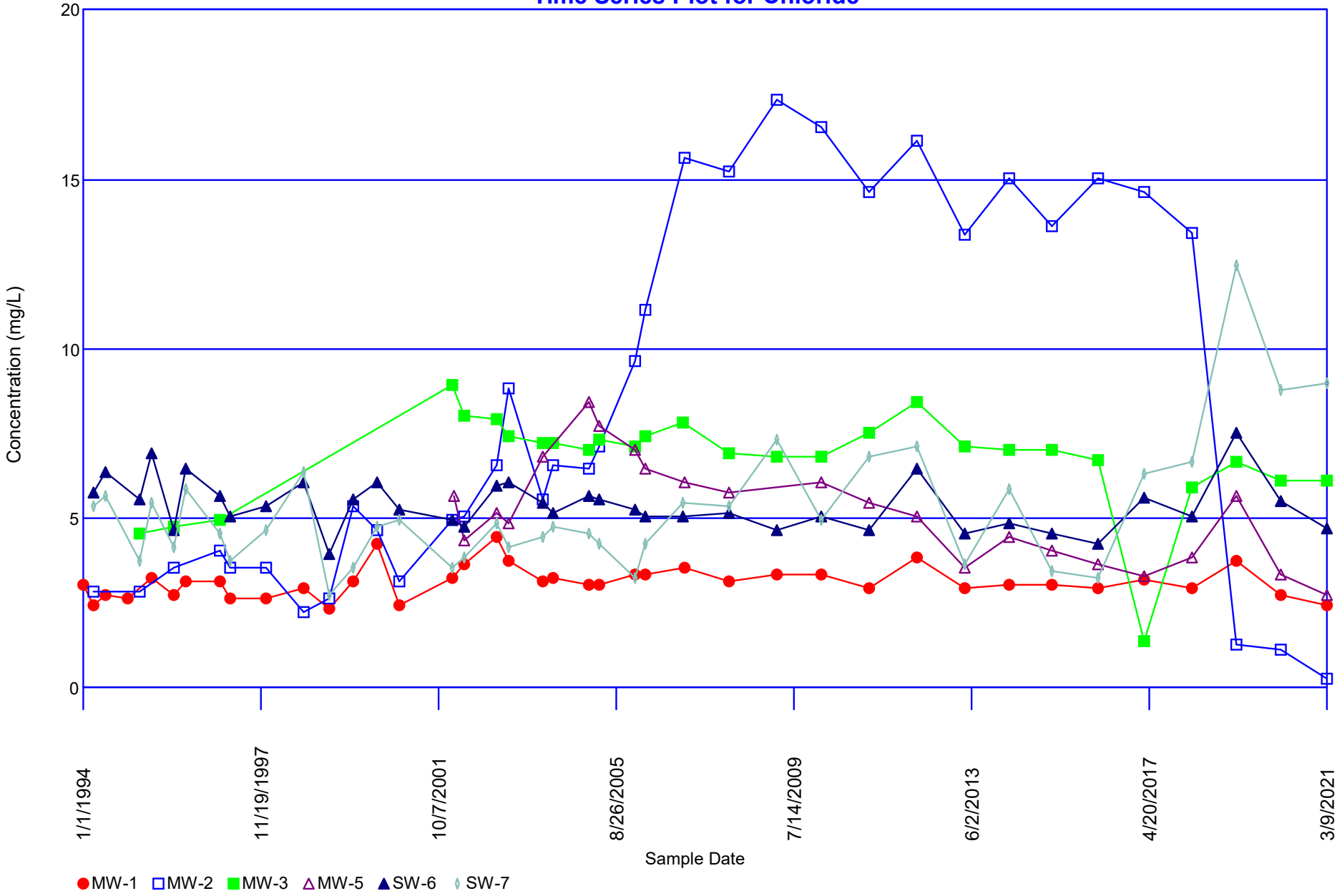


Calcium, Dissolved

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Chloride

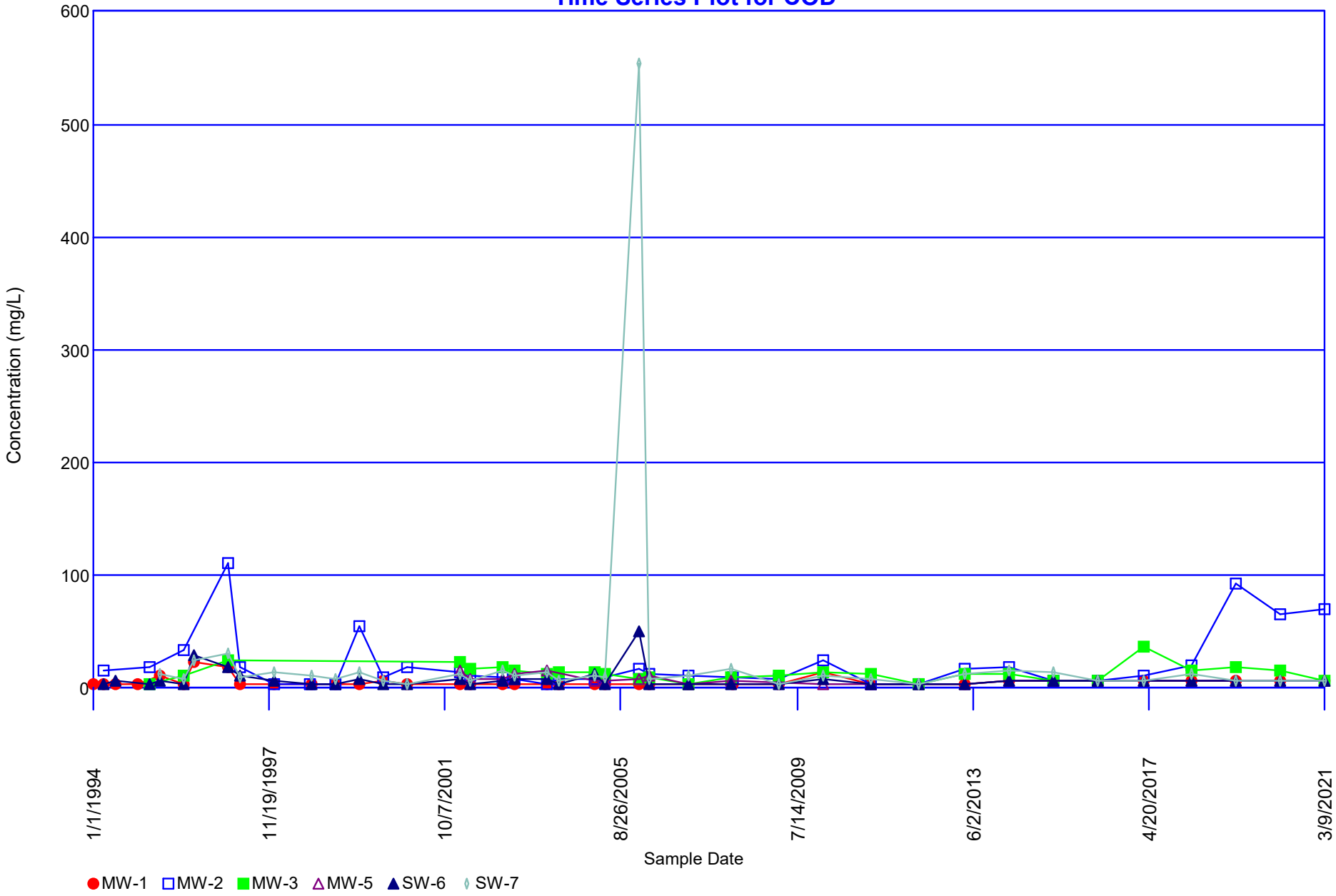


Chloride

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for COD

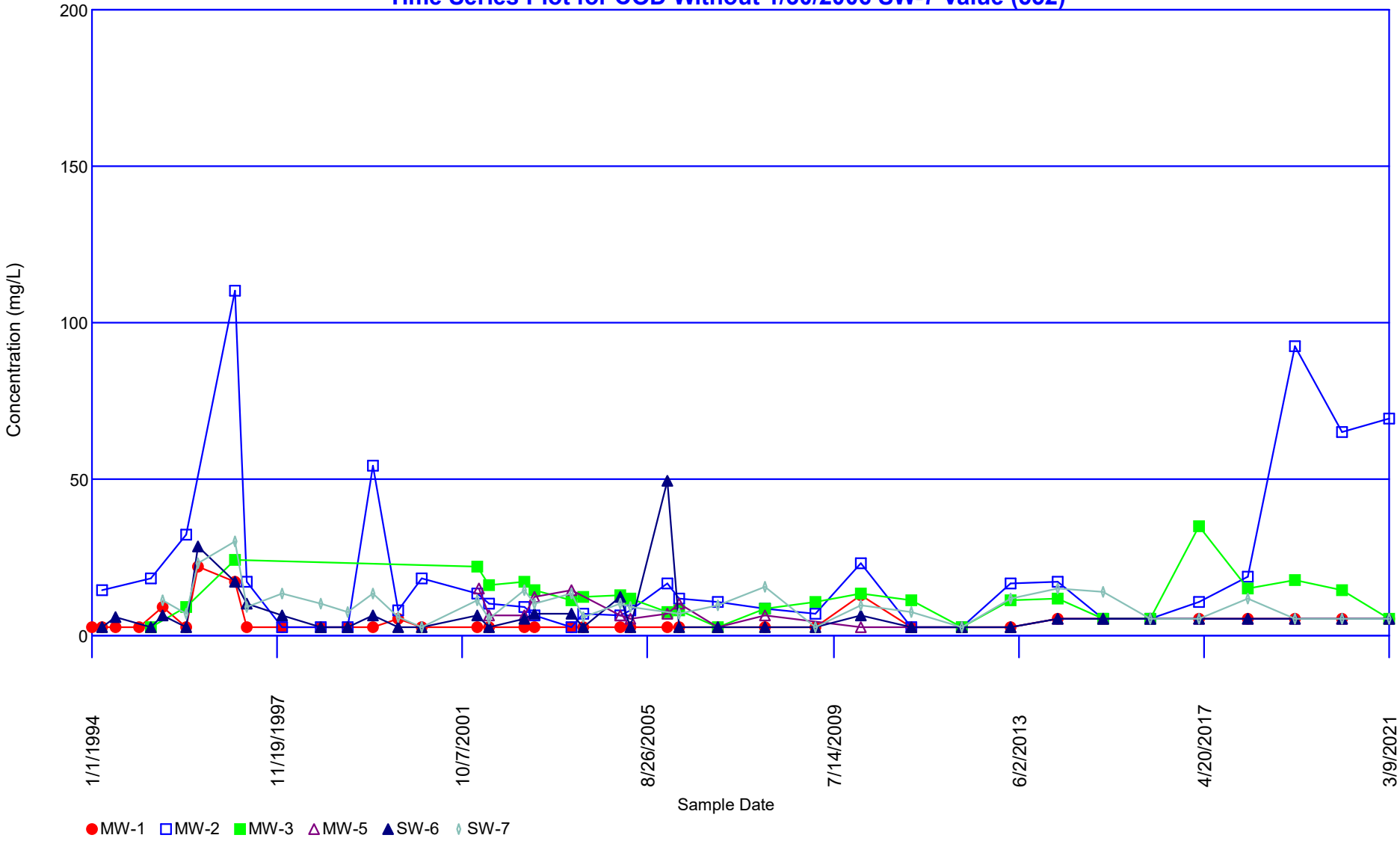


COD

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for COD Without 1/30/2006 SW-7 Value (552)

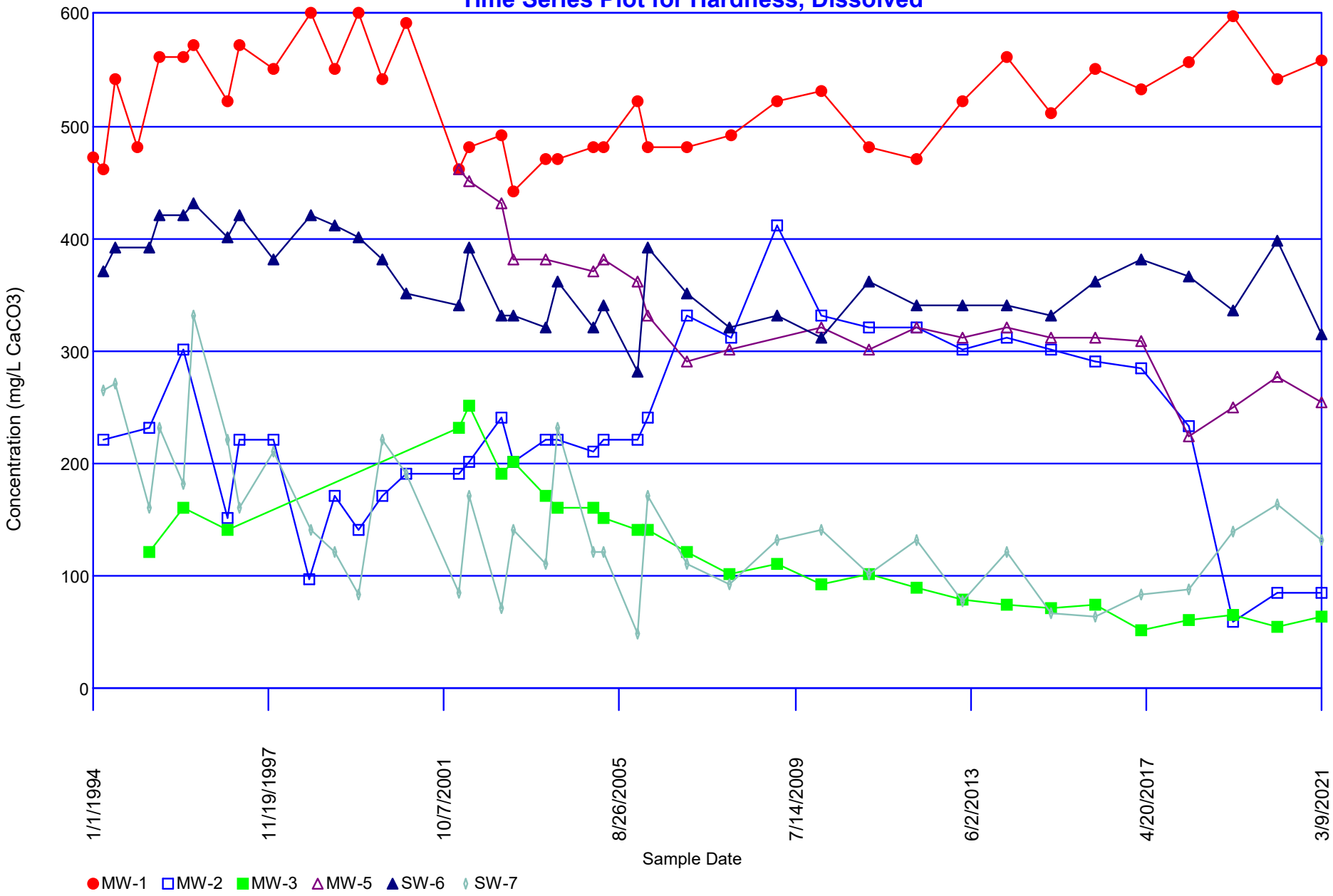


COD

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Hardness, Dissolved

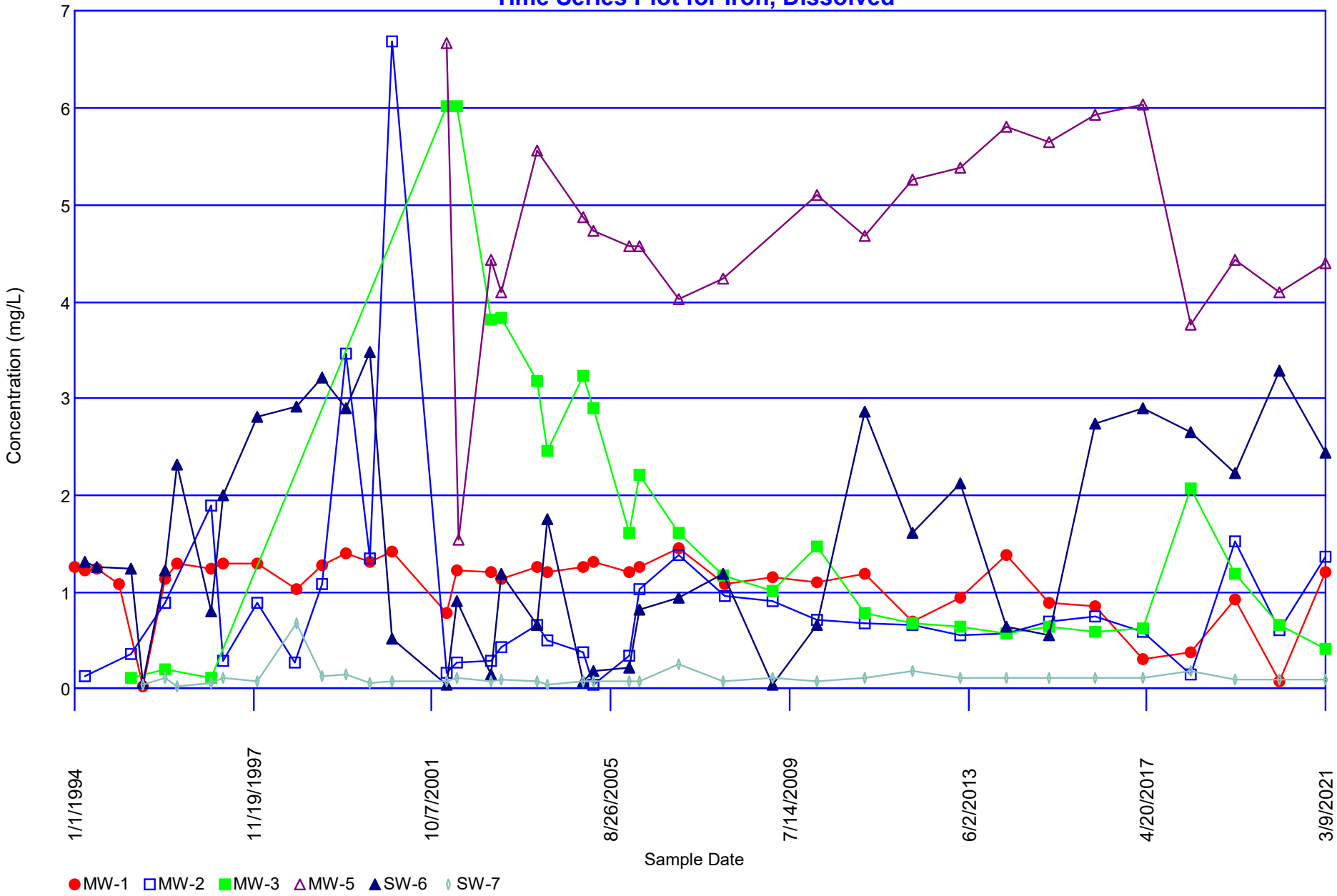


Hardness, Dissolved

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Iron, Dissolved

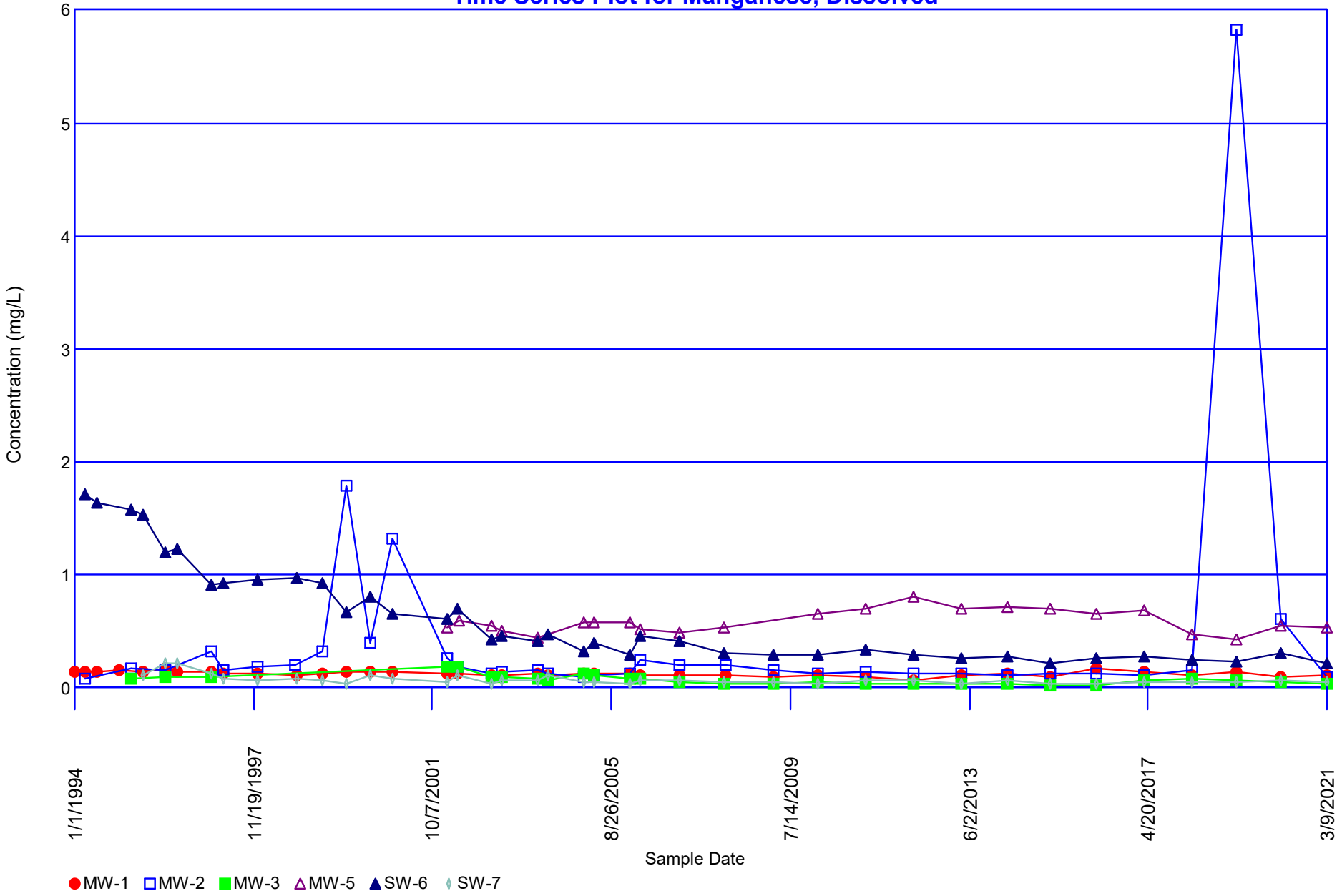


Iron, Dissolved

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Manganese, Dissolved

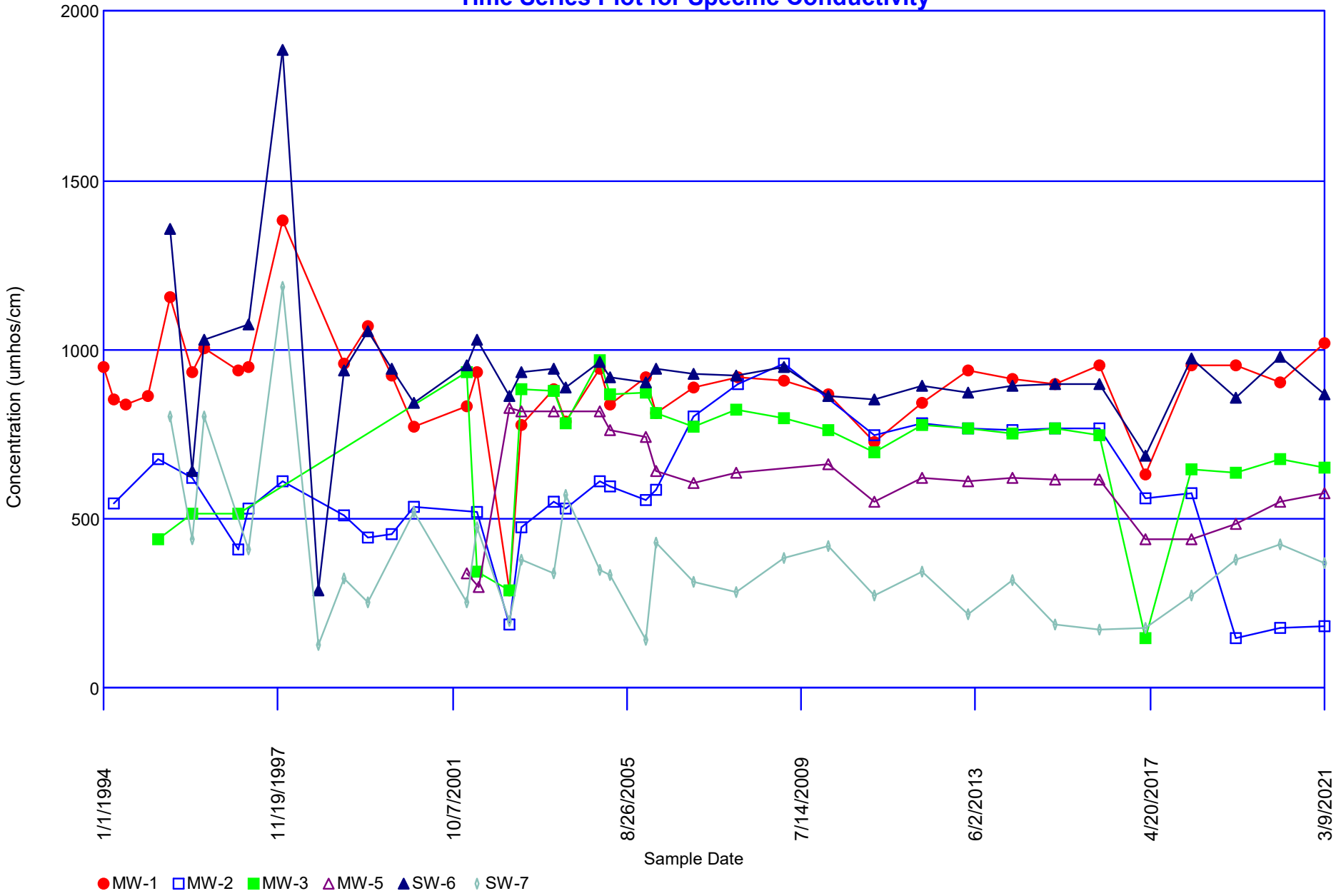


Manganese, Dissolved

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Specific Conductivity

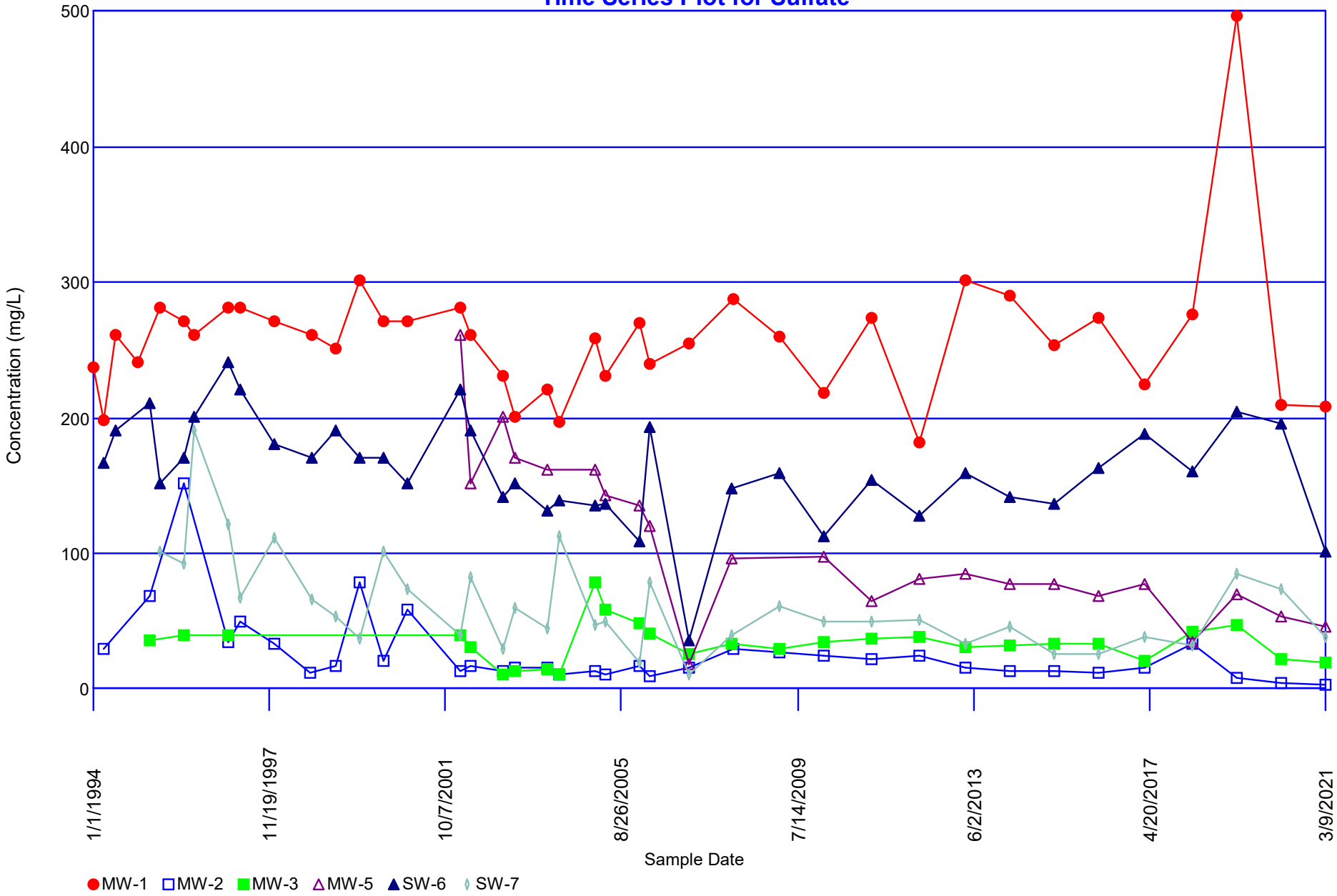


Specific Conductivity

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for Sulfate

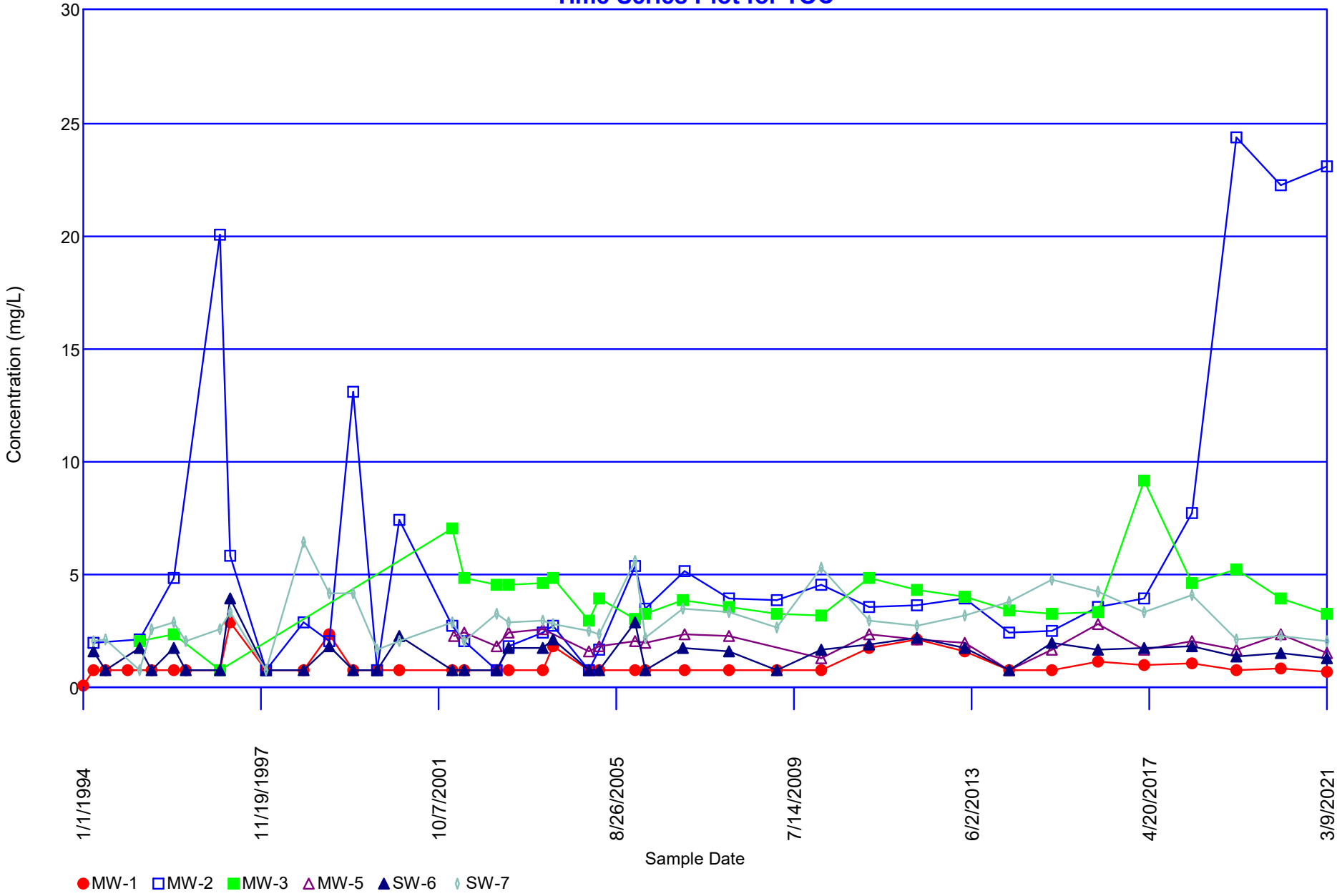


Sulfate

Non-Detects Replaced with 1/2 DL

Newcastle Landfill

Time Series Plot for TOC



TOC

Non-Detects Replaced with 1/2 DL